



**MCTP 3-10D**  
**(Formerly MCWP 3-14)**

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# **Employment of the Light Armored Reconnaissance Battalion**

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**U.S. Marine Corps**

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FOREWORD

Marine Corps Warfighting Publication (MCWP) 3-14, *Employment of the Light Armored Reconnaissance Battalion*, addresses the tactical employment of the light armored reconnaissance (LAR) battalion by Marine air-ground task force (MAGTF) commanders and their staffs.

This publication provides guidance for the MAGTF commanders, their staff, and their subordinate commanders in planning, preparing for, and conducting operations involving the LAR battalion. It addresses the organization, fundamentals, and employment of the LAR battalion to include logistic and command and control considerations.

This publication supersedes MCWP 3-14, *Employment of the Light Armored Infantry Battalion*, dated 21 August 1992.

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BY DIRECTION OF THE COMMANDANT OF THE MARINE CORPS



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# EMPLOYMENT OF THE LIGHT ARMORED RECONNAISSANCE BATTALION

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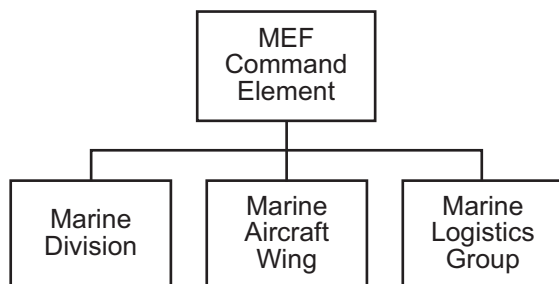


# CHAPTER 1

## FUNDAMENTALS

The Marine Corps organizes for combat by forming Marine air-ground task forces (MAGTFs), which are combined arms warfighting organizations tailored to accomplish specific missions. They are task-organized for rapid deployment by airlift and/or sealift. They include a command element, a ground combat element (GCE), an aviation combat element (ACE), and a logistics combat element. They are readily available, self-sustaining, combined arms combat forces capable of conducting amphibious operations and defense of advanced naval bases in support of a naval campaign. The MAGTF is also capable of sustained operations ashore in support of a land campaign and can operate across the range of military operations.

Unless otherwise noted, all discussion of light armored reconnaissance (LAR) battalion employment should be considered within the context of a Marine expeditionary force (MEF). The MEF, the largest of the MAGTFs, is normally built around a Marine division (MARDIV), Marine aircraft wing, and Marine logistics group all under a single commander as depicted in figure 1-1. The LAR battalion is a separate battalion within a MARDIV. The LAR battalion and/or its subordinate elements can be task-organized and placed under the command of the GCE commander. The



**Figure 1-1. Marine Expeditionary Force.**

MEF is capable of conducting amphibious operations and sustained operations ashore, and it can be tailored to accommodate a wide variety of combat missions in any geographic environment.

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### Light Armored Reconnaissance Battalion Mission

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The LAR battalion performs combined arms reconnaissance and security missions in support of the GCE. Its mission is to conduct reconnaissance, security and economy of force operations, and, within its capabilities, limited offensive or defensive operations that exploit the unit's mobility and firepower.

The LAR battalion may function as an independent maneuver element or as an element of a larger unit such as a regimental combat team, or its subordinate companies may support other tactical units in the GCE.

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### Fundamental Roles of the Light Armored Reconnaissance Battalion

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#### Shape the Battlespace

The fundamental role of the LAR battalion in the MARDIV is to shape the battlespace. The LAR battalion performs this by conducting reconnaissance, security, and other operations. In doing so, the LAR battalion facilitates the supported commander's ability to maneuver his/her forces, to concentrate superior combat power, and to apply it against the enemy at the decisive point. The LAR battalion helps to reduce the "fog of war" by locating where the enemy is, where they are not, where they are strong, and where they are weak.

## Provide Information

To successfully execute maneuver, the supported commander must have a high degree of situational awareness. The LAR battalion possesses a unique combination of systems and personnel to gather and communicate information; i.e., digital and mobile high frequency (HF) communications, advanced thermal optics, scouts, and satellite communications capability. The supported commander must make judicious, yet aggressive, use of his/her reconnaissance and intelligence assets. In building the reconnaissance and surveillance (R&S) plan, the supported commander considers all collection assets at his/her disposal and assigns them tasks best suited to their abilities to accomplish these tasks. By employing the LAR battalion, the commander strives to reduce the enemy, terrain, and friendly unknowns of the battlefield to allow him/her to fight effectively and to operate within the enemy's decision cycle. The successful execution of maneuver warfare continues to be the product of thorough reconnaissance and continuous security. Light armored reconnaissance capabilities can be used to confirm or deny information gained from other collection assets and, where required, fill in gaps in the R&S plan. Light armored reconnaissance capabilities provide the supported commander increased reaction time and maneuver space using depth in zone.

## Provide Reaction Time and Maneuver Space

The commander thinks and plans in terms of the time and space that is required to maneuver and concentrate subordinate units against enemy weaknesses. The distance the LAR battalion operates from the GCE and the amount of combat power available determine how much time and space the commander will have to react to the enemy. The mobility that is provided by the light armored vehicle (LAV) allows LAR units to seize or retain the initiative and to create or exploit opportunities as they occur in the course of other operations.

## Preserve Combat Power

The LAR battalion, by its role, can perform economy of force missions. The flexible capabilities of the LAR battalion allow the GCE commander the ability to retain combat power of other tactical units for engagement where the he/she desires.

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## Light Armored Reconnaissance in Operational Maneuver From the Sea

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The operational maneuver from the sea (OMFTS) is the maneuver of naval forces at the operational level, focusing on operational objectives that are sustained by sea-based logistics. Within this concept, OMFTS views the sea as the principal maneuver space and provides the Marine Corps the capability to rapidly project naval forces ashore faster than the enemy can counter them. Requirements for OMFTS are as follows:

- Forces that can rapidly maneuver from the ship to the objective.
- Forces that are highly mobile and can move great distances with little logistical support.
- Forces that can be employed across the range of military operations.

The LAR battalion is exceptionally well suited to execute OMFTS. The moderate fuel consumption, deep projection potential, and relatively small logistical tail of the LAR battalion provide the MAGTF a highly flexible force capable of a wide range of missions that can influence actions within the littorals when supported by sea-based logistics. As such, LAR units embarked aboard naval shipping are ideal for conducting operations in the STOM [ship-to-objective maneuver] concept, into and beyond the littorals.

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## Amphibious Operations

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During amphibious operations, the LAR battalion can enhance the success of the landing without

diversion of the assault forces from the main landing. The unit can form part of a separate landing group to participate in pre-assault operations, subsidiary landings, feints, demonstrations, or raids. The LAR battalion can support isolation of the landing area, reconnoiter coastal and inland defenses, deceive the enemy, neutralize or destroy targets protected from attack by other means, and deny areas to the enemy. The LAR battalion can participate in the main landing, moving ashore in scheduled waves to protect an open flank, or it can remain on-call to exploit success. Finally, an LAR unit can serve as part of the covering force during an amphibious withdrawal.

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## MAGTF Operations

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Within the MAGTF, the LAR battalion normally operates as an independent maneuver element. The LAR battalion also operates as a part of the MARDIV or MAGTF to which it is assigned, or as part of a special purpose MAGTF. However, the LAR battalion may directly support other tactical units within the GCE as a battalion or with its subordinate companies.

### Offensive Operations

The MAGTF conducts offensive operations to destroy the enemy's ability and will to resist. While opposing forms, offensive and defensive operations are not mutually exclusive and cannot exist separately. The LAR battalion is well suited to conduct offensive or defensive operations within the framework of a MAGTF's offensive scheme. Within an offensive scheme, LAR units may conduct a variety of missions:

- Movement to contact.
- Hasty attack.
- Deception operations.
- Defend.
- Raids.
- Other special purpose operations.

As part of a MAGTF offensive operation, the LAR battalion, or one of its subordinate companies, may perform a series of supporting missions such as—

- Reconnaissance operations (route, area, zone, deep).
- Security operations (screen, guard).
- Other operations (convoy security, raids).

### Defensive Operations

The primary purpose of defensive operations is to defeat enemy attacks and thrusts through or around a unit's position. It may also be offensive in nature so as to draw the enemy into engagement areas. The defense is assumed as a temporary state that creates the conditions for MAGTF units to rest, rearm, refuel, or reinforce. The MAGTF may transition to a defensive posture at its culminating point—when the offense loses momentum. The LAR battalion, as part of the GCE, supports MAGTF defensive operations by providing the MAGTF commander a wide array of employment capabilities. The speed, operational mobility, and long-range communications capability of the LAV provide the MAGTF commander a force that can exploit opportunities and rapidly transition to the offensive.

The LAR battalion may perform a series of missions within the defense. Security missions will predominate. Initially, the LAR battalion may screen or guard forward of the GCE. It may also serve as part of a covering force. Alternatively, the LAR battalion may screen or guard an exposed flank. Subsequently, the battalion may operate in the MAGTF rear area performing a variety of tasks that augment the MAGTF commander's scheme.

Finally, the LAR battalion may support commitment of the reserve. The battalion facilitates movement as a reserve repositions or moves. Upon commitment, the LAR battalion may continue with the reserve, performing reconnaissance or providing security.

## Deep Operations

MAGTF deep operations may be separated from the close battle in time and/or space and are directed against enemy forces and functions to conduct operations beyond the close battle. The MAGTF commander can execute deep operations with the LAR battalion if he/she has dedicated, suitable air, combat service support (CSS), and communications assets to sustain the battalion. Deep operations affect the enemy by—

- Neutralizing enemy forces.
- Disrupting enemy command and control.
- Disrupting the tempo of enemy operations.
- Destroying enemy forces.
- Preventing reinforcing maneuver.
- Destroying enemy installations and supplies.
- Breaking enemy morale.

Deep operations goals include the following:

- Limiting the enemy's freedom of action.
- Altering the tempo of operations in favor of the MAGTF.
- Denying the enemy the capability to concentrate their forces.
- Isolating the close fight.
- Destroying the enemy's will to fight.

Whether in the offense or defense, deep operations perform one or more of the following functions:

- Interdicting enemy lines of communications (LOCs).
- Preventing the enemy's counterattack or their employment of follow-on forces.
- Destroying units and critical targets.
- Cutting off routes of withdrawal.
- Providing commander with information about enemy capabilities in depth.

## Close Operations

MAGTF close operations include the battles and engagements of its major maneuver and fire support units together with the required combat support (CS) and CSS activities. MAGTF close

operations usually include the deep, close, and rear operations of its committed GCE units. Not all activities that are part of close operations necessarily take place near the line of contact. Close fights occur where, when, and against whichever enemy units commanders choose to commit assault formations. Concentrating the effects of combat power in support of ground forces becomes the commander's focus in close battles. Reconnaissance and security provided by the LAR battalion are critical to battles and engagements. The LAR units conducting reconnaissance provide a degree of security. Units conducting security missions use reconnaissance techniques.

Reconnaissance is the precursor to engagements with the enemy. Reconnaissance actions yield information on the disposition of an enemy's force and intent as well as environmental conditions. Effective reconnaissance allows the commander to gain and maintain contact with the enemy as well as to direct friendly units into the fight. The LAR units orient their movement on the reconnaissance objective, which can range from an enemy force to the terrain. The LAR battalion and its subordinate companies may have to fight for information, but avoid decisive engagement.

Security, on the other hand, protects and conserves the combat power of friendly units. Security is an inherent part of all military operations. At the tactical level, security actions protect the command against surprise attack and hostile air and ground observation. All units conduct security actions while specific units may be tasked to conduct security missions.

## Rear Operations

The MAGTF conducts rear area operations to ensure freedom of maneuver and the continuity of operations, such as sustainment, clear command and control (C2) arrangements, and dedicated fire support. While MAGTF battalion or regiment operations staff officers (S-3s) are responsible, overall, for terrain management, commanders of rear command posts (CP) usually position supporting units in rear areas. Once in position, these

units become part of a base cluster (a mission grouping of bases and/or security requirements that lack a clearly defined perimeter) or a base (a unit/multiunit position with a definite perimeter).

When the LAR battalion is tasked with rear area security, they will conduct reconnaissance and security missions as described earlier. Prior to dedicating an LAR battalion to this role, the MAGTF commander assesses the threat levels present within the rear area to determine if it warrants LAR augmentation. He/she does this by

evaluating the nature and scope of friendly actions within the rear area needed to defeat the perceived threat.

Continuous reconnaissance, security, and timely information collection, as well as dissemination by the LAR battalion are essential for successful rear area operations. Rear area security operations planning for LAR should take advantage of the high mobility and optics capabilities inherent to all LAVs.

# CHAPTER 2

## ORGANIZATION, CAPABILITIES, AND LIMITATIONS

As with all military units, the LAR battalion has a distinct organization and unique capabilities and limitations to consider during employment. This chapter discusses the LAR battalion's organization, capabilities, limitations, vehicle role variants, and employment considerations.

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### Organization

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The LAR battalion's organization allows it to conduct the full range of command functions. The LAV's mobility is maximized when the battalion is assigned independent missions for either the GCE or any of its subelements. The LAR battalion may also be assigned missions that require placing it or its subordinate companies in support of other MAGTF formations. The LAR battalion and each of its companies have an organic maintenance and recovery capability as well as sufficient communications equipment for sustained independent battlefield operations. A task-organized LAR company comprised of the elements shown in figure 2-1, on page 2-2, and figure 2-2, on page 2-3, is the smallest LAR unit capable of conducting sustained independent operations.

The 1st, 2d, and 3d LAR Battalions are assigned to the MARDIVs (see fig. 2-3, on page 2-3) of the operating forces and possess five line companies (A, B, C, D, and E) along with a headquarters and service company (see fig. 2-1). The 4th LAR Battalion is a Reserve Component within 4th MARDIV and differs from the Active Component battalions by maintaining a sixth line company (F Company).

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### Light Armored Vehicle Mission Role Variants

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Currently, each LAR battalion is equipped with six mission role variants (MRVs):

- LAV-25 (light armored vehicle-25 millimeter).
- LAV-AT (light armored vehicle-antitank).
- LAV-M (light armored vehicle-mortar).
- LAV-C2 (light armored vehicle-command and control).
- LAV-L (light armored vehicle-logistics).
- LAV-R (light armored vehicle-recovery).

Table 2-1, on page 2-4, depicts the variants of the LAV family and their key equipment assets.

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### Light Armored Reconnaissance Scouts

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Marines who have the military occupational specialty (MOS) 0311, rifleman are assigned to the LAR battalion as scouts. The scouts receive their scout training from the LAR battalion. The LAR scouts are not employed the same way as infantry or mechanized infantry. Each LAV-25 carries three scouts, who are trained and organized for employment in support of the LAV-25. The LAR scouts should be thought of as an integral part of the vehicle's employment capabilities. The vehicle/scout team is a complete system, with the vehicle and its scouts each dependent on the other for security, mobility, and firepower.

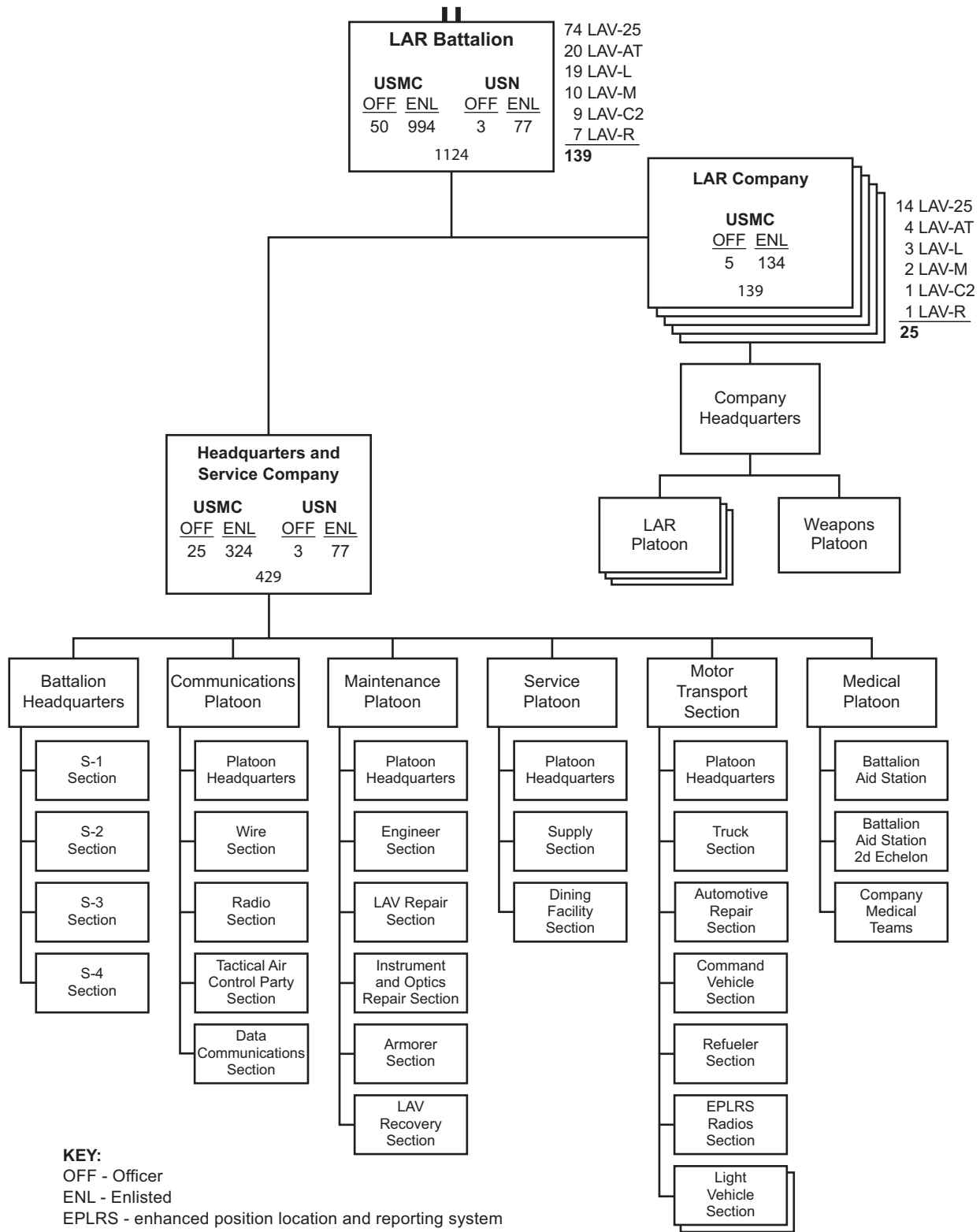
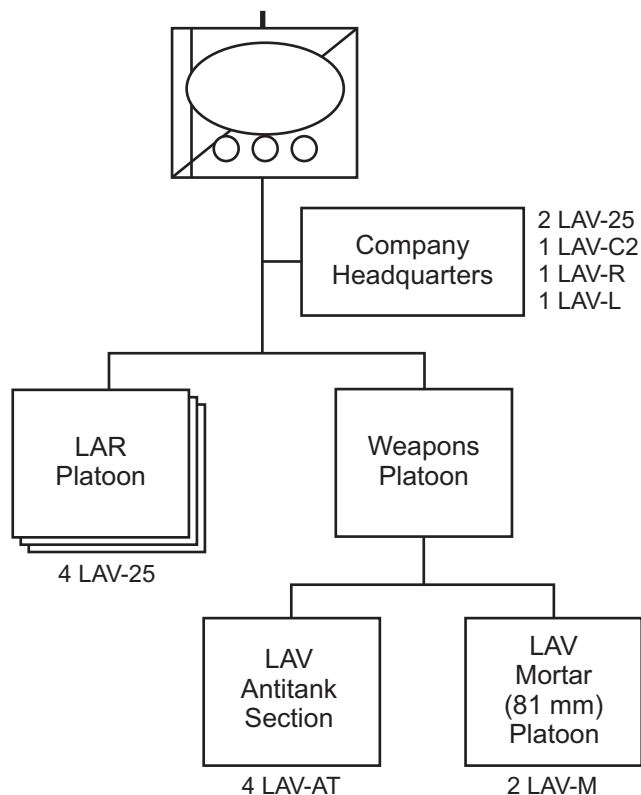


Figure 2-1. Light Armored Reconnaissance Battalion Organization.



**Figure 2-2. Light Armored Reconnaissance Company Organization.**

The scouts normally avoid decisive, close engagement with enemy infantry. The LAR

scouts perform a wide range of tasks, including the following:

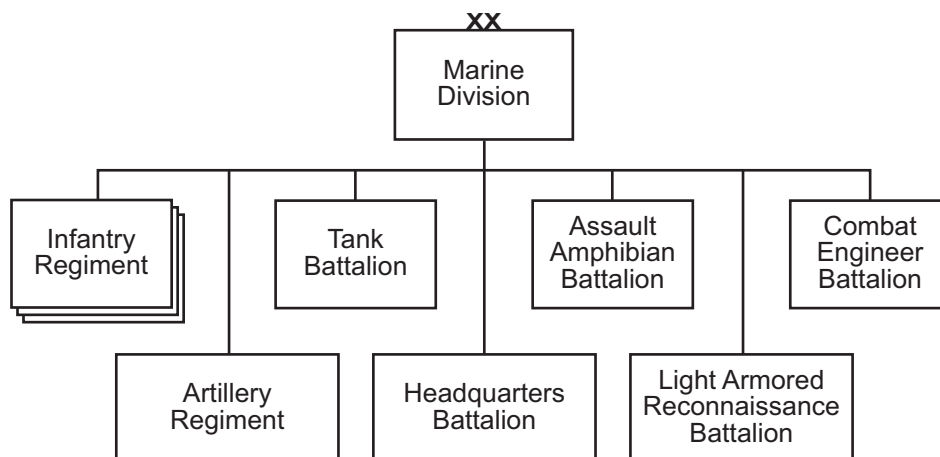
- Providing local security for the LAVs.
- Occupying observation posts.
- Conducting dismounted reconnaissance of close terrain that cannot be bypassed.
- Providing dismounted security at danger areas.
- Performing obstacle reconnaissance such as, locating and marking bypasses for follow on forces.
- Performing chemical, biological, radiological, and nuclear (CBRN) monitor/survey tasks.
- Marking contaminated areas and bypasses.
- Performing limited countermobility tasks and employing demolitions.
- Conducting bridge/ford/route/area reconnaissance and evaluation.
- Controlling supporting arms.

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### Troop Density

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The LAV-25 carries three LAV crewmen and four personnel (typically three scouts and either a corpsman, engineer, or mechanic) per vehicle. The LAR battalion table of organization (T/O) provides for 216 scouts. Operations requiring



**Figure 2-3. Marine Division Organization.**



large numbers of infantry favor employing mechanized infantry units due to their higher troop density. This limitation can be offset by planning for reinforcements of LAR by helicopterborne or mechanized infantry units. The LAV should not be viewed as an infantry fighting vehicle or as an armored personnel carrier. This vehicle is an armored reconnaissance vehicle that lacks sufficient armor protection and troop density to perform missions normally assigned to a mechanized infantry unit.

**Table 2-1. LAV Variants.**

Variant	Assets
LAV-25	25mm auto cannon 7.62mm coax MG 7.62mm pintle MG 2 VHF radios 1 HF rack available 3 0311 scout teams
LAV-AT	M901 TOW turret 7.62mm pintle MG 2 VHF radios
LAV-M	81mm mortar 7.62mm pintle MG 2 VHF radios
LAV-C2	7.62mm pintle MG 4 VHF radios 1 UHF radio 1 HF radio 1 SATCOM radio Enhanced position location and reporting system 5 networked workstations AFATDS C2PC
LAV-L	7.62mm pintle MG 2 VHF radios Logistics
LAV-R	7.62mm pintle MG 2 VHF radios 30,000 lb winch recovery boom 9,000 lb boom crane
C2PC - Command and Control Personal Computer lb - pounds MG - machine gun SATCOM - satellite communications system	

## Operational Capabilities

Like other units, the LAR battalion has certain operational characteristics that have an impact on its employment. The LAR units are highly mobile, possess a high degree of firepower, and

yet are light in infantry. The LAR units possess the firepower and mobility to fight for information to answer specified commander's critical information requirements (CCIRs) and priority information requirements (PIRs). The LAR battalion's flexibility allows the MAGTF commander to task-organize its assets to meet mission requirements in the deep, close, and rear areas. For example, aviation in support of LAR can deliver sustainment, firepower, and reinforcement with helicopterborne infantry. Conversely, the operational characteristics of LAR units enhance the capabilities and offset the limitations of MAGTF aviation. Light armored reconnaissance assets can develop situations on a battlefield that present opportunities for rotary- and fixed-wing attack aircraft as well as provide more detailed information and maintain a continuous, all-weather presence on the battlefield.

## Mobility

Mobility is a quality or capability of military forces that permits them to move from place to place while retaining the ability to fulfill their primary mission. (Joint Publication [JP] 1-02, *Department of Defense Dictionary of Military and Associated Terms*). Light armored reconnaissance provides a very capable force that is mobile at the strategic, operational, and tactical levels. Due to limited armored protection on the LAV, mobility contributes to platform survivability for the LAR battalion.

## Strategic Mobility

Strategic mobility is the capability to deploy and sustain military forces worldwide in support of national strategy. (JP 1-02) Light armored vehicles are strategically deployed by either airlift or sea-lift. Amphibious shipping can transport large numbers of LAVs. Table 2-2 identifies the number of LAVs transportable by various aircraft. Table 2-3 identifies the LAV variant and quantity located aboard maritime prepositioning ship squadrons.

**Table 2-2. Aircraft LAV Transportability.**

Aircraft	Number of LAVs
C-130	1
C-17A	5
C-5A	6-9*
*Depending on fuel capacity and runway length.	

**Table 2-3. Maritime Prepositioning Ships Squadron LAV Mix.**

Variant	Quantity
LAV-25	14
LAV-C2	1
LAV-M	2
LAV-AT	4
LAV-R	1
LAV-L	3
Note: Maritime Prepositioning Ships Squadrons-1, -2, and -3 contain the same vehicle mix and quantity.	

### Operational Mobility

Operational mobility is the ability to move between engagements and battles within the context of the campaign. (Marine Corps Doctrinal Publication 1-2, *Campaigning*) Operational mobility may be affected by the weight or physical dimension of the vehicle and/or the vehicle's cruising range, fuel consumption, and sustained speed over distances (see table 2-4). These attributes may also have an impact on strategic and tactical mobility.

**Table 2-4. LAV Mobility Impacts.**

LAV-25	LAV-25 w/BPUP Armor
Weight 14.2 tons	Weight 15.75 tons
Cruising range 400 miles	Cruising range 400 miles*
Fuel 71 gal	Fuel 71 gal
Top speed 60+ mph	Top speed 60+ mph
gal-gallons	
*Cruising range will vary with additional BPUP weight.	

### Tactical Mobility

Tactical mobility is the ability to move within an engagement or battle. Tactical mobility is a function of speed and acceleration over short distances, which requires the ability to move cross-country over various types of terrain in moderate to severe weather conditions. The LAV is capable of performing the following:

- Engaging 8-wheel drive for cross-country driving.
- Operating on diesel fuel and JP-5 and JP-8.
- Climbing 60-percent slopes and obstacles that are 19 inches high.
- Operating on 30-percent side slopes.
- Swimming 6.5 mph with preparation before swimming and maintenance actions afterwards.
- Running on flat tires for 25 miles at 30 mph.

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### Firepower

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The LAR battalion has considerable firepower with its organic weapons systems' Table 2-5, on page 2-6, describes each vehicle's weapons system, while table 2-6, on page 2-6, describes the vehicle's sighting systems. Each vehicle has an M-257 self-screening smoke grenade launcher system (eight ready and eight stowed). The organic capability of the LAR battalion to defeat enemy tanks rests exclusively with the LAV-AT. The 25mm cannon is effective against light armor such as BMP [Boevaya Mashina Pekhota] and BTR [Bronyetransportyor].

The LAV-25 is equipped with the Improved Thermal Sight System (ITSS) and the electronic-drive turret greatly improves gunnery capabilities. The ITSS provides improvement to the Marine Corps day and night warfighting capabilities by increasing target acquisition and engagement ranges. The ITSS is a generation II system equipped with an integrated laser range finder, target motion indicator, and a far target location

capability. The ITSS also provides the LAV-25 crew with a fire control system that includes a ballistic solution. The LAV-AT equipped with the AN/TAS-4, 12x thermal sight can engage enemy tanks during periods of reduced visibility out to the range of the tube-launched, optically tracked, wire-command link guided missile (TOW) (3750m).

**Table 2-5. LAV Weapons Systems.**

Type	Weapon	Defeats
All LAVs	7.62 mm	Troops at 900 m
LAV-25	25 mm chain gun	BMPs at 2000 m Trucks at 2200 m
LAV-M	81 mm mortar	Troops/light vehicles Fires HE, RP ILLUM at 5650 m
LAV-AT	TOW missile	Tanks at 3750 m
BMP-Boevaya Mashina Pekhota BTR-Bronyetransportyor ILLUM-illumination BP-red phosphorous		

**Table 2-6. Improved Thermal Sight System.**

Gunner Station	ITSS	10x, 20x, 40x narrow field of view 3.3x wide field of view
	ITSS	1x unity (pericopes window)
Commander Station	DIM-36 Day sight	7x
	DIM-36	1x unity (pericopes window)

## Communications

The LAR battalion has a robust organic communications capability. Each LAV is amplified with a minimum of two very high frequency (VHF) radios that can simultaneously monitor 2 nets and access up to 12 nets. Due to the dispersed nature of LAR operations, communications planning must focus on HF selection, relay, retransmission sites, satellite communications with the LAV-C2 variant, friendly force tracker, or any other communications assets.

## LIMITATIONS

The following limitations may affect one or more of the different means of mobility.

### Aerial

Although a single, noncombat-loaded LAV can be transported externally by a Super Stallion (CH-53E), minor variations in weather and altitude may prevent lifting. Lifting LAVs in the initial vertical assault may expose the aircraft to an unacceptable risk. There may not be enough CH-53Es to lift an LAR unit. Deck space, cycle time, and increased weight severely restrict the number of LAVs that can be moved by the CH-53E during amphibious operations. This capability should be viewed as administrative vice tactical in nature. Aerial recovery of damaged or disabled platforms is a realistic aerial capability.

### Restricted Terrain

In restricted terrain, the enemy will seek to canalize the LAR battalion along predictable routes through existing and reinforcing obstacles. The vehicles are subject to close-in attack by enemy infantry employing light armor defeating weapons such as antitank guided missiles, rocket-propelled grenades, assault grenade launchers, improved explosive devices, and heavy machine guns. In restricted terrain, LAR units slow down to the speed of their dismounted scouts.

### Water Operations

The LAV possesses a limited swim capability and cannot cross the surf line. The LAV is capable of crossing bodies of water with a current less than 8.2 feet per second and is capable of crossing many streams, lakes, and slow running rivers. Key limiting factors for the LAV include ingress and egress grades, soil composition, and underwater obstacles such as sandbars. The LAV supports amphibious assault from ship to shore via a

connector such as the LCAC [landing craft air cushion] or LCU [utility landing craft].

### **Off Road Soil Composition**

The LAV may be unable to negotiate certain types of terrain traversable by tracked vehicles such as swamps, bogs, or soft sand. This factor must be considered when assigning routes, zones of action, or task-organizing for combat.

### **Weather Effects**

Other than climatic conditions that affect the MAGTF as a whole, arctic conditions may require the LAV to use snow chains to aid traction in ice, snow, and muddy terrain. Wet climate conditions can seriously degrade off road trafficability.

### **Recovery**

Light armored vehicles have an 8-wheel drive capability and a 15,000-pound winch for self-recovery if they become mired. The LAR unit possesses limited ability to recover or evacuate

inoperable LAVs with logistic and recovery variants. These units are not ideally suited for performing long-distance towing. The LAVs dedicated as towing vehicles degrade the unit's mobility as well as its ability to perform tactical missions. The best platform for long-distance recovery is a tactical battlefield evacuation low-boy trailer.

### **Armor Protection**

The LAV possesses sufficient protection against heavy machine guns and indirect fire fragmentation. The LAV combines a base capsule armor of high-hard steel with a composite add on ballistic protection upgrade package (BPUP) armor. The LAV relies primarily on stealth, speed, and agility for its survival rather than on its armor protection. The LAV should be employed in roles short of decisive close combat, because it cannot survive the fires of medium caliber automatic cannons, antiarmor weapons, improvised explosive devices or direct hits from indirect fire weapons.

# CHAPTER 3

## OPERATIONS

The LAR battalion must be able to observe, and when necessary, fight the enemy across extremely wide frontages to shape the battlefield for the supported commander. This chapter addresses the unique characteristics of LAR operations.

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### Fundamentals

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The LAR unit is best employed not as a substitute for infantry and armor in the attack or defense, but to perform reconnaissance and security missions that allow armor and/or infantry to close with the enemy decisively. The following fundamentals will assist the supported unit commander to employ assigned LAR units to their best advantage.

#### Unit Integrity

The LAR battalion should be employed as one cohesive maneuver element in support of the MAGTF. Task-organizing selected MRVs from the LAR battalion for attachment to other MAGTF forces may make the battalion vulnerable to a particular enemy weapon system or tactic.

#### Task Organization

Company size or larger elements are the only task-organized LAR units capable of conducting independent operations. Task organizations smaller than company-size significantly degrade tactical capability. This degradation is significant in terms of command and control, as well as maintenance capability. Table 3-1, on page 3-2, depicts mission to LAR echelon relationships. While LAR platoons can perform the missions with a “0” symbol in table 3-1, they can only do so within the context of an LAR company. An

LAR platoon does not normally perform any mission independently. Based on mission, enemy, terrain and weather, troops and support available-time available (METT-T), the LAR battalion may be supported by and/or reinforced with other MAGTF assets, to include armor, aviation, infantry, and engineers. Security operations in support of the offense and defense may require additional combat power and mobility. This is particularly applicable against an enemy with a large mechanized force employing heavy armor. Attachments to an LAR unit must be of comparable mobility in order to maintain maximum capability and tempo. It is important to note that the LAV, tank, and amphibious assault vehicle should not be thought of as competing weapons platforms, but should be thought of as complementary combat systems.

#### Forward Employment

Normally, the LAR battalion should be employed as far forward or to the flanks of the main body as tactically appropriate to provide reaction time and maneuver space for the supported commander. The LAR units often move back and forth across fire support coordination lines (FSCLs). This may require additional planning for the MAGTF and ACE to provide support out to and beyond the MAGTF’s FSCL.

#### Flexibility

The LAR battalion relies primarily on mobility to accomplish assigned missions. The key to LAV survivability is speed and mobility. The LAR operation should not be overly restricted by control measures. These measures must be carefully planned and coordinated with adjacent units in order to reduce risk and to establish the appropriate boundaries in support of LAR operations.

Table 3-1. Mission to LAR Echelon Relationships.

Mission	Type	LAR Battalion	LAR Company	LAR Platoon
Reconnaissance	Route	✓	✓	θ
	Zone	✓	✓	θ
	Area	✓	✓	θ
	Reconnaissance in Force	✓	✓	θ
Security Operations	Screen	✓	✓	θ
	Guard	*	θ	X
	Cover	θ	θ	X
	Area	✓	✓	θ
	Route	✓	✓	θ
	Convoy	✓	✓	θ
Offensive Operations	Hasty Attack	✓	✓	θ
	Deliberate Attack	*	*	θ
	Movement to Contact	✓	✓	θ
Economy of Force	Defend from Battle Position	✓	✓	θ
	Defend Sector	✓	✓	θ
	Delay	✓	✓	θ
✓ = capable * = capable of augmentation θ = capable of a higher echelon operation X = not a platoon mission				

## Reconnaissance Operations

Reconnaissance is a mission undertaken to obtain, by visual observation or other detection methods, information about the activities and resources of an enemy or adversary; or to secure data concerning the meteorological, hydrographic, or geographic characteristics of a particular area. (JP 1-02)

The LAR battalion differs greatly from dismounted reconnaissance units, offering certain advantages in conducting reconnaissance with the capability to further develop the situation after gaining enemy contact. The LAR battalion is well-suited for highly mobile ground reconnaissance, counterreconnaissance, reconnaissance in force, deep reconnaissance, and other reconnaissance missions. The LAR battalion is designed to fight for or deny the enemy information and can

support the MAGTF at the operational and tactical level of war by providing information that assists a commander to determine when and where to accept or refuse battle. The LAR unit performs reconnaissance in accordance with the overall collection plan and does not supplant the contributions of other reconnaissance elements. The LAR unit operates overtly as part of the MAGTF, relying on mobility, maneuverability, firepower, and the mutual support of LAR MRVs to accomplish reconnaissance missions. During reconnaissance operations, LAR units may conduct limited objective attacks to secure lightly defended objectives such as bridges, road junctions, or mountain passes, and they may perform security missions (screen, guard, and participate in a cover operation) concurrently with reconnaissance operations.

### Collection Plan

When the LAR battalion is tasked with conducting reconnaissance missions, these missions should be integrated into the overall collection plan to avoid duplication of effort, conflicting requirements, and exchange of fire between supported units. Control measures are essential for mission accomplishment and, at a minimum, include lateral boundaries, contact points, route designations, limits of advance (if applicable), start and completion times, and reconnaissance objectives (normally given in the form of named areas of interest [NAIs]).

### Reconnaissance Fundamentals

There are six fundamentals common to many successful reconnaissance operations:

- Obtain maximum reconnaissance forward.
- Orient on the location or movement of reconnaissance objective.
- Report information rapidly and accurately.
- Retain freedom to maneuver.

- Gain and maintain enemy contact.
- Develop the situation rapidly.

### Reconnaissance Planning

Complete, detailed reconnaissance instructions must contain the following:

- Pertinent information about the enemy and supported troops.
- Plans of the higher commander.
- Specific, prioritized information requirements.
- Type of reconnaissance; i.e., route, zone, or area.
- How the LAR unit integrates into the R&S plan of the supported commander.
- Control measures.
- Time available.

### Missions

#### **Route Reconnaissance**

A route reconnaissance is a directed effort to obtain detailed information of a specified route and all terrain from which the enemy could influence movement along that route. (Marine Corps Reference Publication [MCRP] 5-12A, *Operational Terms and Graphics*) Route reconnaissance may be oriented on a road, an axis, or direction of attack. It is faster than zone reconnaissance because effort is concentrated along the route and its controlling terrain. Route reconnaissance critical tasks and planning considerations are as follows:

#### Critical Tasks:

- Find, report, and destroy, within capability, all enemy forces that can influence movement along the route.
- Reconnoiter and determine the trafficability of the route, to include locating and marking mines and obstacles.
- Reconnoiter all terrain that the enemy can use to dominate movement along the route.

- Reconnoiter all urban areas along the route.
- Reconnoiter all lateral routes.
- Inspect and evaluate all bridges on the route.
- Locate available fords or crossing sites near all bridges on the route.
- Inspect and evaluate all overpasses, underpasses, and culverts.
- Reconnoiter all defiles along the route within the unit's capability; clear all enemy defiles and obstacles or locate a bypass.
- Locate; mark; and, when task-organized with engineers, clear the route of mines, obstacles, and barriers.
- Locate a bypass around urban areas, obstacles, bridges, and contaminated areas.
- Report route information as required.
- Prepare a sketch map or route overlay.

#### Planning Considerations:

- The LAR unit must know the start and termination points and requirements for marking and clearing the route.
- An LAR company can reconnoiter two or three routes if enemy contact is unlikely. Otherwise, it should be assigned only one major route.
- An LAR battalion should be assigned no more than three major routes if enemy contact is expected.
- Time allotted to complete a reconnaissance mission will determine the level of detail in accomplishing critical and optional tasks.
- Task-organizing LAR forces with aviation assets such as rotary-wing attack aircraft is especially effective when time is critical and speed is essential.
- Intelligence preparation of the battlespace (IPB).
- Information on the route and enemy situation.
- Integration of the LAR unit into the R&S plan.
- Engagement, disengagement, and bypass criteria.
- One critical task should be designated as the priority.

#### **Zone Reconnaissance**

Zone reconnaissance is a directed effort to obtain detailed information concerning all routes, obstacles (to include chemical or radiological contamination), terrain, and enemy forces within a zone defined by boundaries. A zone reconnaissance normally is assigned when the enemy situation is vague or when information concerning cross-country trafficability is desired. (MCRP 5-12A) It is a deliberate time-consuming process if not specifically focused by the MAGTF commander. Zone reconnaissance critical tasks and planning considerations are as follows:

#### Critical Tasks:

- Find and report enemy in zone.
- Reconnoiter and determine trafficability of all terrain within zone.
- Reconnoiter and determine the trafficability of all terrain within the zone, including urban areas.
- Inspect and evaluate all bridges within the zone.
- Locate available fords or crossing sites near all bridges in the zone.
- Inspect and evaluate all overpasses, underpasses, and culverts.
- Locate and clear all mines, obstacles, and barriers within the zone with inherent capabilities.
- Locate a bypass around urban areas, obstacles, bridges, and contaminated areas.
- Report reconnaissance information.

#### Planning Considerations:

- MAGTF commander identifies the reconnaissance objective, control measures, and time allotted to complete the reconnaissance mission.
- The LAR unit must know the start and termination points and requirements for marking and clearing the route.
- An LAR company can reconnoiter two or three routes if enemy contact is unlikely. Otherwise, it should be assigned only one major route.
- An LAR battalion should be assigned no more than three major routes if enemy contact is expected.



- Time allotted to complete a reconnaissance mission will determine the level of detail in accomplishing critical and optional tasks.
- Task-organizing LAR forces with aviation assets such as rotary-wing attack aircraft is especially effective when time is critical and speed is essential.
- IPB.
- Information on the route and enemy situation.
- Integration of the LAR unit into the R&S plan.
- Engagement, disengagement, and bypass criteria.
- One critical task should be designated as the priority.

### ***Area Reconnaissance***

An area reconnaissance is a directed effort to obtain detailed information concerning the terrain or enemy activity within a prescribed area such as a town, ridge line, wooded area, NAI, or other features critical to operations. An area reconnaissance is a specialized form of zone reconnaissance and proceeds faster than a zone reconnaissance since the effort focuses on specific terrain features or enemy forces. Light armored reconnaissance forces may be required to reconnoiter one large area or several smaller areas. Area reconnaissance critical tasks and planning considerations are as follows:

#### Critical Tasks:

- Find and report all enemy in area.
- Reconnoiter and determine trafficability of all terrain within the area.
- Inspect and evaluate all bridges within the area.
- Locate available fords or crossing sites near all bridges in the area.
- Inspect and evaluate all overpasses, underpasses, and culverts.
- Locate and clear all mines, obstacles, and barriers within the area with inherent capabilities.
- Locate a bypass around urban areas, obstacles, bridges, and contaminated areas.
- Report reconnaissance information.

#### Planning Considerations:

- MAGTF commander identifies the reconnaissance objective, control measures, and time allotted to complete the reconnaissance mission.
- The LAR unit must know the start and termination points and requirements for marking and clearing the route.
- An LAR company can reconnoiter two or three routes if enemy contact is unlikely. Otherwise, it should be assigned only one major route.
- An LAR battalion should be assigned no more than three major routes if enemy contact is expected.
- Time allotted to complete a reconnaissance mission will determine the level of detail in accomplishing critical and optional tasks.
- Task-organizing LAR forces with aviation assets such as rotary-wing attack aircraft is especially effective when time is critical and speed is essential.
- IPB.
- Information on the route and enemy situation.
- Integration of the LAR unit into the R&S plan.
- Engagement, disengagement, and bypass criteria.
- One critical task should be designated as the priority.

An LAR battalion will reconnoiter the area thoroughly, including dominant terrain both within and outside the area. An area reconnaissance that is being conducted as a separate, exclusive mission is usually a much faster mission, because the zone to the area or routes that lead to it may not need to be reconnoitered or prior information has already been attained. For example, other collection assets, such as unmanned aircraft, have located where the enemy force is and the LAR battalion is tasked to conduct further ground reconnaissance to confirm or fix the enemy. The LAR battalion will try to reach the area quickly; enemy situations encountered en route are developed only enough to ensure that reconnaissance elements can bypass. Normally,

an LAR battalion or company is required to conduct area reconnaissance.

### ***Reconnaissance in Force***

A reconnaissance in force is a limited objective operation by at least a battalion-size force to obtain information in order to locate and test enemy dispositions, strengths, and reactions. Reconnaissance in force may be assigned when limited information about the enemy is available; when the commander desires more specific information on the enemy; and when the information cannot be gathered by any other means. Light armored reconnaissance battalions and companies conduct the mission as a zone reconnaissance or as a movement to contact.

Even though the commander is executing a reconnaissance in force primarily to gather information, the commander must be alert to seize any opportunity to exploit tactical success. If the reconnaissance in force is to be conducted along a broad front, it may consist of a series of strong probing actions to test the enemy's reactions at selected points. The enemy reaction, or lack thereof, may reveal a weakness in enemy defenses. The commander assigning the reconnaissance in force must carefully weigh the risks involved. For instance, while the reconnaissance in force may reveal a weak point in the enemy's defenses, it may lead to a general engagement under unfavorable conditions. The reconnaissance in force may also reveal future plans to the enemy. Advance planning must be conducted for the extrication of the force or the exploitation of success.

#### Critical Tasks:

- Find and report enemy in zone.
- Reconnoiter and determine trafficability of all terrain within zone.
- Reconnoiter and determine the trafficability of all terrain within the zone, including urban areas.
- Inspect and evaluate all bridges within the zone.

- Locate available fords or crossing sites near all bridges in the zone.
- Inspect and evaluate all overpasses, underpasses, and culverts.
- Locate and clear all mines, obstacles, and barriers within the zone within inherent capabilities.
- Locate a bypass around urban areas, obstacles, bridges, and contaminated areas.
- Report reconnaissance information.

#### Planning Considerations:

- MAGTF commander identifies the reconnaissance objective, control measures, and time allotted to complete the reconnaissance mission.
- The LAR unit must know the start and termination points and requirements for marking and clearing the route.
- An LAR company can reconnoiter two or three routes if enemy contact is unlikely. Otherwise, it should be assigned only one major route.
- An LAR battalion should be assigned no more than three major routes if enemy contact is expected.
- Time allotted to complete a reconnaissance mission will determine the level of detail in accomplishing critical and optional tasks.
- Task-organizing LAR forces with aviation assets such as rotary-wing attack aircraft is especially effective when time is critical and speed is essential.
- IPB.
- Information on the route and enemy situation.
- Integration of the LAR unit into the R&S plan.
- Engagement, disengagement, and bypass criteria.
- One critical task should be designated as the priority.

### **Security Operations**

Security operations are conducted to obtain information about the enemy and to provide reaction time, maneuver space, and protection to the main body. Security operations are characterized by

performing aggressive reconnaissance to reduce terrain and enemy unknowns, gaining and maintaining contact with the enemy to ensure continuous information, and providing early and accurate reporting of information to the supported force. The LAR battalion's security forces may operate to the front, flanks, or rear of a moving or stationary main body. Security operations include the following operations:

- Screen.
- Guard.
- Cover.
- Area security.

The LAR battalion conducts security operations according to five fundamentals—

- Orient on the supported main body.
- Perform continuous reconnaissance.
- Provide early and accurate warning.
- Provide reaction time and maneuver space.
- Maintain enemy contact.

### **Screen**

A screen is a security element whose primary task is to observe, identify, and report information, and which only fights in self-protection. (JP 1-02) See figure 3-1 on page 3-8. The screen provides the protected force with the least protection of any security mission. This mission is appropriate when operations have created extended flanks or gaps that cannot be secured in force, or when early warning is required. A screen is performed for a moving force to the flanks or rear of the supported main body, and it may be performed for a stationary force to the front, flanks, or rear of the supported main body. A screen mission is not performed forward of a moving force. Zone reconnaissance, movement to contact, or advance guard are missions more suited for operations forward of a moving force.

To achieve the intent of a screening mission the following critical tasks are accomplished:

- Maintain continuous surveillance of all battalion-size avenues of approach into the sector under all visibility conditions.
- Destroy or repel enemy reconnaissance units within capability.
- Locate the lead enemy unit of each suspected advance guard formation and determine its direction of movement.
- Gain and maintain contact with the enemy and report their activity.

The MAGTF commander provides the following broad guidance to the LAR battalion:

- METT-T will dictate organic and nonorganic task organization.
- General trace of the screen.
- The time at which the screen should be established.
- Graphics indicating the width and depth of the screened sector.
- The force to be screened.
- Control measures between LAR and adjacent units.
- Fire support coordination with all adjacent fire support coordinators (FSCs).
- Battle handover/passage of lines procedures.
- Any special requirements, constraints, and restraints.

The requirements for observing specific NAIs or target areas of interest are identified during the IPB process. If the screened force is to engage or control engagement of a threat at a target area of interest, the main body commander provides adequate resources.

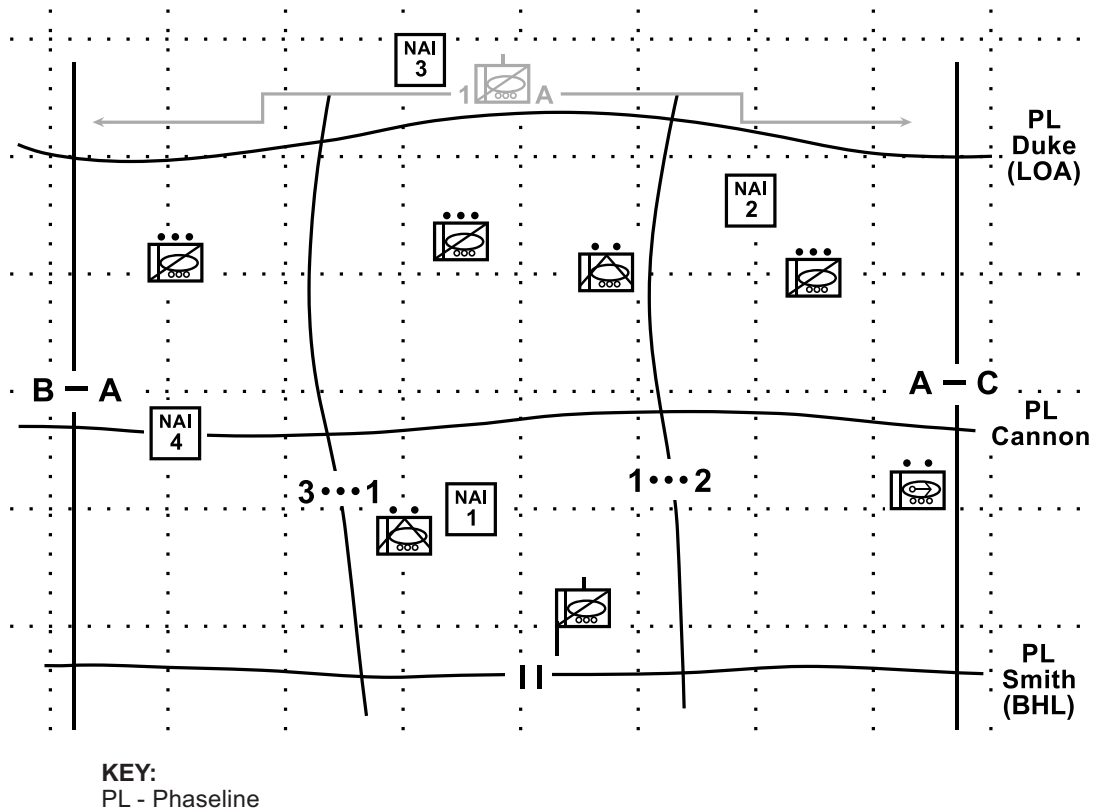


Figure 3-1. LAR Company Screen.

### Guard

A guard is a form of security operation whose primary task is to protect the main force by fighting to gain time, while also observing and reporting information. Guard operations may be conducted by LAR units to the front, flanks, or rear of a stationary or moving force. A guard operation is normally conducted within artillery range of the protected force. If not within range of artillery, the LAR unit must have dedicated close air support (CAS). A guard force reconnoiters, screens, attacks, defends, and delays as required to prevent enemy ground observation of and direct fire against the main body. A guard force will normally be deployed along a narrower front than a screen due to its requirement to fight and provide physical protection. Depending on the threat, the LAR battalion may require reinforcement with armor or mechanized forces as well as receive

priority of fires for artillery and CAS. Unless otherwise directed, the guard force accomplishes all of the following critical tasks:

- Performs reconnaissance along the supported main body's axis of advance.
- Maintains continuous surveillance of all enemy avenues of approach.
- Destroys or repels enemy reconnaissance and security elements.
- Defeats, repels, or fixes enemy ground forces before they can engage the supported main body with direct fire.
- Reconnoiters the zone between the main body and the guard force battle positions.
- Maintains contact with the supported main body.

The supported commander provides the following broad direction and/or assets in support of the LAR battalion:

- Provides adequate combat and CS assets to the guard force.
- Ensures responsive fire support to the guard force.
- Provides engagement, disengagement, and bypass criteria.
- Identifies duration of the guard mission.

### **Cover**

Cover is a type of security operation that protects the force from surprise, develops the situation, and gives commanders time and space in which to respond to the enemy's actions. A covering force operates apart from the main body for the purpose of intercepting, engaging, delaying, disorganizing, or deceiving the enemy before they can attack the force. It is an independent, tactically self-contained maneuver unit that operates at considerable distance to the front, flank, or rear of a moving or stationary force in an offensive or defensive role. If it cannot defeat the enemy force, then the covering force deceives, delays, and disorganizes the enemy until the main body can effectively react. A covering force implies the capability of close decisive combat. It requires significant firepower against a mechanized and mobile opponent and considerable troop density against a dismounted opponent. Usually, the LAR battalion lacks the necessary organic firepower and troop density to function independently as a covering force. A task-organized LAR force with its own attached tanks, artillery, and CSS and dedicated air in direct support is usually necessary to operate as a covering force. A covering force's critical tasks and planning considerations are as follows:

#### Critical Tasks:

- Conducting reconnaissance along the supported main body's axis of advance.
- Denying enemy information about the size, strength, composition, and objective of the supported main body.

- Destroying or repelling enemy reconnaissance and security zone forces within capability.
- Developing the situation to determine enemy strengths, weaknesses, and dispositions.
- Defeating, repelling, or fixing enemy forces as directed by the supported commander.
- Exploiting opportunities until the supported main body forces are committed.

#### Planning Considerations:

- The LAR battalion normally requires reinforcement to perform a covering force operation.
- The LAR battalion can be teamed with the ACE to act as a MAGTF covering force.
- The LAR battalion can operate beyond the range of the artillery of the main body.

### **Area Security**

Area security operations neutralize or defeat enemy operations in a specified area. The LAR battalion can conduct area security of designated personnel, airfields, installations, unit convoys, routes, LOCs, equipment, and critical points. The LAR battalion must be assigned a mission and intent in relation to an area of operations (AO). Area security operations critical tasks and planning considerations are as follows:

#### Critical Tasks:

- Protecting installations and units.
- Protecting LOCs.
- Denying enemy access to critical areas.
- Finding, fixing, and destroying stay-behind, infiltration, and guerrilla forces.
- Countering enemy penetrations.
- Performing damage control operations, chemical agent detection, or radiological monitoring survey.

#### Planning Considerations:

- Natural defensive characteristic of the terrain.
- Existing roads and waterways for LOCs.
- Control of avenues of approach surrounding the area to be secured extending beyond that of enemy indirect fire.

- Control of airspace.
- Proximity to critical sites.
- Movement of tactical units and civilian traffic should be rigorously controlled to avoid confusion, obstruction, and fratricide.

### Offensive Operations

LAR offensive operations are used to penetrate or envelop the enemy, outflank enemy movement, disrupt and destroy enemy LOCs and logistics, disrupt enemy command and control, and also destroy and disorganize remnants of an enemy force. The LAR unit may conduct offensive operations as part of a task-organized formation such as a regimental combat team. These units most often conduct offensive operations in support of or as part of reconnaissance, guard, or cover missions. Offensive operations include deliberate attack, hasty attack, and movement to contact. They also include limited objective operations that are performed for a specific purpose, such as a raid or spoiling attack. Light armored reconnaissance offensive operations can be used to accomplish the following:

- Conduct reconnaissance in force.
- Identify or create a weak point.
- Suppress enemy fires.
- Isolate the enemy and maneuver against the enemy's weak point.
- Exploit success.
- Pursue enemy forces.
- Deceive or divert the enemy.

Planning considerations are as follows:

- Task organization based on METT-T.
- Position and commitment of the reserve.
- Allocation of fire support assets.
- Control measures must account for LAR's mobility.
- Deception plan.

### Defensive Operations

Light armored reconnaissance defensive operations are temporary measures used to identify or create enemy weaknesses to be exploited at the earliest opportunity by offensive action. The defense seeks to defeat enemy attacks by destroying substantial parts of the attacking force while holding friendly losses to a minimum. The LAR unit most often conducts defensive operations in support of or as part of screen, guard, cover, or area security missions. Defensive operations include defend from a battle position, defend in sector, and delay. The LAR units in the defense can be used to accomplish the following:

- Gain time.
- Concentrate forces elsewhere.
- Attrite enemy forces in preparation for offensive operations.
- Control key terrain.
- Deceive the enemy as to the location and intention of supported forces.

Planning considerations are as follows:

- Proper engagement area development to delay the enemy, disrupt enemy C2 systems, reconnaissance units, CS, and vulnerable supporting forces.
- Allocation of weapons and space.
- Coordination of obstacles and fire support.
- Enemy avenues of approach.
- Length of delaying operations.
- Size of sector.

### Passage of Lines and Battle Handover

A passage of lines is an operation in which a force moves forward or rearward through another force's combat positions with the intention of moving into or out of contact with the enemy. A passage may be designated as a forward or rearward passage of lines. (JP 1-02) A battle handover is a cooperative process between a stationary

and passing unit during a passage of lines in which one unit transfers to the other unit the responsibility for fighting an enemy force. This event normally occurs at a designated point on the ground, normally depicted as a phase line designated as the battle handover line (BHL). The BHL is a control feature, usually following easily definable terrain features, at which responsibility for the conduct of combat operations passes from one force to another. In fast-paced, mobile operations on a nonlinear battlefield, LAR units must frequently conduct forward and rearward passage of lines. MAGTF units that conduct tactical missions must routinely plan, coordinate, rehearse, and execute this complex operation. A passage of lines and/or battle handover are often integral parts of MAGTF offensive and defensive operations. (See app. A for more information on passage of lines and battle handover.)

Planning considerations are as follows:

- Coordination, liaison, and clear delineation of responsibilities between passing and stationary units.
- Unit standing operating procedures (SOPs) that will be used.
- Clear identification of control measures and trigger for battle handover.
- Handover of fire support coordination responsibilities.
- Follow-on missions for LAR unit.
- CSS reconstitution for the LAR unit.
- As the stationary unit, LAR can reposition rapidly to the flanks and open a wide lane for a passing unit.

# CHAPTER 4

## COMMAND AND CONTROL

To be successful, the LAR commander must see the battlefield and respond quickly; this can be achieved through an effective and responsive C2 system. In order to see the battlefield, the commander positions himself/herself where he/she can best influence the battle and maintain as much situational awareness as possible while still being able to exercise command and control. However, the relatively large size, dispersion, and mobility of the LAR battalion and its supporting units can pose C2 challenges for the commander. Some of the key variables that determine how the C2 system organizes and functions include echelons of command, desires of the commander, and METT-T. During operations, the commander normally moves forward in order to observe and influence the course of the battle. Normally, these are fluid reconnaissance and security operations where the commander and his/her command group must be mounted in vehicles in order to position with the maneuvering subordinate units.

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### Command and Control System

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A C2 system consists of the facilities, equipment, communications, procedures, and personnel essential to a commander for planning, directing, and controlling operations of assigned forces pursuant to the missions assigned. (JP 1-02)

#### Command

Battle command incorporates two vital components: the ability to lead and the ability to decide.

Both components demand skill, wisdom, experience, and moral and physical courage. Command requires the commander to—

- Envision a desired end state.
- Translate—clearly and concisely—that vision into a statement of intent, providing a single and unifying effort.
- Formulate concepts.
- Provide the force of will to concentrate overwhelming combat power at the decisive point.

#### Control

Commanders use control to regulate forces and functions on the battlefield in order to execute the commander's intent. As such, control involves the following:

- Defining limits.
- Computing requirements.
- Allocating resources.
- Describing interfaces.
- Monitoring status.
- Describing variances.
- Correcting deviations.
- Acquiring and applying the means to accomplish the commander's intent.
- Developing instructions from guidance.
- Measuring, reporting, and analyzing performance.
- Projecting change.

Control also has two vital components. First, control conforms to the principle of unity of command in which commanders typically control one



echelon down and manage forces two echelons down. Second, control accounts for the dynamics of the battlefield. This component requires a reporting system to assess the situation routinely and frequently, thus enabling the commander to take action as appropriate.

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## Fundamentals

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The purpose of the C2 system is to implement the commander's will in pursuit of the objective. The system must be reliable, secure, fast, and durable. It must collect, analyze, and present information rapidly. It must communicate orders, coordinate support, and provide direction to the force. It must function despite the friction of battle, extraordinary stress, obscure situations, compressed time, competing demands, enemy interference, destruction of command posts, or loss and replacement of leaders. The C2 system must be responsive and flexible enough to facilitate freedom to operate, allow delegation of authority, and allow leadership to operate from any critical point on the battlefield.

Light armored reconnaissance units are often required to begin their missions and to operate very soon after (or even before) the receipt of an operation order. A C2 system permitting such flexibility and freedom to operate independently emphasizes certain specific operational techniques and command practices:

- Optimizes the use of time by routine use of warning orders, situation updates, and parallel/anticipatory planning.
- Stresses standardized training in operations and staff practices to ensure mutual understanding between leaders and units.
- Eases execution of orders using standard language, symbols, and SOPs.

A responsive C2 system allows the commander to position himself/herself wherever the situation calls for the commander's personal presence without depriving him/her of the ability to

respond to opportunities or changing situations. Light armored reconnaissance operations occur across wide areas, and commanders normally operate with significant freedom of action. The LAR commander cannot expect constant or close supervision by his/her higher commander. Close command direction is seldom possible, even when desired. Each commander, in turn, must provide their subordinates freedom of action for the same reason. Unity of effort is ensured by the intent of the commander assigning the mission. Each subordinate commander must understand the intent of the commander two levels above and the concept of his/her immediate commander. The LAR commander exercises initiative within the latitude permitted to achieve the intent as battlefield conditions develop. An effective battle C2 system accomplishes its mission through four interrelated components:

- Command echelons.
- C2 organization and facilities.
- Command and staff relationships and responsibilities.
- C2 reporting and communications.

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## Command Echelons

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To assist the commander in the continuous collection, processing, and dissemination of combat information and orders, the command can establish command echelons. Control of the battle is focused through only one command echelon at a time. Command echelons must have the requisite mobility to locate where the commander wishes and should be as mobile as the rest of the unit.

The echelon in which the unit or subordinate commander is located or from which the commander operates is the CP. Depending on the situation, the commander may establish as many as three command echelons: the tactical echelon, the main echelon, and the rear echelon. Command echelons may also be split into increments to facilitate displacement and survivability.

## Tactical Echelon

The commander normally collocates with the main effort during critical events and focuses on the current operation of committed forces. Therefore, the tactical echelon provides the commander freedom of movement and the information required to maintain situational awareness. The LAR battalion commander normally moves within a section of LAV-25s, which enables the command to establish the battalion's tactical CP. The LAV-25 allows the commander to position himself/herself forward, stay mobile, and maintain the communications and situational awareness necessary to command and control the operation.

## Main Echelon

The main echelon is designed, manned, and equipped to direct the actions of all organic, attached, and supporting units. The main echelon is responsible for monitoring and directing current operations and planning future operations. The main echelon includes a combat operations center (COC). When the commander is located forward of the main echelon during combat, the commander monitors communications among the COC and higher and subordinate units. The main echelon will dictate a succession of command (designated individuals), normally the executive officer (XO) or S-3, in the event the commander is incapacitated or the commander's communications with the COC are lost.

## Rear Echelon

The principal function of the rear echelon is to support combat operations by providing command and control of rear area operations. The S-1 and S-4 are normally located in the rear echelon. The rear echelon must be capable of monitoring the activities of the forward units and the other two echelons. Normally, the rear echelon is collocated with, or sited near, CSS units to facilitate logistical efforts.

## Increments

If a command element is split into increments, the commander organizes both increments with nearly identical structure. Typically, these increments are referred to as alpha and bravo command groups. The alpha command group is usually composed of the S-2, S-3, FSC, and principal fire support liaison officers (LNOs). Normally, the primary function of the alpha command group is to command and control the operation that is underway. The bravo command group is usually composed of the assistants for each of the functional areas: S-2A, S-3A, and assistant FSC. The bravo command group monitors the current tactical situation and is immediately prepared to assume control in the event that the alpha command group becomes disabled or if operations become protracted.

The bravo command group may also be tasked with conducting future plans, maintaining records, and submitting reports. If the force is extended, the bravo command group may be used as a relay to higher and supporting units. The alpha and bravo command groups may be consolidated when required by the tactical situation. Consolidation allows full utilization of the entire staff for planning and the establishment of a single watch section, and it also provides more time to rest personnel.

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## Command and Control Organization and Facilities

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The commander organizes his/her staff to accomplish the mission. The commander develops an organization that is flexible enough to meet changing situations. The facilities from which the commander and his/her staff operate are closely aligned with the C2 organization. They provide the orders, processing, and transmitting of information that is necessary for effective command

and control. They sustain the operation through continuity, planning, and coordination of CS and CSS. The C2 facilities used in a tactical situation are listed below:

- Forward command post (Fwd CP).
- Main CP.
- Combat trains command post (CTCP).

The command group is located well forward, with appropriate communications means, to see and command the battle at the most critical point. The command group generally consists of the following personnel:

- Commander.
- Air officer.
- FSC.
- S-3.
- S-2.
- S-6.
- Engineer officer (as required).

The command group is organized and operated according to the commander and the needs of the current situation; it is not a permanent organization. The command group is highly mobile, displaces often, and may move continuously. Since LAR units frequently operate on wide frontages, the commander may place the S-3 at a second critical location on the battlefield. The command group fights the battle and synchronizes the fight by arranging battlefield activities to achieve maximum effect on the enemy. The command group also coordinates fires and movement in time and space to concentrate at the decisive point. The commander positions himself/herself so that the commander can see the battle and issue the appropriate orders at critical times. The air officer either positions himself/herself with the commander or positions where he/she can see the priority target area requiring CAS. The FSC normally positions himself/herself forward with the commander in order to facilitate synchronization of fires. The vehicle commander remains on

the vehicle to assist with radio operations and map postings; thus enabling the commander and the S-3 to concentrate on the battle.

### **Forward Command Post**

LAR units frequently operate over long distances, wide frontages, or extended depths. The commander must maintain adequate internal communications over these distances as well as external links to the controlling headquarters. The Fwd CP is the facility that supports the continuity of command and control, and it may serve as a long-term or temporary facility. The command group uses the Fwd CP as a base. The Fwd CP, in some cases, may be viewed as a forward echelon of the COC. Requirements for long-term operations dictate that the Fwd CP cannot be formed at the expense of the COC. The S-3 normally runs the Fwd CP with the assistance of personnel from the S-2 and S-3 sections. Representatives of special staff officers may be present as required. The S-3 positions the Fwd CP well forward on the battlefield. The Fwd CP is highly mobile and relies on frequent displacement, small size, and comparatively low electronic signature to provide security.

The Fwd CP maintains a battle map and provides the commander with a reasonably secure place to plan operations and issue orders. The Fwd CP controls the ongoing operation, provides the commander with critical combat information, and coordinates immediately available fire support. Additional functions of the Fwd CP are as follows:

- Develop combat intelligence of immediate interest to the commander.
- Provide priorities and planning guidance for CS and CSS activities to the XO located in the COC.
- Maintain communications to receive, process, and pass routine reports while the COC displaces.
- Serve as net control station for command frequency modulation (FM) net.
- Serve as an alternate CP.

## Main Command Post

The main CP is composed of functional cells that serve as the control, coordination, and communications center for regiment/battalion combat operations. These functional cells include the headquarters cell, current operations cell, plans cell, intelligence cell, fire support cell, and CSS cell. The MAGTF normally provides the regiment with a variety of communications assets and intelligence system downlinks that become part of the main CP. Liaison officers from other headquarters report to and perform their duties at the main CP. The XO is responsible for operations at the main CP.

The location of the main CP varies according to the type of operation in which the unit is engaged. The primary considerations in positioning the main CP are communications, accessibility, and survivability. The main CP is arranged to facilitate work, security, and smooth traffic flow; take advantage of cover; and permit quick displacement. When possible, the main CP is located in built-up areas using maintenance facilities, garages, or barns that can accommodate its size.

Support assets collocate at the main CP; however, their vehicles and communications equipment are dispersed and camouflaged to reduce the electronic and visual signature. Where built-up areas cannot be used, the main CP should be placed on a wooded, reverse slope to provide cover and concealment from enemy observation and fires. Adequate road networks are needed to support main CP traffic.

Detailed unit SOPs outline main CP configurations and functions of the individuals that are assigned. The main CP configurations are flexible to accommodate terrain, the situation, and losses of equipment. Both hasty and long-term configurations are planned.

The COC is the largest cell of the main CP and the principal planning organization for the unit. The COC contains future, current, and close operations cells. When the Fwd CP is not deployed,

the COC controls close operations. Additionally, the COC ensures that CSS operations remain integrated. The COC provides information and assistance to the commander and his/her subordinate commanders. The COC anticipates future CS and CSS requirements and pushes assets forward before needs are reported. Other functions of the COC are as follows:

- Collate information for the commander.
- Acquire and coordinate CS assets.
- Provide reports to higher headquarters.
- Provide intelligence to subordinate units.
- Plan for future operations.
- Provide terrain management.
- Maintain communications.
- Monitor CSS status.
- Provide target value analysis.
- Coordinate with adjacent units.

## Combat Operations Center Personnel

The XO controls the COC. It is composed of the S-2 and S-3 sections, the S-1 and the S-4 as appropriate, elements of the communications platoon, and the fire support element. It can also include other representatives, depending on the mission of the unit. The nucleus of the COC is the three functional areas of the S-2, the S-3, and the fire support element. Other elements are arranged around this nucleus. Standardizing COC configurations facilitates rapid displacement, establishment, and efficient operations. Internal arrangements must facilitate staff coordination, provide adequate work space and communications assets, and reduce the number of personnel physically present inside the COC. Personnel in the COC monitor operations on a 24-hour basis. They maintain communications with organic, higher, and adjacent units to stay abreast of the situation, post maps, maintain records, and send reports as required.

## COC Operations

Personnel are available to provide effective and continuous operation of the COC. Establishing

shifts provides ample personnel with the required expertise to operate the COC and make decisions on major issues. The standard shift evenly divides available personnel based on staff function and expertise. Adequate shift change procedures reduce continuity problems and provide standardized teams, enhanced teamwork, and simplicity. Disadvantages to operating in shifts include a break in the continuity of operations during shift change and possible absence of a key staff officer when needed.

The XO is second in command, and the XO is not placed on a duty shift. Personnel who do not work permanently in the COC are not integral parts of a duty shift. This includes LNOs and any special staff officers who are unit leaders or commanders. Additionally, members of the command group and Fwd CP are not included; these personnel integrate into the existing manning schedules when present at the main CP for an extended period.

The XO uses replacement officers and noncommissioned officers as augmentation. Using replacement leaders on the staff initially integrates them into the unit with minimum disruption. They may replace current staff officers who assume leadership roles in subordinate units. Any manning method used must retain flexibility to accommodate personnel departing from the COC for specific duties and to adapt to changing situations and available personnel. Needless disrupting the rest of the personnel rapidly degrades their effectiveness.

### **Combat Trains Command Post**

The CTCP is composed of portions of the S-1 and S-4 sections and is under the S-4's control. Planning logistic support and coordinating with subordinate units, higher headquarters, and the headquarters of the supporting logistic unit are the CTCP's primary functions. The battalion CTCP tracks the current logistic status of subordinate units and may be located with the main CP, combat trains, or field trains serving as the field trains

CP or the alternate CP. S-1 and S-4 personnel provide continuous operations by cross training in duties and basic functions. An operations situation map is maintained to facilitate logistical planning and to backup tactical command and control. Continuous communications are maintained with supporting and subordinate units.

### **Company Command Post**

The company CP is controlled by the company XO and is manned by members of the company headquarters. The company CP essentially performs command and support functions for the ongoing operation. Limited planning may be accomplished. The company CP maintains communications with subordinate organic and supporting elements, the battalion, and adjacent units, and it plays a key role in coordinating air and ground company operations. The company CP maintains close contact with the first sergeant in the company combat trains to coordinate service support operations.

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### **Fire Support Coordination Center**

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The LAR battalion fire support coordination center (FSCC) is organized similarly to that of an infantry battalion. The FSCC normally consists of an air officer, an artillery officer FSC, and the battalion S-3. While the battalion FSCC is built around this nucleus, the fire support coordination cell is augmented with the personnel and equipment that are needed to conduct fire support coordination functions. Augmentation sources may include Marine Corps and external sources; for example, watchstanders may require individuals with specific skills such as electronic warfare, unmanned aircraft, air defense, or proficiency in fire support coordination.

During an operation, FSCC staff members are required to plan fires, conduct targeting, and integrate fires simultaneously with maneuver elements. The FSCC's coordinating responsibilities

include the requirement to disseminate timely fire support information; to institute coordination measures as required; and to integrate fire support activities that affect two or more fire support agencies, subordinate elements, or adjacent units. Key personnel in the FSCC include the fire support coordinator, air officer, artillery liaison officer, naval gunfire liaison officer, and target information officer.

### Fire Support Coordinator

The LAR battalion's FSC is structured by T/O for a MOS 0802, field artillery officer at the grade of major. The FSC's responsibilities include—

- Supervising the operation of the FSCC, including organizing and training personnel.
- Advising the battalion commander on all fire support matters.
- Developing the fire support plan based on the scheme of maneuver, the intelligence estimate, requests from subordinate units, and the available fire support.
- Coordinating all fire support within the battalion zone of action.
- Processing of target information, including the shelling report.
- Ensuring the safety of friendly troops from our own fire support.

### Air Officer

The air officer is a pilot or naval flight officer and is normally a captain by T/O. The air officer's responsibilities include the following:

- Advising the battalion commander/FSC on all air support matters.
- Developing the air fire plan based on the scheme of maneuver, the intelligence estimate, assets available, and coordination with the FSC.
- Submitting air requests.
- Coordinating actions of forward air controllers.

### Artillery Liaison Officer

The artillery LNO is normally a lieutenant provided by a direct support artillery battalion. The artillery LNO's responsibilities include—

- Advising the battalion commander/FSC on all artillery support matters.
- Developing the artillery fire plan based on the scheme of maneuver, the intelligence estimate, assets available, and coordination with the FSC.
- Passing requirements for support to the appropriate artillery fire direction center for action.
- Coordinating artillery unit requirements with the battalion commander/FSC.
- Coordinating the actions of the artillery forward observers.

### Naval Gunfire Liaison Officer

The naval gunfire LNO is normally a Navy lieutenant provided by the direct support artillery battalion. The naval gunfire LNO's responsibilities include the following:

- Advising the battalion commander/FSC on all naval surface fire support (NSFS) matters.
- Developing the NSFS plan based on the scheme of maneuver, the intelligence estimate, assets available, and coordination with the FSC.
- Assisting in calling for NSFS.
- Coordinating the actions of the spot team.
- Passing requirements for support to the appropriate NSFS ship.

### Target Information Officer

The target information officer is normally the battalion S-2 officer. His/her responsibilities concerning target intelligence include the following:

- Disseminating target information and intelligence to the FSCC.
- Advising the battalion commander/FSC on enemy weapons capabilities.
- Keeping appropriate records of targets.

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## Command and Staff Relationships

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Command relationships and levels of authority, although authoritative, must be adapted to meet the mission's requirements. Commanders must have the flexibility to establish nonstandard relationships when required by the situation. Collectively, command relationships and levels of authority provide the flexibility necessary to organize forces to respond to all situations. Command relationships foster understanding and freedom of action and establish the basis for interaction among unit commanders. When a Marine Corps unit is under the command of a senior Marine Corps unit, the subordinate Marine Corps unit is either organic or attached. If organic, a unit is assigned to and forms an essential part of a military organization. If attached, a unit or personnel are temporarily placed in an organization. When a Marine Corps unit is in a support relationship, one element or unit of the MAGTF provides a required capability to another element. Units with LAR attachments must be aware of the logistical and tactical challenges inherent with light armor. Unless the attachment orders qualify the degree of control involved, attachment of a LAR unit to an infantry battalion or regiment implies that the infantry battalion or regiment assumes full responsibility for the LAR unit's logistics, administration, training, and operations. The LAR unit is under the command of the unit to which it is attached. However, transfer and promotion responsibilities normally remain with the command to which the LAR unit is organic.

### Command

Command is the authority that a commander lawfully exercises over subordinates by virtue of rank or assignment. Command includes the authority and responsibility for effectively using available resources and planning the employment, organization, direction, coordination, and control of the LAR unit to accomplish assigned missions. Other responsibilities include the health, welfare,

morale, training, and discipline of the assigned Marines. The commander is responsible for everything that his/her unit does or fails to do, and the commander cannot delegate this responsibility. The final decision and responsibility remain with the commander. Success, however, requires a commander who delegates authority and fosters an organizational climate of mutual trust, cooperation, and teamwork. The commander must also promote an understanding of procedures and a common basis for action. The commander discharges his/her responsibilities through an established chain of command and holds each subordinate commander responsible for the actions of his/her unit. When the commander assigns a mission to a subordinate, the commander also delegates the necessary authority and provides him/her with the resources, guidance, and support needed to accomplish the mission. The commander must allow the subordinate commander freedom of action. The commander remains free to address the unit as a whole and to anticipate future actions.

### Staff

The staff is an extension of the commander and is organized specifically to be a single, cohesive unit. The staff assists the commander in decision-making by acquiring, analyzing, and coordinating information. More importantly, the staff screens the mass of information available and presents only what is essential to the commander with a recommendation so he/she can make the best decision. The commander specifically delegates authority to the staff or particular staff officers. The authority he/she delegates is a factor of the commander's leadership style, staff officer's personality, mission of the unit, immediacy of the operation, and the relationship of the staff officer's functional area to the unit's primary mission. The commander delegates authority to the staff to take final action on designated matters. All staff members must know not only their own functions and roles, but also the functions of the other staff members.

The staff establishes and maintains a high degree of coordination and cooperation internally and with staffs of higher, lower, and adjacent units. Staff efforts focus on supporting the commander in the exercise of command and on helping him/her support subordinate commanders in the execution of their mission. Staff activities center on five common functions to assist the commander:

- Provide timely and accurate information.
- Anticipate requirements and prepare estimates.
- Determine courses of action and make recommendations.
- Prepare plans and orders.
- Supervise execution of decisions.

### **Battalion Commander**

The battalion commander analyzes and restates the mission, designs the concept of operations, organizes the forces, provides support to subordinate units, and issues mission orders with sufficient details for the commander's subordinates to plan and lead their units. The battalion commander acknowledges the professional competence and expertise of subordinate commanders and allows them the flexibility to accomplish their mission. The battalion commander relies on his/her staff and subordinate commanders for advice and assistance in planning and supervising operations, therefore the commander must understand their capabilities and limitations. The battalion commander must train them to achieve his/her intent during his/her absence, overcome the failure of communications systems, or changes in the situation.

### **Subordinate Commanders**

Assigned company commanders answer to the battalion commander for the discipline, combat readiness, and training of the unit as well as the maintenance of its equipment. They must be proficient in the tactical employment of their units and CS elements, and they must know the capabilities and limitations of their personnel and equipment. Subordinate commanders provide

current combat information to the battalion commander or higher headquarters and must remain flexible in order to execute missions that meet changing situations on the battlefield.

### **Battalion Staff**

The battalion staff consists of those officers and enlisted Marines who assist the commander in planning and supervising tactical operations. The battalion staff reduces the demands on the commander's time and assists him/her by providing information, making estimates and recommendations, preparing plans and orders, and supervising the execution of orders issued by the commander. The battalion staff synchronizes CS and CSS operations to ensure total integration of support with the commander's concept. The battalion staff assists subordinate commanders by anticipating problems, providing informal staff responses when appropriate, and providing assistance in functional areas. Organization of a typical battalion staff is depicted in figure 4-1 on page 4-10. The SOP defines the responsibilities of key personnel to preclude overlaps and to make sure all functions are adequately supervised. Detailed discussions of staff officer and section responsibilities are in Marine Corps Warfighting Publication (MCWP) 3-40.1, *Marine Air-Ground Task Force Command and Control*.

### **Executive Officer**

The XO is second in command and the principal assistant to the commander; as such, the XO performs a variety of functions. The executive officer is responsible for assignment of tasks and the efficient, coordinated, and prompt response of the staff. The XO directs, supervises, and ensures coordination of staff work except in those specific areas reserved by the commander, thereby freeing the commander from routine details. During combat operations, the XO is positioned in the COC and is responsible for its operation.



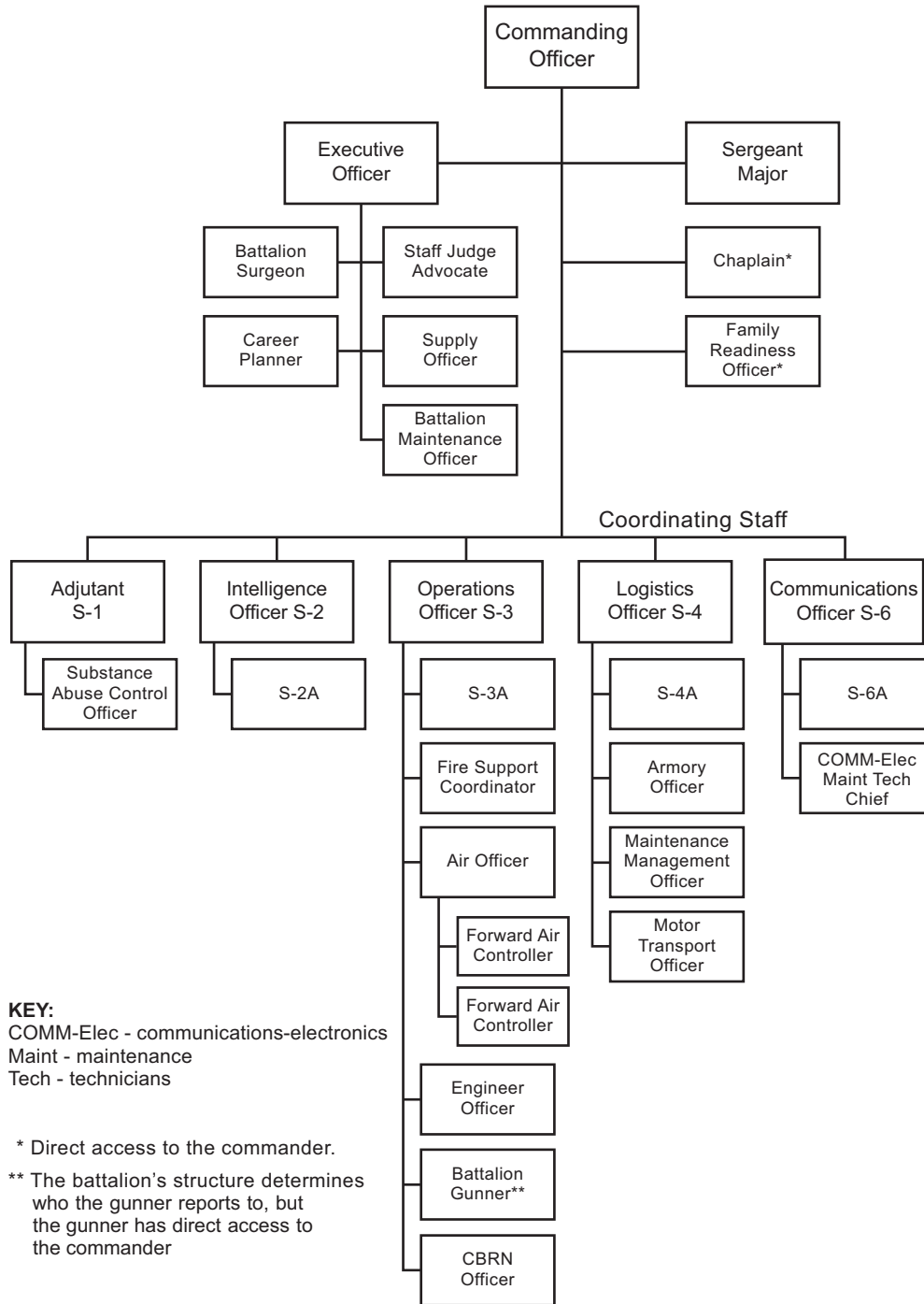


Figure 4-1. LAR Battalion Staff.

The XO directs and coordinates combat support in consonance with the commander's plan and ensures continuous CSS. The XO, assisted by the operations chief, watch officer, and watch chief, maintains routine reporting, coordinates the activities of liaison personnel and is always planning ahead, remaining current on the tactical situation and prepared to assume command on a moment's notice. The commander trains the XO and allows him/her to command during training exercises preparing the XO to assume command in combat.

### **Liaison Officers**

Liaison is that contact or intercommunication maintained between elements of military forces or other agencies to ensure mutual understanding and unity of purpose and action. (JP 1-02) When directed or required, LAR units will dispatch an LNO to the MAGTF COC and receive LNOs from other organizations.

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### **Command and Control Reporting**

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Accurate and timely reporting of information to the supported commander and his/her higher headquarters is essential. Tasking an LAR unit to collect against the supported CCIRs will focus LAR reconnaissance efforts on what the commander values as important. Reporting by the LAR battalion should be integrated into the MAGTF commander's R&S plan.

### **Commander's Critical Information Requirements**

The CCIRs are elements of information required by commanders that directly affect decisionmaking and dictate the successful execution of military operations. Information regarding the enemy and friendly activities and the environment identified by the commander as critical to maintaining situational awareness, planning future activities, and facilitating timely decisionmaking. The CCIRs are normally divided into three

primary subcategories: PIRs, friendly force information requirements, and essential elements of friendly information.

### **Priority Intelligence Requirements**

A PIR is an intelligence requirement associated with a decision that will critically affect the overall success of the command's mission. (MCRP 5-12A)

### **Friendly Force Information Requirements**

In order to develop plans and make effective decisions, the commander will need information about friendly forces. Depending upon the circumstances, information on the unit location, composition, readiness, personnel status, and logistic status could become a friendly force information requirement. (MCRP 5-12A)

### **Essential Elements of Friendly Information**

Essential elements of friendly information include specific facts about friendly intentions, capabilities, and activities needed by adversaries to plan and execute effective operations against our forces. (MCRP 5-12A)

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### **Command and Control Communications**

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Communications are essential to LAR operations. The reporting of combat information is fundamental to reconnaissance and security. This information is of interest to other maneuver units as well as to higher headquarters staffs and requires the widest dissemination possible. Light armored reconnaissance operations frequently operate over long distances, wide frontages, and extended depths and great distances from the controlling headquarters. Communications must be redundant and long range to meet these internal and external requirements. Communications, particularly electromagnetic, are subject to disruption.

## Responsibilities

All levels of command gain and maintain communications with the necessary headquarters and personnel. The traditional communications responsibilities are listed below, senior to subordinate. A senior unit is responsible for establishing communications with a subordinate unit. A tactical unit of any size is considered subordinate to the command to which it is attached.

- Supporting to supported: a supporting unit is responsible for establishing communications with the supported unit.
- Reinforcing to reinforced: a reinforcing unit is responsible for establishing communications with the reinforced unit.
- Passing to stationary: forward passage of lines.
- Stationary to passing: rearward passage of lines.
- Lateral communications: responsibility for establishing communications between adjacent units may be fixed by the next higher commander or SOP.

If responsibility is not fixed by orders, the commander of the unit on the left is responsible for establishing communications with the unit on the right. The commander of a unit positioned behind another unit establishes communications with the forward unit. Regardless of responsibility, all units take prompt action to restore lost communications.

## Means of Communication

The LAR units use the full range of available communications means.

### *Wire*

Wire is normally used for internal communications within the CP, support areas, and assembly

areas. It is the primary means of communications whenever the situation permits.

### *Messengers*

Messengers are used between the CP, trains, and higher and lower headquarters.

### *Sound and Visual*

Sound and visual signals are in the Signal Operating Instructions or the unit SOP. The SOP may establish signals that are not included in the Communications-Electronics Operating Instructions. The battlefield will have many sound and visual cues. Commanders and staff planners carefully determine how sound and visual signals will be used and authenticated. Sound and visual signals include pyrotechnics, hand and arm, flag, metal on metal, rifle shots, whistles, and bells.

### *Commercial Lines*

Commercial lines are only used when approved by higher headquarters. If the unit is forced to withdraw, any existing wire lines, including commercial lines, are cut and sections removed so that the enemy cannot use them.

### *Radio*

An LAR operation normally depends on radio as the primary means of communication, particularly during reconnaissance and security missions. Net discipline and SOP minimize needless traffic. To avoid detection by enemy direction finding equipment, LAR operations use all other means of communication to supplement the radio. Once in contact, the primary means of communication will be FM voice. Radio communications include electromagnetic communications in FM, AM [amplitude modulation], ultrahigh frequency (UHF), and VHF spectrums.

# CHAPTER 5

## INTELLIGENCE

Intelligence is the product resulting from the collection, processing, integration, evaluation, analysis, and interpretation of available information concerning foreign nations, hostile or potentially hostile forces or elements, or areas of actual or potential operations. (JP 1-02) Combat commanders are primarily concerned with combat intelligence, which is the immediate knowledge of the enemy, weather, and geographical features required in the planning and conduct of present and future combat operations.

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### Intelligence Preparation of the Battlespace

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The IPB is a systematic, continuous process of analyzing a threat and environment in a specific geographic area. (MCRP 5-12A) Light armored reconnaissance operations support and enhance the supported commander's staff estimate and military decisionmaking process. Light armored reconnaissance assets support the IPB process by—

- *Defining the battlefield environment.* The LAR unit can confirm or deny initial assumptions as it is tasked as part of the overall collection effort to fill in information gaps.
- *Describing battlefield effects.* The LAR unit is well suited to determine how the battlefield environment influences future operations and threat courses of action. This includes clarifying knowledge of terrain that a map analysis cannot satisfy. The LAR unit can validate the effects of weather on mobility, equipment, and personnel.
- *Evaluating the threat.* LAR is able to quickly locate the enemy and fight for information, determine enemy size, location, and disposition. Fighting for information is the act of fighting through threat reconnaissance (destroying the threat's "eyes and ears") to gain combat

information needed by higher unit commander. (MCRP 3-14.1A, *Reconnaissance Platoon*) It is as equally important to determine where the enemy is and where the enemy is not.

- *Determining adversary's course of action.* An LAR unit's ability to fight for information gives it a distinct advantage over other assets in determining the adversary's course of action. The LAR unit's mobility gives it the ability to maintain contact over long distances in order to give the supported commander a clear picture of the enemy's movement and intentions. LAR is an integral part of the overall collection effort and is tailored to fight for information.

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### Planning Considerations

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#### Reconnaissance and Surveillance Plan

To be effective, the LAR battalion must be integrated into the MAGTF commander's R&S plan. This ensures that all collection efforts are focused and efficient.

#### Reporting

Both the MAGTF commander and the LAR battalion must ensure that pertinent information flows in both directions. Future technologies will enhance the timeliness and accuracy of information.

#### Counterreconnaissance

In order to be effective in counterreconnaissance, the LAR battalion must locate enemy reconnaissance forces before they are able to find friendly forces. The LAR battalion is capable of destroying or repelling enemy mechanized reconnaissance forces.

### **Commander's Critical Information Requirements**

The CCIRs identify what the commander must know about the enemy, weather, and terrain in order to accomplish the mission. The CCIRs

relating to the threat are PIRs. It is critical that the LAR battalion knows the CCIRs/PIRs in order to ensure that they focus on finding and reporting this information.

# CHAPTER 6

## FIRE SUPPORT

Fire support is used to destroy, neutralize, suppress, or influence enemy forces through lethal and nonlethal means. Fire support is a key component to LAR operations because of its range and flexibility in shifting and massing fires.

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### Fire Support Planning Considerations

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Light armored reconnaissance operations often present the supported commander with unique requirements and conditions that are not common to most GCE units. The success of LAR operations often depends on the LAR battalion's ability to maintain contact with the enemy while avoiding decisive engagement. Use of supporting arms, when combined with the LAV's mobility and firepower, is essential for LAR battalion's to retain freedom of maneuver and accomplish its mission.

#### Location

Most LAR operations (especially reconnaissance and security) begin with LAR units that are widely dispersed to the front, flanks, or the rear of the main body. Initially, the supported commander may give LAR units priority of fires since they may be the first elements in contact and support target identification for shaping the enemy and/or providing the main body security. At times, LAR units will be out of range of artillery. In such cases, the MAGTF commander must consider alternate means of ensuring effective, responsive fires to LAR units.

#### Tempo

The LAR battalion's mobility requires that all supporting arms must be prepared to support a fast tempo of operations. Planning must focus on providing rapid, responsive fires across a widely dispersed battlefield.

### Fire Support Coordination Measures

Planning is enhanced through the thorough understanding and use of fire support coordination measures (FSCMs) described in MCWP 3-16, *Fire Support Coordination in the Ground Combat Element*. The FSCL must be moved in advance of LAR operations in order to prevent fratricide. In deep operations, coordination must be made for restrictive fire areas that can be moved in accordance with the LAR unit's rapid maneuver. Thus, proper assignment and coordination of FSCMs and maneuver control measures between the LAR unit and adjacent units is essential to mission success and the prevention of fratricide. Additionally, use of priority targets increases the responsiveness of ground and naval surface fires.

### Light Armored Reconnaissance Battalion Fire Support Structure

Currently, the LAR battalion's FSCC consists of one MOS 0802, FSC (major) and one air officer. The battalion also has two forward air controllers. When employing LAR units, the MAGTF commander should address the fire support architecture to be used, communications nets (both digital and voice), FSCMs, and who coordinates and controls fires during each phase. The MAGTF commander should also address support relationships between LAR battalions and supporting arms agencies as certain inherent responsibilities correspond to these relationships.

### Advanced Field Artillery Tactical Data System

With the fielding of Advanced Field Artillery Tactical Data System (AFATDS), the LAR battalion's capability to conduct fire support coordination, speed fire mission processing, and report combat information has increased dramatically.

The LAR battalion uses the AFATDS to link to its supported unit and to all supporting arms agencies. The AFATDS also allows the LAR battalion to link to intelligence analysis systems in order to expedite accurate reporting.

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## **Artillery**

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The use of field artillery in support of LAR operations requires deliberate planning and appropriate prioritization of assets to synchronize fire support with the LAR mission and scheme of maneuver. The HIMARS [High Mobility Artillery Rocket System] possesses the range and speed of displacement to support LAR units in highly mobile, fast moving operations.

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## **Naval Surface Fire Support**

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Future battlefields will more likely be located in littoral areas. The high volume of fire, accuracy, and destructive nature of NSFS make it an excellent fire support asset when terrain allows. Therefore, the availability and use of NSFS can enhance an LAR unit's mission attainment.

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## **Marine Aviation**

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Light armored reconnaissance forces may often operate at a significant distance from the other forces of the MAGTF. During such operations, aviation may be the sole source of fire support. It may prove beneficial to provide dedicated air support to LAR forces. Marine aviation is able to provide support without diminishing the speed, mobility, and operating range of the LAR battalion. The MAGTF commander should consider how the following functions of Marine aviation can contribute to LAR operations.

## **Offensive Air Support**

Offensive air support is divided into two categories, deep air support (DAS) and CAS.

### ***Deep Air Support***

Deep air support is air action against enemy targets at such a distance from friendly forces that detailed integration of each mission with fire and movement of friendly forces is not required. A DAS mission flies on either side of the FSCL; the lack of a requirement for close coordination with the fire and movement of friendly forces is the qualifying factor. A DAS mission may be used in support of LAR operations by attacking enemy formations or positions before they present a direct threat to the LAR battalion. The LAR battalion can move rapidly over long distances to assess the effectiveness of DAS.

### ***Close Air Support***

Close air support is defined as air action by fixed- and rotary-wing aircraft against hostile targets that are in close proximity to friendly forces and that require detailed integration of each air mission with the fire and movement of those forces defines CAS. (JP 1-02) Preplanned or on-call, CAS is used to destroy, disrupt, suppress, fix, or delay the enemy. During LAR operations, the plan may include dedicated strip alert aircraft when enemy contact is possible and dedicated airborne alert aircraft when enemy contact is likely. Air strikes may be scheduled.

## **Aerial Reconnaissance**

Integration of the onboard sensors of both fixed-wing and rotary-wing aircraft will complement LAR capabilities.

## **Assault Support**

Given the distances at which LAR units may operate from friendly forces, aviation can be used to provide casualty evacuation, refueling, and resupply support.

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## Mortars

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The LAR companies consist of a section that is equipped with two, 81mm mortars mounted in LAV-Ms. The LAV-M improves the effectiveness and survivability of the mortar crew and equipment by providing increased flexibility, responsiveness, mobility, and protected transportation. The primary role of the company mortar section is to provide immediate, responsive indirect fires that support the maneuver of the platoons. An organic, company-level mortar section serves to enhance indirect fire responsiveness with volume and provides the high-angle fire essential to effective engagement in urban and other complex terrain. The section's fire direction center controls and directs the mortar section's maneuver and fires.

The mortar section provides the commander with the ability to support the unit's close fight with indirect fires that will—

- Shape the conditions for maneuver.
- Provide a mark for supporting attack aviation.
- Provide close supporting fires for assaulting forces in restricted and severely restricted terrain.
- Destroy, neutralize, suppress, degrade, or disrupt enemy forces and force armored vehicles to button up.
- Break up enemy troop concentrations (mounted and dismounted) and destroy the enemy's synchronization.
- Fix enemy forces or reduce the enemy's mobility and canalize the enemy's assault forces into engagement areas.

- Deny the enemy the advantage of defile terrain and force the enemy into areas covered by direct fire weapons.
- Provide standoff fires against LAVs.
- Optimize indirect fires in urban terrain.
- Improve the dismounted scout's lethality and survivability against a close dismounted assault.

Each mortar system is capable of providing three primary types of mortar fires:

- High explosive (HE) rounds are used to suppress or destroy enemy dismounted infantry, mortars, and other supporting weapons and to interdict the movement of personnel, vehicles, and supplies in the enemy's forward area.
- Bursting white phosphorus (WP) rounds are often combined with HE rounds to enhance their suppressive and destructive effects.
- Obscuration rounds are used to conceal friendly forces as they maneuver or assault and to blind enemy supporting weapons. Obscurants can be used to isolate a portion of the enemy force while it is destroyed piecemeal. Some mortar rounds use bursting WP to achieve this obscuration; others employ technology that is more efficient. Bursting WP may be used to mark targets for engagement by other weapons, usually aircraft, and for signaling.

Illumination rounds are used to reveal the location of enemy forces hidden by darkness. They allow the commander to confirm or deny the presence of the enemy without revealing the location of friendly direct fire weapons. Illumination fires are often coordinated with HE fires both to expose the enemy and to kill or suppress the enemy.



# CHAPTER 7

## URBAN OPERATIONS

Urbanized terrain is complex and challenging. It possesses all of the characteristics of the natural landscape, coupled with manmade construction, resulting in an incredibly complicated and fluid urban AO that influences the conduct of military operations in unique ways. This chapter focuses on the tools necessary for understanding the urban AO and for planning and executing missions, including reconnaissance, in the urban AO involved in the planning, preparation, and execution phases of urban reconnaissance.

Military operations on urbanized terrain (MOUT) is defined as all military actions that are planned and conducted on a topographical complex and its adjacent natural terrain where manmade construction is the dominant feature. It includes combat in cities, which is that portion of military operations on urbanized terrain involving house-to-house and street-by-street fighting in towns and cities. (MCRP 5-12C, *Marine Corps Supplement to the Department of Defense Dictionary of Military and Associated Terms*) Military operations on urbanized terrain effect the tactical options available to a commander. An urban AO is a concentration of structures, facilities, and populations, such as villages, cities, and towns, that form the economic and cultural focus for the surrounding area.

Although each urban AO encountered by the LAR battalio has its own distinct characteristics, urban AOs are the most complex. There are two primary factors that influence the complexity of urban operations. One is the manmade terrain and supporting infrastructure, the other factor is the density of noncombatants in close proximity to combat forces. Noncombatants and the human dimension are the most important and, potentially, the most confusing to LAR units. A major

part of the MARDIV's reconnaissance, surveillance, and target acquisition effort is human intelligence (HUMINT), which focuses on gaining an understanding of how the local populace feels toward friendly and threat forces.

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### Urban Operations Framework

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Divisions and above plan the operational level of urban operations and have the primary responsibility of setting the conditions for tactical success. The following functions assist planners visualizing and conceptualizing urban operations:

- Assess.
- Shape.
- Dominate.
- Transition.

The LAR battalion supports the MARDIV as it conducts each phase of an urban operation.

### Assess

The LAR battalion conducts aggressive intelligence, surveillance, and reconnaissance to provide the MARDIV with intelligence that influences current operations. The LAR battalion identifies the relevant forces, strengths, vulnerabilities, and critical nodes of the urban AO that provide leverage if controlled. It identifies noncombatants through HUMINT collection. This allows the MARDIV to determine whether or not a limited civil-military operations center should be established in order to plan and prepare to deal with noncombatants, nongovernmental organizations, and international agencies. The LAR battalion answers PIRs to enable MARDIV decisionmaking

and to conduct urban mapping. Examples of PIRs include the following:

- Where are the threat's critical C2 nodes located?
- What is the status of the key LOCs leading into and within the urban AO?
- Where are the diplomatic embassies and missions located within urban AOs?
- What is the location and status of tunnels within the urban AOs?
- What are the likely threat withdrawal routes and chokepoints?
- What are the potential vulnerabilities to infrastructure facilities?
- Where are the cross-mobility corridors within the urban AO located?
- Where are the cultural, political, and symbolic facilities located?
- Are there any American citizens or third-country nationals that need to be extracted?
- Are there any American citizens or third-country nationals being detained against their will? If so, where?
- How do locals view us?
- What is the availability of maps and charts for the AO or area of interest?
- What are the locations and status of hospitals and key personnel?
- Are there obstacles impeding movement along the routes to and from assembly areas?
- Is there any opposition from the national criminal enterprise?

### Shape

The LAR battalion supports shaping operations by providing accurate and timely intelligence, information, and situational awareness to the MARDIV. These inputs assist the MARDIV commander in determining the extent and manner in which the outlying urban AO can be isolated. With its inherent mobility, the LAR battalion supports isolation by employing companies and platoons along avenues of approach to detect threat forces as they attempt to enter or

leave the AO. Consistent with rules of engagement, the MARDIV can engage these forces with indirect fires, aerial fires, or a combination of the two. This technique may be effective in detecting and stopping large threat units from entering or leaving the AO.

### Dominate

Domination is achieved when all mission requirements are achieved and preeminent military control over the threat, geographical area, or population is established. The LAR battalion provides intelligence, information, and situational understanding to the MARDIV, which assists the MARDIV commander in determining techniques for conducting urban operations, these techniques include the following:

- Search and attack technique.
- Attack on a single axis.
- Attack on multiple axes.
- Cordon and attack.
- Fix and bypass.
- Multiple nodal attacks.

### Transition

During the transition phase, the LAR battalion may move from combat operations to stability operations. Intelligence, surveillance, and reconnaissance operations continue during this phase and may focus more on noncombatants and displaced civilians. The LAR battalion interacts with nongovernmental and private organizations during transition. The LAR battalion consolidates, reorganizes, and conducts area protection while preparing for follow-on missions.

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## Operational Considerations

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The LAR battalion conducts reconnaissance in urban areas to gain critical intelligence, information, and situational awareness for the MARDIV. The LAR battalion must have a clear understanding of how its PIRs relate to the higher headquarters' mission and intent. The LAR unit may focus

on using traditional techniques of information gathering, as well as such methods as interaction with the local society and tactical questioning. On the other hand, LAR scouts may focus on the isolation of an urban AO to support an infantry assault in a high-threat, urban AO. All LAR units, however, must be prepared to transition from one extreme to another as the operational, urban AO changes. No matter the focus, the main goal of the unit's reconnaissance effort is to provide the MARDIV with a thorough and accurate understanding of the urban AO. Crucial to planning operations in urban AO is the urban IPB. Reconnaissance units must identify all relevant forces, along with their strengths and critical vulnerabilities, and be able to identify the critical nodes of the urban AO that may provide tactical leverage when controlled. The IPB effort must consider noncombatants, whose presence in the urban AO may be substantial and dynamic. Determining the ethnic and religious composition of the population and, if possible, their intent (for example, to flee or remain in the urban AO) may prove crucial. If combat operations in the urban AO are necessary, the battalion's mission focuses on achieving informational and situational awareness for the MARDIV. The LAR battalion may perform other tasks for the MARDIV, such as, determining trafficability of routes and lateral routes, identifying subterranean entry points and systems, developing communications architecture, and providing a C2 framework.

During the preparation phase, the reconnaissance platoon determines reconnaissance objectives and conducts urban IPB. To begin developing the situation, the LAR battalion collects and analyzes existing map and aerial images (imagery intelligence), as well as all available HUMINT (from such sources as special operations forces or the National Security Agency). Without proper preparation and planning, entering or operating within an urban AO poses a significant threat to Marines. The urban AO and the threat must be thoroughly analyzed before reconnaissance operations begin. This discussion describes characteristics unique to the urban AO and the threat, as well as considerations that the LAR unit must take into account during planning and preparation.

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## Capabilities and Limitations

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The infantry usually conducts urban combat operations with LAR units providing support. The LAR units can be employed in urban AO to assist dismounted forces in seizing and clearing streets and buildings. Once the operational urban AO escalates to combat operations, these elements do not normally operate inside the urban AO because of their lack of armor protection; however, they may be used to secure the avenues of approach around the perimeter of the area and to support isolation.

### Vehicle Capabilities

The LAV-25's primary role during combat in the urban AO is to provide suppressive fire and to conduct limited breaching of exterior walls and fortifications. The LAV-25 brings the following capabilities to urban operations:

- Provides 25-mm cannon and 7.62-mm coaxial machine guns fire support.
- Provides 60-degree elevation, allowing it to engage targets on the upper floors of tall buildings and a 7-degree depression below level line of sight.
- Employs 25-mm armor piercing or high explosive incendiary-tracer (HEI-T) ammunition to penetrate buildings depending on the building's construction.
- Provides limited, light armor protection for crew and passengers. When equipped with the BPUP, its survivability is significantly improved against the ballistic threat, but it is still vulnerable to antiarmor fires.
- Possesses multiple FM radios and when fitted with an HF mounting plate can be fitted with HF radio communications.
- Assists in medical evacuation medical evacuation and casualty evacuation casualty evacuation operations.
- Assists in resupply operations.

The primary role of the LAV-AT is to destroy enemy armor assets with long range anti-armor missiles. It can also be employed in the breaching and destruction of buildings and fortified urban structures as outlined in MCRP 3-35.3C, *Combined Arms Operations in the Urban Terrain*. The LAV-AT brings the following capabilities to urban operations:

- Capable of firing the entire family of TOW missiles except for the improved TOW.
- Armed with a 7.62-mm pintle machine gun for local security.
- Capable of 35-degree elevation, allowing it to engage targets on the upper floors of tall buildings and a 30-degree depression below level line of sight.
- Capable of being ground-mounted outside of the vehicle.
- Provides limited, light armor protection for crew and passengers. When equipped with the BPUP, its survivability is significantly improved against the ballistic threat, but it is still vulnerable to antiarmor fires.
- Equipped with multiple FM radios and when fitted with an HF mounting plate can be fitted with HF radio communications.

The LAV-M can be employed in a similar fashion as a ground-mounted mortar system, and it is armed with a single, M252 81-mm mortar and 7.62-mm pintle-mounted machine gun. The mortar system can be employed in the vehicle and ground-mounted outside the vehicle, and it is capable of engaging and suppressing targets up to 5680 meters and as little as 83 meters. Utilizing the same ammunition DODIC, [DOD Identification Code] the LAV-M can fire HE, WP, red phosphorus, illumination, and infrared missions. The LAV-M offers increased protection of the vehicle crew and mortar section with its light armor but is still susceptible to antiarmor weapons and does not have an organic security element.

## Vehicle Limitations

The LAV-25 has the following vulnerabilities related to urban operations:

- It is restricted primarily to streets and lacks maneuverability inside the urban AO.
- There is dead space around the LAV into which the vehicle cannot fire its weapons.
- It is vulnerable to enemy infantry firing antiarmor weapons from cellars, drains, and other concealed positions.
- It is dependent on its mounted or dismounted scouts for all-around protection.

## 25-mm Automatic Cannon

When mounted on the LAV-25, the 25-mm automatic cannon is an effective weapon during combat in the urban AO. The primary roles of LAV-25 during combat in the urban AO is to provide suppressive fire and to conduct limited breaching of exterior walls and fortifications.

The 25-mm cannon can produce its best urban target results when fired perpendicular to the hard surfaces (zero obliquity). In combat urban AOs, however, finding a covered firing position that permits low-obliquity firing is unlikely unless the streets and gaps between the buildings are wide. Most shots impact the target at an angle, which normally reduces penetration. With the armor-piercing, discarding sabot-tracer (APDS-T) round, an angle of obliquity of up to 20 degrees can actually improve breaching. The rounds tend to dislodge more wall material with each shot, but do not penetrate as deeply into the structure.

## Target Types

The LAV family of vehicles' organic weapons systems have different effects when fired against different urban targets.

**Reinforced Concrete**

Reinforced concrete walls—12 to 20 inches thick—present problems for the 25-mm cannon when trying to create breach holes. It is relatively easy to penetrate, fracture, and clear away the concrete, but the reinforcing rods remain in place. These create a “jail window” effect by preventing entry but allowing grenades or rifle fire to be placed behind the wall. Steel reinforcing rods are normally 3/4 of an inch thick and 6 to 8 inches apart and there is no quick way to cut these rods. They can be cut with demolition charges, cutting torches, or special power saws. Firing with either APDS-T or HEI-T rounds from the 25-mm gun will not always cut these rods.

**Brick Walls**

A brick wall is more easily defeated by the 25-mm gun regardless of its thickness, and it produces the most spall.

**Bunker Walls**

The 25-mm gun is devastating when fired against sandbag bunker walls. Obliquity has the least effect on the penetration of bunker walls. Bunkers with earth walls up to 36 inches thick are easily penetrated. At short ranges, typical of combat in urban AOs, defeating a bunker should be readily achieved, especially if the 25-mm gun can fire at an aperture.

**Burst Fire**

The 25-mm gun’s impact on typical urban targets seems to be magnified if the firing is in short bursts. At close ranges, the gunner might need to shift his/her point of aim in a spiral pattern to ensure that the second and third bursts enlarge the hole. Even without burst fire, sustained 25-mm gunfire can have effect on most urban targets.

**Weapon Penetration**

The penetration achieved by the three combat rounds (APDS-T, HEI-T, and TOW) differs slightly, but all are effective.

**APDS-T**

The APDS-T round penetrates urban targets by retaining its kinetic energy and blasting a small hole deep into the target. The APDS-T round gives the best effects behind the wall, and the armor piercing core often breaks into two or three fragments that can create multiple enemy casualties. The APDS-T needs as few as four rounds to achieve lethal results behind walls. Table 7-1 lists the number of APDS-T rounds needed to create holes in common urban walls.

**Table 7-1. Number of APDS-T Rounds Needed to Create Holes in Urban Walls.**

Target	Loophole	Breach Hole
3-inch brick wall, 0-degree obliquity	22 rounds	75 rounds
3-inch brick wall, 45-degree obliquity	22 rounds	351 rounds
5-inch brick wall, 0-degree obliquity	32 rounds	501 rounds
8-inch reinforced concrete, 0-degree obliquity	22 rounds	75 rounds <sup>1</sup>
8-inch reinforced concrete, 45-degree obliquity	22 rounds	401 rounds <sup>1</sup>
Note: Obliquity and depth tend to increase the amount of wall material removed. <sup>1</sup> Reinforcing rods still in place.		

When firing single rounds, the APDS-T round provides the greatest capability for behind-the-wall incapacitation. The APDS-T round can penetrate more than 16 inches of reinforced concrete with enough energy left to cause enemy casualties. It penetrates through both sides of a wood framed or brick veneer building. These rounds easily penetrate field fortifications.

The APDS-T round creates a hazardous situation for exposed personnel because of the pieces of sabot that are thrown off of the round. The danger zone extends at an angle of about 10 degrees

below the muzzle level, out to at least 100 meters, and about 17 degrees left and right of the muzzle.

### WARNING

**Personnel not under cover or forward of the 25-mm gun's muzzle and within the danger zone could be injured or killed by these sabots, even if the penetrator passes overhead to hit the target.**

### HEI-T

The HEI-T round penetrates urban targets by blasting away chunks of material via explosive effect. The HEI-T round does not penetrate an urban target as well as the APDS-T, but it does strip away a greater amount of material for each round. The HEI-T does more damage to an urban target when fired in multiple short bursts because the cumulative impact of multiple rounds is greater than the sum of individual rounds. Table 7-2 lists the number of HEI-T rounds needed to create holes in urban walls.

**Table 7-2. Number of HEI-T Rounds Needed to Create Holes in Urban Walls.**

Target	Loophole	Breach Hole
3-inch brick wall, 0-degree obliquity	10 rounds	20 rounds
3-inch brick wall, 45-degree obliquity	20 rounds	25 rounds
5-inch brick wall, 0-degree obliquity	30 rounds	60 rounds
8-inch reinforced concrete, 0-degree obliquity	15 rounds	25 rounds
8-inch reinforced concrete, 45-degree obliquity	15 rounds	30 rounds

The HEI-T round does not provide single-round perforation or incapacitating fragments when used against any external masonry structural wall. It can create first-round fragments behind wood framed and brick veneer walls. The HEI-T rounds cannot penetrate a bunker as quickly as

APDS-T rounds, but they can create more damage inside the bunker once the external earth has been stripped away. Against a heavy bunker, about 40 rounds of HEI-T ammunition are needed to strip away the external earth shielding and breach the inner lining of concrete or timber. The HEI-T round is also used for suppression against known or suspected firing ports such as doors, windows, and loopholes.

### *Tube-launched, Optically Tracked, Wire Command Link Guided Missile*

Antitank guided missiles can penetrate and destroy heavily armored tanks. They have large warheads that employ shaped-charge principles. Because of their size, these warheads can achieve significant penetration against typical urban targets. Penetration does not mean concurrent destruction of the structural integrity of a position. The shaped-charge warhead produces relatively little spall. Enemy personnel not standing directly behind or near the point of impact of an antitank guided missile may escape injury.

The basic TOW missile can penetrate 8 feet of packed earth, 16 inches of steel plate, or 4 feet of reinforced concrete. The TOW II, TOW IIA, and improved TOW have been modified to improve their penetration and they penetrate better than the basic TOW. All TOW missiles can defeat triple sandbag walls, double layers of earth-filled 55-gallon drums, and 18-inch log walls.

The TOW IIB uses a different method of defeating enemy armor. It flies over the target and fires an explosively-formed penetrator down onto the top of an armor vehicle, where the armor is thinner. Because of this design feature, the TOW IIB missile cannot be used to attack nonmetallic structural targets. When using the TOW IIB missile against enemy armor, gunners must avoid firing directly over other friendly vehicles, disabled vehicles, or large metal objects such as water or oil tanks.

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## Combat Service Support

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### Resupply

To preclude compromise, LAR units conducting reconnaissance missions may carry required supplies into the urban AO on their vehicles, allowing them to avoid unnecessary movement in the AO. Some missions, however, may require additional supplies that cannot be carried on the vehicles. During the planning phase, resupply operations for employed LAR units are planned and coordinated.

When resupply is required, a drop point is established. It should be well away from the hide site and the reconnaissance site, but in a position that is available to all teams. Caches should be used in these instances. Units should standardize the contents of caches so all teams understand what is available. An example of the items that should be carried in the cache include the following:

- Emergency Class I items.
- Batteries for radios.
- Night vision devices.
- Class VIII items, to include IV [intravenous] bags.
- Nonsensitive mission specific items.

### Maintenance

In the urban AO, self-recovery within the platoon will be necessary. Vehicles should have a tow bar or towing cables and shackles attached and configured for immediate recovery. A secured maintenance collection point outside the urban AO is identified by battalion maintenance or the supported unit during planning, and it is then coordinated with the subordinate units for maintenance support. All vehicle crews must know this location. The primary vehicle used for towing is the LAV-R. The secondary vehicle used for towing is the LAV-L. These are the only two vehicles that are capable of towing because these variants have reinforced tow pintles that are capable of pulling the weight of the LAV.

### Medical

Each LAR platoon has one Navy corpsman. The LAR company also has one company corpsman. Organic medical support in the LAR platoon is limited to self-aid, buddy aid, and Navy corpsman aid. Light armored reconnaissance units are often employed over broad distances where primary medical care is not readily available. For this reason, scouts receive advanced medical training such as combat lifesaver and basic emergency medical technician training.

Additional medical support is requested as needed. When possible, medical evacuation of team members can be delayed until the whole team is evacuated from the AO. Wounded team members are sent directly to the nearest medical facility that can provide definitive care and treatment. The nature of reconnaissance missions subjects the teams to stress in many ways.

#### *Optical Fatigue*

Optical fatigue can result due to operations that take place in darkness, smoke, fog, rain, snow, ice, and glare and require the extended use of night vision goggles.

#### *Disrupted Sleep Cycles*

Performance suffers due to the disruption of the normal sleep schedule, especially if the LAR unit is conducting reverse-cycle operations.

#### *Mental Fatigue*

Mental fatigue can result from having to make decisions of serious consequences in too little time, with too little information, and while exposed to danger.

#### *Physical Fatigue*

Physical fatigue can result from conducting excessive physical activity or maintaining physical exertion at a strenuous level without rest. Combat stress, however, is not solely a medical problem; it is also a command problem that can

result in reduced performance and personnel lost from duty. It is a command responsibility to take actions to increase the individual team member's resistance to stress. This can be accomplished through training under simulated combat conditions and by ensuring all personnel maintain a

high level of physical fitness. Proper nutrition is also a major factor in coping with stress. This requires Marines to have a healthy, balanced diet not only during combat operations, but also before the missions begin.



# CHAPTER 8

## LIGHT ARMORED RECONNAISSANCE COMBAT ENGINEER OPERATIONS

The LAR battalion has the organic capability to conduct limited mobility, countermobility, and engineer reconnaissance. The LAR unit may conduct many of these missions without assistance from any other unit. However, most of these missions are completed in a hasty manner. Attachment of a combat engineer unit will greatly enhance the LAR unit's ability to accomplish the mission.

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### Mobility

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Mobility tasks allow the unit to obtain and maintain the freedom of tactical maneuver and operational movement. Usually, when encountering an obstacle, the LAR unit will attempt to find a bypass. If a suitable bypass has been identified, LAR units will report to higher headquarters, mark the obstacle, and provide guides for follow-on units. However, if bypass is not possible, LAR units can perform the mobility tasks as shown in table 8-1.

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### Countermobility

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Countermobility is mine warfare and obstacle development designed to disrupt, fix, turn, or block certain enemy formations. Light armored reconnaissance units can perform the countermobility tasks shown in table 8-2, on page 8-2.

Due to Class IV constraints, a battalion can employ obstacles across a company-sized avenue

of approach, while a company can cover a platoon-sized avenue of approach. This does not reflect the amount of actual terrain that an LAR unit can defend (see chap. 3).

**Table 8-1. LAR Battalion Mobility Tasks.**

Task	Unit	Capability
In-stride beach	Battalion	Requires attachment from combat engineer battalion
	Company	Requires attachment from combat engineer battalion
	Platoon	No capability
Deliberate breach		No capability
Assault breach	All*	Requires attachment from combat engineer battalion
Countermine	All*	Requires attachment from combat engineer battalion
Counterobstacle	All*	Requires attachment from combat engineer battalion
Gap crossing	All*	Water gap, LAVs only
*Denotes that task can be accomplished at battalion/company/platoon levels.		

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### Engineer Reconnaissance

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Light armored reconnaissance forces can provide detailed information on routes, roads, fords, bridges, and any other obstacles that the unit may encounter. Additionally, LAR forces can provide recommendations on maneuver and the suitability of these areas to the supported commander.

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## Light Armored Reconnaissance Combat Engineer Organization

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A platoon from the combat engineer battalion, when available, attached to the LAR battalion provides the best support. This attachment allows the LAR battalion to enhance their ability to complete combat engineer tasks. The attachment is usually best utilized in general support of the companies. The LAR battalion is authorized one MOS 1302, combat engineer officer as part of the S-3 staff section. The battalion combat engineer officer is an important link between the battalion S-3 and the supported unit commander's operations center on engineer reconnaissance, mobility, and countermobility operations.

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## Planning Considerations

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When employing LAR in engineer operations, the supported unit commander must consider—

- LAR unit typically performs combat engineer missions in support of their primary security or reconnaissance mission.
- If task organized, the LAR unit can coordinate breaching missions. This requires attachment

of a combat engineer platoon, mine clearing systems, and lane proofing vehicles (mine plows or armored combat earthmovers).

- If task-organized, LAR unit can conduct more complex obstacle construction. This requires attachment of a combat engineer platoon, additional Class IV materials, earthmoving equipment and operators, and additional mines.

**Table 8-2. LAR Battalion Countermobility Tasks.**

Task	Capability
Employ mines	Capable*
Employ wire obstacles	Capable*
Disrupting obstacles	Simple obstacle only (wire/mine combinations)*
Fixing obstacles	Simple obstacle only (wire/mine combinations) and requires attachment*
Turning obstacles	Simple obstacle only (wire/mine combinations) and requires attachment to reduce obstacles!
Counterobstacles	Explosive reduction of built up obstacles
Blocking obstacles	Not capable (too complex/equipment intensive)
*Denotes that task can be accomplished at battalion/company/platoon levels.	

# APPENDIX A

## PASSAGE OF LINES AND BATTLE HANDOVER

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### Light Armored Reconnaissance Commanders

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Each commander has critical tasks that must be accomplished in order to achieve a smooth and efficiently executed operation. The common senior commander orders the initiation of battle handover. To sustain unity of command in the operation, the passing unit is usually placed under operational control of the stationary unit. Operational control by the stationary unit commander is limited to those actions necessary to get the passing unit through the stationary unit's AO as quickly as possible.

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### Senior Commander Responsibilities

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The senior commander must—

- Ensure that command relationships, time, circumstances, and procedures for transferring of control for the zone or sector are specified.
- Designate where battle handover will occur by establishing a phase line forward of the forward edge of the battle area (FEBA) and indicating it as the BHL. (The BHL should be located where combat maneuver forces of the stationary unit along the FEBA can effectively overwatch and protect the passing unit as it withdraws behind or advances forward of the FEBA. The distance forward of the FEBA is limited to available fields of fire or effective range of weapons.)
- Designate a specific location (usually a line designated as the BHL) for responsibility shift.
- Establish boundaries where the passing and stationary unit coincide.
- Designate an adequate number of passage points and passage lanes.
- Designate contact points for rearward passage so that lead units of passing and stationary units know where to establish initial contact.
- Delineate responsibility for furnishing guides.
- Designate routes through stationary units and assembly areas, priority of route use, and other movement control measures to preclude confusion and congestion.
- Establish a coordinated communications plan that includes call signs, code words, primary and alternate frequencies, and authentication procedures as part of the overall passage order.
- Specify recognition signals and markings for both daylight hours and hours of darkness.
- Specify coordination responsibility for fire support during passage.
- Designate a follow-on mission for the LAR unit withdrawing behind friendly lines.
- Develop and disseminate contingency plans in the event of an enemy attack during the passage.
- Designate contact points just forward of the BHL where stationary and passing units are required to conduct physical coordination (defensive operations).
- Ensure that the passing unit is provided indirect fire support during battle handover and passage of lines while its artillery is displacing.

# GLOSSARY

## SECTION I. ACRONYMS AND ABBREVIATIONS

ACE .....	aviation combat element	JP .....	joint publication
AFATDS .....	Advanced Field Artillery Tactical Data System	LAR .....	light armored reconnaissance
AO .....	area of operations	LAV .....	light armored vehicle
APDS-T .....	armor-piercing discarding sabot-tracer	LAV-25 .....	light armored vehicle-25 millimeter
BHL .....	battle handover line	LAV-AT .....	light armored vehicle-antitank
BPUP .....	ballistic protection upgrade package	LAV-C3 .....	light armored vehicle-command and control
C2 .....	command and control	LAV-L .....	light armored vehicle-logistics
CCIR .....	commander's critical information requirement	LAV-M .....	light armored vehicle-mortar
CAS .....	close air support	LAV-R .....	light armored vehicle-recovery
CBRN .....	chemical, biological, radiological, and nuclear	LNO .....	liaison officer
COC .....	combat operations center	LOC .....	line of communications
CP .....	command post	m .....	meters
CS .....	combat support	MAGTF .....	Marine air-ground task force
CSS .....	combat service support	MARDIV .....	Marine division
CTCP .....	combat trains command post	MCRP .....	Marine Corps reference publication
DAS .....	deep air support	MCWP .....	Marine Corps warfighting publication
FEBA .....	forward edge of the battle area	MEF .....	Marine expeditionary force
FM .....	frequency modulation	METT-T .....	mission, enemy, terrain and weather, troops and support available-time available
FSC .....	fire support coordinator	MRV .....	mission role variants mmmillimeters
FSCC .....	fire support coordination center	MOS .....	military occupational specialty
FSCCL .....	fire support coordination line	MOUT .....	military operations on urbanized terrain
FSCM .....	fire support coordination measure	mph .....	miles per hour
Fwd CP .....	forward command post	NAI .....	named area of interest
GCE .....	ground combat element	NSFS .....	naval surface fire support
HE .....	high explosive	OMFTS .....	operational maneuver from the sea
HEI-T .....	high explosive incendiary-tracer	PIR .....	priority intelligence requirement
HF .....	high frequency	R&S .....	reconnaissance and surveillance
HUMINT .....	human intelligence	S-1 .....	battalion or regiment manpower staff officer
IPB .....	intelligence preparation of the battlespace	S-2 .....	battalion or regiment intelligence staff officer
ITSS .....	Improved Thermal Sight System	S-3 .....	battalion or regiment operations staff officer



## SECTION II. DEFINITIONS

**area reconnaissance**—A directed effort to obtain detailed information concerning the terrain or enemy activity within a prescribed area such as a town, ridge line, woods, or other features critical to operations. (MCRP 5-12C)

**aviation combat element**—The core element of a Marine air-ground task force (MAGTF) that is task-organized to conduct aviation operations. The aviation combat element (ACE) provides all or a portion of the six functions of Marine aviation necessary to accomplish the MAGTF's mission. These functions are antiair warfare, offensive air support, assault support, electronic warfare, air reconnaissance, and control of aircraft and missiles. The ACE is usually composed of an aviation unit headquarters and various other aviation units or their detachments. It can vary in size from a small aviation detachment of specifically required aircraft to one or more Marine aircraft wings. In a joint or multinational environment, the ACE may contain other Service or multinational forces assigned or attached to the MAGTF. The ACE itself is not a formal command. The ACE itself is not a formal command. Also called **ACE**. (MCRP 5-12C)

**close air support**—Air action by fixed- and rotary-wing aircraft against hostile targets that are in close proximity to friendly forces and that require detailed integration of each air mission with the fire and movement of those forces. Also called **CAS**. (JP 1-02)

**command and control system**—The facilities, equipment, communications, procedures, and personnel essential to a commander for planning, directing, and controlling operations of assigned and attached forces pursuant to the missions assigned. (JP 1-02)

**commander's critical information requirement**—An information requirement identified by the commander as being critical to facilitating

timely decision making. The two key elements are friendly force information requirements and priority intelligence requirements. Also called **CCIR**. (JP 1-02)

**cover**—A type of security operation that protects the force from surprise, develops the situation, and gives commanders time and space in which to respond to the enemy's actions. (This term and its definition are proposed for inclusion in the next edition of MCRP 5-12C.)

**essential elements of friendly information**—Specific facts about friendly intentions, capabilities, and activities needed by adversaries to plan and execute effective operations against our forces. (MCRP 5-12A)

**friendly force information requirement**—Information the commander needs about friendly forces in order to develop plans and make effective decisions. Depending upon the circumstances, information on unit location, composition, readiness, personnel status, and logistic status could become a friendly force information requirement. (MCRP 5-12A)

**guard**—1. A form of security operation whose primary task is to protect the main force by fighting to gain time while also observing and reporting information, and to prevent enemy ground observation of and direct fire against the main body by reconnoitering, attacking, defending, and delaying. A guard force normally operates within the range of the main body's indirect fire weapons. (JP 1-02, part 1 of a 3 part definition)

**intelligence**—The product resulting from the collection, processing, integration, evaluation, analysis, and interpretation of available information concerning foreign nations, hostile or potentially hostile forces or elements, or areas of actual or potential operations. The term is also applied to the activity which results in the product and to the organizations engaged in such activity. (JP 1-02)

**intelligence preparation of the battlespace**—The systematic, continuous process of analyzing the threat and the environment in a specific geographic area. Also called **IPB**. (MCRP 5-12A)

**intelligence, surveillance, and reconnaissance**—An enabling operation that integrates and synchronizes all battlefield operating systems to collect and produce relevant information to facilitate the commander's decisionmaking. Also called **ISR**. (MCRP 5-12A)

**liaison**—That contact or intercommunication maintained between elements of military forces or other agencies to ensure mutual understanding and unity of purpose and action. (JP 1-02)

**main body**—The principal part of a tactical command or formation. It does not include detached elements of the command, such as advance guards, flank guards, and covering forces. (MCRP 5-12A)

**Marine air-ground task force**—The Marine Corps' principal organization for all missions across the range of military operations, composed of forces task-organized under a single commander capable of responding rapidly to a contingency anywhere in the world. The types of forces in the Marine air-ground task force (MAGTF) are functionally grouped into four core elements: a command element, an aviation combat element, a ground combat element, and a logistics combat element. The four core elements are categories of forces, not formal commands. The basic structure of the MAGTF never varies, though the number, size, and type of Marine Corps units comprising each of its four elements will always be mission dependent. The flexibility of the organizational structure allows for one or more subordinate MAGTFs to be assigned. In a joint or multinational environment, other Service or multinational forces may be assigned or attached. Also called **MAGTF**. (MCRP 5-12C)

**Marine expeditionary force**—The largest Marine air-ground task force (MAGTF) and the Marine Corps' principal warfighting organization, particularly for larger crises or contingencies. It is task-organized around a permanent command element and normally contains one or more Marine divisions, Marine aircraft wings, and Marine logistics groups. The Marine expeditionary force is capable of missions across the range of military operations, including amphibious assault and sustained operations ashore in any environment. It can operate from a sea base, a land base, or both. In a joint or multinational environment, it may also contain other Service or multinational forces assigned or attached to the MAGTF. Also called **MEF**. (MCRP 5-12C)

**military operations on urbanized terrain**—All military actions that are planned and conducted on a topographical complex and its adjacent natural terrain where manmade construction is the dominant feature. It includes combat in cities, which is that portion of military operations on urbanized terrain involving house-to-house and street-by-street fighting in towns and cities. Also called **MOUT**. (This term and its definition are proposed for inclusion in the next edition of MCRP 5-12C.)

**mobility**—A quality or capability of military forces which permits them to move from place to place while retaining the ability to fulfill their primary mission. (JP 1-02)

**operational mobility**—The ability to move between engagements and battles within the context of the campaign. (This term and its definition are proposed for inclusion in the next edition of MCRP 5-12C.)

**passage of lines**—An operation in which a force moves forward or rearward through another force's combat positions with the intention of moving into or out of contact with the enemy. A passage may be designated as a forward or rearward passage of lines. (JP 1-02)

**priority intelligence requirement**—An intelligence requirement associated with a decision that will critically affect the overall success of the command's mission. Also called **PIR**. (MCRP 5-12A)

**reconnaissance**—A mission undertaken to obtain, by visual observation or other detection methods, information about the activities and resources of an enemy or adversary, or to secure data concerning the meteorological, hydrographic, or geographic characteristics of a particular area. (JP 1-02)

**route reconnaissance**—(Army/Marine Corps) A directed effort to obtain detailed information of a specified route and all terrain from which the enemy could influence movement along that route. (MCRP 5-12A)

**screen**—A security element whose primary task is to observe, identify, and report information, and which only fights in self-protection. (JP 1-02, Part 4 of a 5 part definition)

**strategic mobility**—The capability to deploy and sustain military forces worldwide in support of national strategy. (JP 1-02)

**supported commander**—2. In the context of a support command relationship, the commander

who receives assistance from another commander's force or capabilities, and who is responsible for ensuring that the supporting commander understands the assistance required. (JP 1-02, part 2 of a 2 part definition)

**tactical mobility**—The ability to move within an engagement or battle. (This term and its definition are proposed for inclusion in the next edition of MCRP 5-12C)

**urban area of operations**—A concentration of structures, facilities, and populations, such as villages, cities, and towns, that form the economic and cultural focus for the surrounding area. (This term and its definition are proposed for inclusion in the next edition of MCRP 5-12C.)

**urban operations**—A military operation conducted where manmade construction and high population density are the dominant features. Also called **UO**. (MCRP 5-12A)

**zone reconnaissance**—A form of reconnaissance that involves a directed effort to obtain detailed information on all routes, obstacles, terrain, and enemy forces within a zone defined by boundaries. A zone reconnaissance normally is assigned when the enemy situation is vague or when information concerning cross-country trafficability is desired. (MCRP 5-12A)



# REFERENCES

## Joint Publication (JP)

1-02 Department of Defense Dictionary of Military and Associated Terms

## Marine Corps Doctrinal Publication (MCDPs)

1-2 Campaigning

## Marine Corps Reference Publications (MCRPs)

3-14.1A Reconnaissance Platoon

3-35.3C Combined Arms Operations in Urban Terrain (Currently FM 3-06.11, *Combined Arms Operations in Urban Environment*, and will become MCRP 3-35.3C upon signature)

5-12A Operational Terms and Graphics

5-12C Marine Corps Supplement to the Department of Defense Dictionary of Military and Associated Terms

## Marine Corps Warfighting Publications (MCWP)

3-16 Fire Support Coordination in the Ground Combat Element

3-40.1 Marine Air-Ground Task Force Command and Control

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