

LAND FORCE**FIELD ARTILLERY DOCTRINE
(ENGLISH)****(Becomes effective upon receipt)****WARNING**

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Issued on Authority of the Chief of the Defence Staff**Canada**

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Issued on Authority of the Chief of the Defence Staff

OPI: DAD 7

1999-06-22

Canada 

FOREWORD

1. B-GL-371-001/FP-001, *Field Artillery Doctrine* is issued on the authority of the Chief of the Defence Staff. This publication supersedes B-GL-306-001/FP-001, *Artillery in Battle, Field Artillery, Volume 1, Command, Control, Employment and Deployment*.
2. Suggestions for amendments should be forwarded through normal channels to Director of Army Doctrine, attention DAD 7.
3. Unless otherwise noted, masculine pronouns apply to both men and women.
4. The NDID for the French version of this publication is B-GL-371-001/FP-002, *Doctrine de l'artillerie de campagne*.

PREFACE

AIM

1. The aim of this manual is to outline the tactical doctrine for the employment of field artillery in battle.

SCOPE

2. The Artillery consists of both field artillery and air defence artillery. This manual describes the roles, organization, capabilities, limitations, command and control (C²) procedures and tactical employment of the field artillery. It explains the role of the field artillery in the various operations and phases of war. This publication is the field artillery keystone manual, and expands upon the material presented in B-GL-300-007, *Firepower*. As such, all other field artillery manuals derive their authority and doctrine from this publication. Technical material may be found in manuals dealing with field artillery functions and equipment. Air defence artillery doctrine is covered in B-GL-372-001, *Air Defence Doctrine*.

3. This publication is intended for the use of all individuals involved in the all-arms battle or directly involved in field artillery operations. It is designed to present the reader with a general understanding of Canadian field artillery doctrine in order that field artillery may be effectively integrated into the all-arms battle.

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CHAPTER 1 INTRODUCTION

SECTION 1 RELATIONSHIP BETWEEN FIREPOWER AND FIELD ARTILLERY

1. Firepower, integrated with manoeuvre or independent of it, is used to destroy, neutralize, suppress and harass the enemy. Firepower effects occur at both the operational and tactical levels and must be synchronized with other attack resources against the enemy.

Maximum firepower effects require the full integration of army and joint service systems and procedures for determining engagement priorities; locating, identifying, and tracking targets; allocating firepower assets; and assessing battle damage. Firepower should be viewed as a joint concept, as it includes conventional land, air and, maritime weapons effects. It encompasses the collective and coordinated use of target acquisition data from all sources, direct and indirect fire weapons, armed aircraft of all types, and other lethal and non lethal means against air, ground, and sea targets.

2. Firepower may be divided into two categories: those weapons that are organic to a manoeuvre unit (which are usually direct fire in nature) and those primarily found within the scope of fire support and air defence. Fire support includes field artillery, mortars, and other non-line of sight weapons, naval gunfire, tactical air support, and offensive information operations (IO).¹

3. Field artillery is a major component of the fire support available to a division. Additional field artillery assets from corps may be assigned to the division depending on the tactical situation and the commander's intent.

¹ B-GL-300-005/FP-000 *Information Operations*, p. 24, "The goal of Offensive IO is to gain control over our adversary's command function and influence enemy and neutral persons, both in terms of flow of information and level of situational awareness... Offensive IO can strike at the adversary's capabilities at all echelons, targeting personnel, equipment, communications, and facilities in an effort to disrupt or shape adversary operations."

SECTION 2 ROLE OF THE FIELD ARTILLERY

4. The role of the field artillery is to assist in the defeat of the enemy with indirect fire as part of the all-arms battle.
5. The field artillery consists of:
 - a. gun, rocket, and missile units that provide surface-to-surface fire support for the field force; and
 - b. locating field artillery and equipment that provide target acquisition, combat surveillance, and artillery intelligence.

SECTION 3 THE CANADIAN APPROACH TO WARFARE

6. The Canadian Army has adopted the manoeuvrist approach to warfare, as described in B-GL-300-001 *Conduct of Land Operations—Operational Level Doctrine for the Canadian Army*. It is defined as a war fighting philosophy that seeks to defeat the enemy by shattering his moral and physical cohesion, his ability to fight as an effective coordinated whole, rather than destroying him by incremental attrition. The primary concern is the attacking of the enemy's critical vulnerability. The commander's aim should be to defeat the enemy by bringing about the systematic destruction of the enemy's ability to react to changing situations, his combat cohesion, and (most importantly) his will to fight.

7. Fire support plays a major role in this approach to war fighting. Firepower is one of the keys to breaking the enemy's cohesion. It destroys, neutralizes, and suppresses. It allows movement to take place, enabling friendly forces to manoeuvre into more advantageous positions relative to the enemy. The most flexible means of applying firepower on the battlefield is through the use of field artillery.

THE TWO DYNAMIC FORCES

8. Attacking the enemy's cohesion is executed through the combination of the two dynamic forces: fixing and striking. In order to exert these forces, one must first find the enemy. The objective is to find the enemy, deny him the freedom to achieve his purpose, and then manoeuvre into a position of advantage from which the enemy can be struck.

9. Finding the enemy involves the active gaining of information and intelligence to identify enemy locations, capabilities, and limitations. This is achieved by the Intelligence, Surveillance, Target Acquisition, and Reconnaissance (ISTAR) system. Fire support assets supporting this effort include unmanned aerial vehicles (UAVs), observers, weapon locating radars (counter-mortar and counter-battery), surveillance radars, sound ranging as well as artillery intelligence and targeting staffs. There may also be a requirement to fight for information, which will also encompass all aspects of fire support.

10. Fixing the enemy involves the use of combat forces to hold ground or vital points against enemy attack, firepower to hold or fix the enemy in one location, and obstacles and/or manoeuvre to protect friendly forces against enemy intervention. Fixing the enemy involves denying him his goals, distracting him, and thereby depriving him of freedom of action.

11. Fixing will almost always involve the application of firepower, and on many occasions will initially be achieved most quickly through the use of fire support rather than ground manoeuvre forces. Stripping the enemy of his critical resources such as air defence systems and engineering equipment, attacking his command and control structure, and delaying and disrupting his manoeuvre forces restricts his freedom of movement and focuses his attention towards the fixing force.

12. Striking the enemy is achieved through attack on the moral and physical planes or, ideally, a combination of both. Striking the enemy involves two activities: manoeuvring and hitting. The aim of manoeuvre is to achieve a position of advantage relative to the enemy from which force can be threatened or applied. The purpose of hitting the enemy is to break the enemy's cohesion by attacking selected portions of his force. A rapid and overwhelmingly attack will gain leverage over the enemy in physical terms while seizing the initiative. This combination will destroy the enemy's cohesion.

13. Fire support plays a major role in striking the enemy. The fire support system attacks the enemy throughout his depth in support of the strike, thereby attacking his morale and disrupting and destroying his manoeuvre formations, fire support elements, and command and control structure. The ability of the artillery to rapidly concentrate the fire of multiple fire units in order to engage targets assists in the destruction of the enemy's cohesion.

INTEGRATION OF COMBAT FUNCTIONS

14. The manoeuvrist approach to warfare requires commanders to think and react faster than the enemy in order to mass friendly strengths against enemy weaknesses to attack his physical/moral vulnerabilities. It is through the application of combat power that success is achieved. Combat power is generated by the integration of the combat functions—command, information operations, manoeuvre, firepower, protection, and sustainment—by the application of tempo, designation of a main effort, and synchronization.

15. Tempo is the rhythm or rate of activity relative to the enemy. It has three elements: speed of decision, speed of execution, and speed of transition from one activity to another. A high tempo gives a force an advantage in a fluid, fast moving battle. It is a unique characteristic of the artillery in that it is not irrevocably committed once it has become engaged with the enemy but retains its freedom of action. Its flexibility enables great combat power to be applied across the whole battle area in minutes. The artillery's command and control structure facilitates rapid decision making and fast execution of orders. Thus, the artillery significantly adds to the commander's ability to increase his tempo.

16. Firepower also has a significant impact on the enemy's ability to maintain a high tempo of operations. Organic target acquisition systems, along with the range of the field artillery resources, permit the attack of the enemy throughout his depth. Such an attack delays and disrupts the enemy's movement, plans, and cohesion, thereby reducing his tempo and, in relative terms, increasing the tempo of friendly forces.

17. The commander designates a main effort to provide a focus for the actions of his subordinates. The main effort is the activity that the commander considers crucial to the success of his mission. The artillery supports the main effort directly through the allocation of resources and indirectly through the conduct of deep operations. Deep operations are designed, in large part, to shape the battlefield and create the conditions for success in close operations, of which the main effort is likely to play a major role.

18. The commander uses synchronization to focus his resources and activities on order to produce maximum combat power at the decisive time and place. The artillery plays a major role in assisting the manoeuvre commander in synchronizing attacks on the enemy. Synchronization is inherently dependent upon the rapid passage of information between levels of command. The artillery command and control structure assists in the rapid dissemination of this critical information. Furthermore, fire support coordination centres at all levels continuously coordinate the attack on the enemy by multiple attack systems. The target acquisition resources within the field artillery must be coordinated with the ISTAR process to ensure that they are effectively synchronized.

19. The combat function firepower has a very important role to play in attacking the enemy's cohesion, both moral and physical. It is the artillery that provides the commander with the most powerful, effective, and responsive component of firepower.

SECTION 4

FUNCTIONS OF ARTILLERY COMMANDERS

20. Artillery commanders have two roles: to advise the manoeuvre commander on fire support and to command assigned artillery. It is necessary to achieve an appropriate balance of time and

effort between these roles. Artillery commanders have three functions: to interpret, to influence, and to integrate.

21. **To Interpret.** The artillery commander must assimilate the information he receives and fully understand the manoeuvre commander's mission. He must also comprehend the intent and concept of operations of the superior commander and the commander two levels up. This implies that the artillery commander understands our doctrine both at the operational and tactical levels.

22. **To Advise.** The artillery commander must then use his knowledge of the artillery, fire support, and tactics to advise the commander and to develop the fire support necessary for the commander's plan.

23. **To Integrate.** Finally, the artillery commander must integrate the fire support plan into the combined plan. It is essential that these plans are developed simultaneously to ensure their compatibility and to maximize the application of combat power.

SECTION 5 TACTICAL FUNCTIONS

24. The field artillery has the following tactical functions:
- a. **Close Support.** Close support is the timely and intimate fire that is provided to the supported formation or unit. It must be closely integrated with the fire, movement, and other actions of the supported force.
 - b. **Attrition.** Field artillery may employ fire to cause heavy casualties to both personnel and materiel. This will help to establish and maintain favorable combat ratios.
 - c. **Interdiction.** Field artillery may employ fire to delay, isolate, disrupt, harass, and deny the enemy freedom of movement. Its purpose is to maintain favorable combat ratios by preventing the enemy from deploying additional forces to reinforce those

that have already been committed to an operation.

- d. **Counter-battery.** Neutralization and destruction of enemy fire support elements, including their artillery, is referred to as counter-battery (CB). The purpose of CB is to limit the enemy's ability to provide fire to support his own operations or to interfere with ours. CB is a divisional and corps responsibility. Field artillery units in direct support of brigades are responsible for the conduct of counter-mortar (CM) operations. Suppression of Enemy Air Defence (SEAD) is a CB task.
- e. **Coordination.** The field artillery commander at all levels of command is responsible for coordinating all means of fire support available to the command. This includes land, air, and naval fire support.
- f. **Target Acquisition.** Artillery intelligence is the collection, collation, and dissemination of all intelligence dealing enemy fire support systems. Target acquisition is provided by the ISTAR system to permit the timely engagement of the enemy. Field artillery locating systems are integrated into this effort.

SECTION 6 PRINCIPLES OF EMPLOYMENT

25. The field artillery commander strives to realize the battlefield potential of the fire support system by concentrating the available fire support assets at the time and place required in such strength as to exert a decisive influence on operations. This section explains the principles to be considered by the field artillery commander in the tactical handling of fire support in battle.

26. Fire support is one of the most powerful and flexible components on the battlefield. It is capable of delivering massive weights of fire throughout the area of influence. In order to achieve this effect, however, observance of the principles of concentration of force, coordination, flexibility, and economy of effort is required.

27. **Concentration of Force.** Concentration of force applies equally to the allotment of field artillery and to the application of fire. In fire planning and targeting, the principle is to ensure that the important targets are dealt with effectively, if necessary by engaging each in turn rather than dispersing the available effort over so many tasks that none receives adequate fire. Concentration, in the broadest sense, is achieved by the centralization of command and control (C²) at the highest practical level, thus permitting the full weight of the field artillery to be applied as and when required by the manoeuvre commander.

28. **Coordination.** To carry out this role, the field artillery commander must know where, when, and in what form fire is required. This information is provided through close and continuous liaison between formation and unit commanders and their staffs and the field artillery commanders and staffs at all stages of the planning and execution of an operation. The field artillery system of command and control (C²) and the organization of field artillery HQs facilitate the intimate cooperation and liaison at every level required for quick and effective field artillery support. Structures and organizations alone, however, will not guarantee the degree of cooperation required. This can only be achieved through a mutual understanding of the characteristics and limitations of all arms in the land battle—a process developed by frequent, imaginative, and comprehensive all-arms training through the maintenance of affiliations.

29. Coordination during battle includes the synchronization of all available fire support assets to attack the enemy throughout his depth in concert with the manoeuvre commander's concept of operations. Close coordination is required between air and field artillery staffs to coordinate the activities of friendly aircraft and field artillery. As with all-arms training, successful cooperation is based on knowledge of capabilities and limitations together with mutual trust developed through personal contact, affiliation, and constant training. Cooperation between the field artillery, aviation and air commanders, and, at lower levels, between the forward observation officer (FOO), forward air controller (FAC), and pilot will ensure that targets are effectively engaged with the appropriate weapon systems at the correct time and place to support the commander's plan.

30. It is also imperative that the fire support and ISTAR plans are fully integrated. The ISTAR system is tasked with developing

situational awareness on the enemy's activities and intentions. By coordinating these two plans, information on the enemy can be determined at the appropriate time for the fire support system to attack. The targeting process is the means of achieving this integration.

31. The principle of coordination applies particularly to joint operations. Intimate cooperation among maritime, land, and air commanders must exist from the earliest stages of planning to produce an integrated fire plan supporting the whole operation. For example, in amphibious operations the initial planning must ensure fire support between the landing of the first assault waves and the deployment ashore of the accompanying field artillery. The senior field artillery commander accompanying the landing force coordinates the fire support once this aspect of control has been transferred ashore.

32. The principle of coordination is of considerable importance in combined operations. When the forces of more than one nation operate together, differences in philosophy, methods, etc. can cause considerable difficulty. Commanders at all levels must insist that their staffs and units cooperate fully with allied forces. Standardization agreements (STANAGs) and Quadripartite Standardization agreements (QSTAGs) assist artillery staffs of NATO and ABCA nations, respectively, in achieving greater interoperability.

33. **Flexibility.** Flexibility as a principle implies the ability to transfer firepower rapidly from one point to any other over a wide frontage in order to support the commander's plan as dictated by the tactical situation. Flexibility is generally achieved in one of two ways: the centralization of C^2 and the decentralization of the control of fire. The former guarantees that the commander will have the required fire support available at any time, while the latter permits subordinate commanders the use of the maximum available field artillery. A third technique is the superimposition of field artillery, which is the allotment of extra fire units on a target, in order to provide an additional weight of fire. This fire may be switched to another target without degrading the required intent of the fire on the original target. It provides a concentration of all available firepower while retaining the flexibility necessary to deal with the unforeseen.

34. The organization of the field artillery facilitates flexibility by providing rapid and reliable communications, thus permitting the timely transfer of C^2 . Flexibility is also manifested in the control of

ammunition through the maintenance of reserves by commanders at all levels.

35. The flexibility of the artillery is very important to manoeuvre commanders. The ability to rapidly shift fire across the whole battle area in a matter of minutes assists the manoeuvre commander in maintaining a high tempo and achieving success on the battlefield.

36. **Economy of Effort.** If the principle of concentration is applied, the principle of economy of effort will also be satisfied to the extent that field artillery resources will not be dispersed or wasted on tasks of secondary importance. Artillery fire must be coordinated with that of other attack resources so that the full effect of the field artillery is available for those tasks that cannot be engaged equally well or better by other weapons. Even though the field artillery commander effects this detailed coordination at every level, only those most intimately concerned with the problem can effectively decide upon appropriate measures. For this reason control of fire is decentralized to the level where the application of fire can be best coordinated.

37. Economy of effort also implies that the field artillery effort allotted to any tasks should not exceed that necessary to produce the results required by the commander. In particular, the availability of ammunition is always a factor limiting the field artillery's ability to fulfil its tactical function. Any unnecessary expenditure must therefore be avoided. It is necessary to calculate the resources required to carry out each task and to allot the available effort accordingly. This is facilitated by the retention of centralized control, which permits planning of expenditure, by the most appropriate HQ.

SECTION 7 LOCATING

38. Locating artillery is a part of the field artillery, and it encompasses those locating units and equipment that provide target acquisition, combat surveillance, and artillery intelligence. It is also responsible for providing survey and meteorological data.

39. Full exploitation of available fire support depends upon the effective use of all target acquisition means. The ISTAR process must be understood in order to use these sources of information effectively.

Locating artillery performs the following functions to fulfil its role:

- a. **Target Acquisition.** Target acquisition is the detection of targets, and it is the primary function of locating artillery. Target acquisition is provided by weapon locating radar, sound ranging, and unmanned aerial vehicles (UAVs).
- b. **Direction of Fire.** Artillery fire can be effectively directed onto known targets by weapon locating radar, sound ranging, and UAVs. In addition, some weapon locating radars and sound ranging systems employ forward observers to control the operation of the equipment. These listening posts (LPs) and advanced posts (APs) can be employed to a limited extent as observers and are capable of controlling friendly indirect fire.
- c. **Combat Surveillance.** In addition to being an all-arms responsibility, combat surveillance is a primary function of UAVs and deployed elements such as LPs and APs.
- d. **Artillery Intelligence.** Artillery intelligence staffs are responsible for collecting information on enemy artillery from all available agencies and sources, and deducing accurate artillery intelligence for use by commanders and their staffs. They will also advise on CB policy and carry out CB within the parameters of the formation commander's CB policy.
- e. **Survey.** The aim of survey is to place locating resources and fire units on a common grid, thereby allowing accurate predicted fire (surprise) and accurate massed fire (concentration) to occur simultaneously.
- f. **Meteorological Data.** Meteorological (met) units provide meteorological data to those friendly forces requiring it. The correction for non-standard conditions, as used by both firing units and certain

locating resources,² is critical in accurately locating targets and avoiding subsequent retaliation.

40. To be most effective, locating resources should adhere to the following principles of employment:

- a. **Concentration.** It is necessary to focus locating resources on those areas where the enemy is most likely to concentrate the majority of his resources. This focus allows friendly forces to acquire and neutralize enemy equipment in an efficient manner. The concentration of locating resources does not imply physical concentration, but rather that the priority of effort of the system be directed to a specific area.
- b. **Economy of Effort.** To ensure that there is no duplication of effort, detailed coordination of locating resources must be carried out at all levels in accordance with the ISTAR plan. Economy of effort dictates primary reliance on the equipment best suited to the task. For example, the detection of enemy mortars near the forward edge of the battle area (FEBA) can be carried out by weapon locating radar, by UAVs, and possibly by manned aircraft. The equipment best suited to the task, however, is weapon locating radar, the use of which allows other resources to concentrate on other intelligence requirements.
- c. **Security.** Locating resources are extremely vulnerable to enemy interference from physical attacks and jamming. As is the case with all units, due consideration must be given to security through camouflage and self-defence. Locating resources, which often deploy individually or in small groups, seldom have sufficient strength to adequately defend themselves.

² For example, UAVs require met information for flight planning and sound ranging requires it for accurate target location determination.

- d. **Cooperation.** For information to be rapidly acquired, interpreted, and acted upon, cooperation between the locating agencies and resources and the attack resources involved is mandatory. This cooperation is best gained by a solid understanding of the capabilities of others, effective standing operating procedures (SOPs), and effective communications.

SECTION 8 FIELD ARTILLERY EQUIPMENT AND AMMUNITION

41. Field artillery uses weapon systems with differing ranges in order to cover the entire battlefield with indirect fire. The types of ammunition available for firing depends on the weapon system being used. Systems differ in responsiveness, availability, and accuracy. There are three principal types of field artillery platforms: guns, rockets, and missiles.

- a. **Guns.** Guns are characterized by high responsiveness and accuracy. An extensive selection of munitions, coupled with observation elements, permit the engagement of both point and area targets. Self-propelled and towed guns are broken into three classifications according to caliber:
 - (1) **Light.** These range from 76mm to 105mm. Guns of this caliber are usually used to provide support to light forces.
 - (2) **Medium.** These range from 106mm to 155mm and are used either to support the manoeuvre brigades or the division as a whole.
 - (3) **Heavy.** These are larger than 155mm and are usually used in a general support role.
- b. **Rockets.** Rockets are usually employed as part of a multiple launch rocket system (MLRS). The caliber of rockets used by the artillery varies. Rocket

Field Artillery Doctrine

artillery is usually used to support the division or corps.

- c. **Missiles.** Missiles are used as part of the corps general support plan. Occasionally, missiles will be employed to support divisional operations. Missiles vary in caliber and warhead.

42. There are many different types of munitions available for target engagement. The following sub paragraphs contain a general outline of the different types of munitions:

- a. **Guns:**
 - (1) Fragmentation rounds are most effective against unprotected or lightly protected personnel targets. The height of burst can be varied through the use of different fuse settings.
 - (2) Bomblet rounds, such as dual purpose improved conventional munitions (DPICM) and scatterable mines, are effective against personnel and armoured vehicles.
 - (3) Smoke rounds reduce the enemy's vision (and thus his observation) and hamper his movements.
 - (4) Illumination rounds provide a means to illuminate specific sectors of terrain in order to facilitate friendly operations and/or disrupt the enemy's night observation equipment.
 - (5) Extended range ammunition can be used to increase the area covered by artillery fire.
- b. Rockets have a variety of payloads, including DPICM and scatterable mines. DPICM is effective against personnel and armoured vehicles. Mines are

effective against armoured vehicles, preventing the enemy from rapidly passing a specific sector of terrain.

- c. Missiles, like the Army Tactical Missile (ATACM), carry a variety of payloads and are capable of attacking armoured, hard point, and personnel targets at ranges over 250 kilometers.

43. Locating Artillery uses different resources with varying capabilities to acquire accurate target locations, as follows:

- a. **Weapon Locating Radar.** Weapon locating radar is designed to detect enemy projectiles in flight and accurately deduce the firing position based upon their trajectory. Weapon locating radar can also be used to adjust artillery fire onto located targets or specified areas. There are two types of weapon locating radar:
 - (1) **Counter-mortar** – Designed to acquire the projectiles of approximately 120 mm or less.
 - (2) **Counter-battery** – Designed to acquire the projectiles of approximately 120 mm or greater.
- b. **Sound Ranging.** Sound ranging is a method of locating enemy artillery through the sound generated by the weapon firing.
- c. **UAVs.** Airborne sensors (mounted in UAVs) can provide delayed or real-time imagery, thereby allowing surveillance, target acquisition, and, under optimum conditions, adjustment of fire.
- d. **Meteorological Systems.** Met sub-units provide all field and locating units with the required corrections for non-standard conditions to ensure accurate target acquisition and target engagement.

CHAPTER 2 ORGANIZATION

SECTION 1 GENERAL

1. The aim of this chapter is to define the generic organization of basic field artillery formations and units, their roles, and the duties of key appointments within them. This chapter should be used in conjunction with *Electronic Battle Box* CD ROM for all doctrinal organizational line diagrams.
2. The artillery brigade organic to a division is known as the division artillery (Div Arty). The Commander Division Artillery (CDA), a brigadier-general, commands Div Arty. All artillery regiments are commanded by lieutenant-colonels. Each regiment consists of two or more batteries, each commanded by a major.

SECTION 2 ORGANIZATIONS

DIVISION ARTILLERY

3. Doctrinally, division artillery consists of field regiments, general support (GS) regiments, a target acquisition (TA) regiment, and an air defence (AD) regiment. The primary function of field regiments is to provide direct support to manoeuvre brigades. GS regiments, which are composed of both cannon and rocket artillery units, provide fire to the division as a whole. The TA regiment provides target location, artillery survey, and meteorology and is responsible for TA and supplementary tactical information and intelligence. For details on the AD regiment refer to B-GL-372-001 *Air Defence Artillery Doctrine*.

DIVISION ARTILLERY BRIGADE HEADQUARTERS

4. The division artillery brigade HQ is an independent HQ. It assists the commander in the command and control of all artillery supporting the division. The CDA has the following tasks:

Field Artillery Doctrine

- a. to advise the division commander and staff on all fire support matters;
- b. to command all units within the division artillery;
- c. to control the artillery resources at the disposal of the division;
- d. to establish a Fire Support Coordination Centre (FSCC) at division HQ in conjunction with air and other supporting arms;
- e. to establish an Air Space Coordination Centre (ASCC) component as part of division HQ with support from the tactical HQ of the division AD regiment and the Tactical Air Command Post (TACP);
- f. to establish an artillery intelligence cell with support from the division TA unit, and direct CB fire against enemy guns, mortars, and AD weapons;
- g. to coordinate meteorological and survey support for artillery units within the division;
- h. to provide general intelligence on enemy activity gained through combat surveillance by ground observers and locating devices; and
- i. to provide liaison to flanking formations as necessary.

BRIGADE GROUP ARTILLERY

5. A typical field artillery regiment within a brigade group is shown in *Electronic Battle Box* CD ROM under 20 Canadian Mechanized Brigade Group (CMBG). This regiment is commanded by a lieutenant-colonel, who is the senior adviser to the brigade group commander on fire support matters.

FIELD REGIMENTS

6. **Role.** The typical role of a field regiment is to provide advice, liaison, observation, and communications to a brigade and to engage targets of immediate concern to the brigade and its units. The organization of the field regiment is shown in the *Electronic Battle Box* CD ROM.

7. **Tasks.** The CO has the following tasks:

- a. to advise the supported arm commander on all field artillery and fire support coordination matters;
- b. to establish FSCCs at brigade and unit levels in conjunction with air and other supporting arms;
- c. to control all field artillery and other fire support assets allotted to the brigade;
- d. to establish a field artillery intelligence cell and direct counter-mortar (CM) fire against enemy mortars;
- e. to provide general intelligence on enemy activity gained through combat surveillance by available resources;
- f. to provide timely and intimate, offensive and defensive fire support to the supported arm; and
- g. to provide survey support and, in the case of a brigade group, meteorological support.

GENERAL SUPPORT (GS) ARTILLERY

8. **Role.** The role of GS artillery is to provide additional fire for formations at all levels. General support artillery may be equipped and organized as gun or rocket units. GS units are the primary field artillery means to fight the divisional deep operations. Sample

Field Artillery Doctrine

organizations of a GS gun regiment and a multiple launch rocket system (MLRS) regiment are shown in the *Electronic Battle Box*.

TARGET ACQUISITION (TA) REGIMENT

9. **Role.** The role of the TA regiment is to provide locating and surveillance support to the division artillery. The organization is found in the *Electronic Battle Box*. The CO has the following tasks:

- a. to advise the CDA on all locating matters;
- b. to establish the division artillery intelligence cell at division artillery brigade HQ;
- c. to provide meteorological and survey support in the divisional area;
- d. to locate enemy guns;
- e. to provide combat intelligence from locating devices; and
- f. to liaise with flanking formations on artillery intelligence matters.

CHAPTER 3 COMMAND AND CONTROL

SECTION 1 GENERAL

1. The aim of this chapter is to discuss the command and control of artillery and the tactical tasks associated with the control of artillery fire at the division and Canadian Mechanized Brigade Group (CMBG) levels. Artillery corps level doctrine will be dealt with in a separate publication.
2. The range of modern artillery is such that fire support from an artillery organization may be provided to more than one unit or formation, both in national and multinational operations. Therefore, the positioning of artillery systems, including surveillance and target acquisition (STA) assets, and the concentration of fire to achieve the best results during rapidly changing tactical situations demand an efficient and flexible system of command and control (C²). The highest artillery commander must be able to influence the siting of artillery and STA systems within the formation so that the fire of as many artillery resources as possible can be concentrated on the most important targets. The artillery commander must be able to rapidly allocate the fire of artillery units to targets that are most likely to affect the manoeuvre commander's plan. Thus, while C² of artillery assets is exercised at the highest level, the control or application of artillery fire is exercised at the lowest level.
3. As outlined in B-GL-300-003 *Command*, command is the authority vested in an individual for the direction, coordination, and control of military forces and, more importantly, the exercise of that authority and responsibility.³ Effective command enables the artillery to be concentrated at the critical place and time to support the manoeuvre commander's operations. Command is exercised through one of the five command relationships: full command, operational command (OPCOM), tactical command (TACOM), operational control (OPCON) or tactical control (TACON).

³ B-GL-300-003/FP-000 *Command*, p. 3.

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4. Control is the process of organizing, directing, and coordinating the activities of a military organization. From the artillery perspective this is achieved by assigning one of the tactical tasks—Direct Support (DS), Reinforcing (R), General Support Reinforcing (GSR), General Support (GS)—or a non-standard task such as a tactical task with a modification. These terms will be further explained in Section 3 of this chapter.

5. The artillery provides the major portion of the firepower available within a division. It is a major subordinate formation and the Commander Division Artillery (CDA) exercises command over all artillery resources organic to the formation. The CDA coordinates the application of artillery support resources in the division and advises the divisional commander on the allocation of all artillery and other fire support assets.

6. The commanding officer of the DS field regiment performs the same function at brigade level. Battery commanders (BCs) and forward observation officers (FOOs) provide the artillery representation at unit and sub-unit levels, respectively.

7. At division level, an artillery brigade HQ commands, controls, allots, and coordinates all artillery, whether organic or assigned to the division. The artillery brigade HQ establishes a fire support coordination centre (FSCC) at the division HQ in order to command, task assign, and coordinate artillery and other fire support resources to support division operations.

8. At brigade and battle group levels, the artillery aspects of the tactical plan are coordinated by the CO and battery commanders of the DS field regiment, respectively. Their FSCCs are collocated with the brigade and unit HQ during operations. At unit level, FOOs and mortar fire controllers (MFCs) are deployed to provide the best possible support to the unit as a whole. FOOs are normally grouped with a particular company/squadron or combat team. Additional observers may be allotted to supplement the formation observation plan within the unit's area of operations.

SECTION 2 COMMAND AND CONTROL

COMMAND

9. Command is the authority vested in an individual for the direction, coordination, and control of military forces. As described in Chapter 1 of B-GL-300-003 *Command*, military command encompasses the art of decision-making and motivating and directing all ranks into action to accomplish a mission. It requires a vision of the desired result and an understanding of concepts, missions, priorities, and the allocation of resources. It requires an ability to assess people and risks and involves a continual process of re-evaluating the situation. In exercising his authority as a commander, the artillery commander is responsible for ensuring that:

- a. Sufficient guns, launchers, and target acquisition assets are deployed within effective range of the critical target areas. Responsibility for the movement and security of artillery systems is implicit in this.
- b. Sufficient resources are allocated to subordinate artillery commanders to support lower formation operations. The timeliness of allocation is critical.
- c. Ammunition, in sufficient quantity and nature for the envisaged operation, is available to the guns and launchers. Responsibility for the resupply of ammunition is implicit.
- d. There is adequate intelligence concerning the enemy artillery capability.
- e. Fire can be applied to support deep, close, and rear operations by an effective command and control system linked to all levels of command. This system must be designed to exploit the inherent flexibility of artillery by allowing rapid transfer of resources and control from one level to another and between commanders as the battle demands.

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10. To enable artillery fire and target acquisition assets to be concentrated at the critical place and time in support of the commander's main effort, command of field artillery is exercised at the highest level possible. To achieve the best results over the whole front, the guiding principle is that command of all artillery must be centralized under the highest command that can exercise it effectively. The level at which this can be done depends on the following:

- a. the range of the equipment (guns, launchers, target acquisition [TA] resources) in relation to the areas of influence and interest;
- b. the number of equipment available and their capabilities;
- c. equipment siting and the need for protection and cooperation with other arms;
- d. the speed at which decisions must be made with regard to movement and deployment, and the ability/means to communicate these decisions to the units concerned;
- e. the mission of the formation or unit being supported; and
- f. the administration of the artillery units concerned.

11. The artillery commander will also exercise command, on behalf of the formation commander, over the artillery resources that are either organic to the formation or placed under a command relationship during an operation.

CONTROL

12. As explained in Chapter 1 of B-GL-300-003 *Command*, control is an aspect of command and is the process through which a commander organizes, directs, and coordinates the activities of the forces assigned to him. Control of artillery resources is achieved through the assignment of tactical tasks, as explained in the following

section. The authority to engage targets (i.e., artillery fire control) is usually exercised at the lowest practical level (e.g., the FOO). This results in the most rapid, flexible, and effective application of concentrated firepower. In close operations such delegation allows a battery commander (BC) or FOO supporting the main effort to control the fire of all available artillery.

COMMAND AND CONTROL RELATIONSHIPS

13. Operation orders must detail the C² relationship and the periods for which they are in effect. The command relationships utilized both by NATO and United States (America), Britain, Canada, Australia (ABCA) are summarized at Annex A.

DELEGATION OF COMMAND AND CONTROL

14. The CDA and the CO of the CMBG field regiment have full command of all organic field artillery assets in the division and the CMBG, respectively. The CDA may assign additional artillery resources to augment the artillery supporting the manoeuvre brigades within the division by using one of the artillery tactical tasks.

15. Corps artillery may allot additional artillery assets to the division artillery to supplement its firepower. These assets will normally be assigned either OPCOM or OPCON to the division and will be commanded by the gaining artillery commander. The gaining artillery commander will employ the new force by assigning it tactical tasks.

16. The preferred command relationship for artillery assets assigned from corps to division is OPCOM. This command relationship allows the gaining commander the flexibility to assign separate tactical tasks to elements of the assigned force, whereas OPCON does not include the authority to apportion separate employment or tactical tasks to components of the assigned force—the formation or unit placed under OPCON has to be tasked as a single entity.

SECTION 3 TACTICAL TASKS

17. The control of artillery resources is achieved through the use of the tactical tasks outlined at Annex B. Tactical tasks define the way in which fire support assets are related to the supported arm and the degree of guarantee attached to the provision of that support. The tactical tasks, in order from the most responsive to the supported arms to the most centralized, are as follows:

- a. direct support (DS);
- b. reinforcing (R);
- c. general support reinforcing (GSR); and
- d. general support (GS).

18. The seven inherent responsibilities of the tactical tasks are as follows :

- a. priority in calls for fire;
- b. provision of liaison officers;
- c. establishing communications;
- d. provision of Fire Support Coordination Centre (FSCC) and forward observers;
- e. positioning or movement authority;
- f. zone of fire; and
- g. fire planning.

19. When the commander's intent cannot be accurately conveyed with one of the standard tactical tasks, a non-standard tactical task is assigned. Non-standard tactical tasks amplify, limit or change one or more of the seven inherent responsibilities or spell out contingencies not covered by the responsibilities, e.g., a restriction on ammunition or

when movement limits a standard tactical task.

20. Key aspects of the tactical tasks are as follows:

a. **Direct Support (DS).**

- (1) Within the division it is normal for the CDA to assign a field regiment a tactical task of DS to a manoeuvre brigade (e.g., 11 Fd Regt DS 11 CIB). A field artillery regiment tasked DS is immediately responsive to the fire support needs of that formation. Only in exceptional circumstances might a field battery be DS to a manoeuvre unit, such as unique covering force or rear area operations.
- (2) When placed in DS, a field artillery regiment provides dedicated liaison, communications, and personnel in the form of FSCCs, BCs and FOOs. They have the responsibility for fire planning and coordinating all indirect fire support at every level of command from sub-unit upwards. The relationship is maintained under the concept of affiliation, if possible. This ensures a continuity of fire support to the supported arm at a personal level.
- (3) Movement of DS artillery is normally controlled by the CO of the DS field regiment in support of the brigade plan. In certain situations this authority may be reserved by the higher artillery commander.

b. **Reinforcing (R).** When the fire of one artillery unit/formation is insufficient for a particular operation, it may be augmented by another artillery unit/formation. Artillery units only reinforce other artillery units (e.g., 14 GS Regt R 12 Fd Regt). A regiment can only reinforce one regiment at a time, but a regiment can be reinforced by more than one

regiment at a time. Reinforcing artillery responds to calls for fire from the reinforced unit as a first priority, followed by those from its own observers and then from the higher artillery HQ. Movement of the reinforcing artillery is normally controlled by the CO of the reinforced artillery unit, unless otherwise specified. Similarly, the reinforcing artillery's fire plans are prepared by the reinforced unit. The assignment of reinforcing artillery is likely to be accompanied by caveats regarding time and/or ammunition expenditure.

- c. **General Support Reinforcing (GSR).** An artillery unit/formation is placed GSR only to another artillery unit/formation (e.g., 13 Fd Regt GSR 12 Fd Regt). The priority of fire is to the higher artillery HQ, then to the reinforced artillery unit. Fire from a GSR unit is not guaranteed. If given approval by the higher artillery HQ, the GSR unit may be positioned by the reinforced artillery unit. Fire planning is done by the higher artillery HQ, and GSR units are usually superimposed on fire plan serials due to their lower degree of guaranteed fire.
- d. **General Support (GS).** An artillery regiment/formation with this task provides fire support to the manoeuvre formation as a whole and remains under the immediate control of, and is moved by, the higher artillery HQ (e.g., 15 MLR Regt GS). It is the most centralized of the tactical tasks and provides the least degree of guaranteed fire support.
- e. **Non-Standard Task.** A non-standard task is one of the above tasks with a condition (e.g., 13 Fd Regt DS 13 CIB, less positioning authority). In this case all the responsibilities associated with DS apply with the exception of positioning authority.

21. Using the example of 11 Fd Regt DS 11 CIB, the seven inherent responsibilities of 11 Fd Regt would be:

- a. **Priority in Calls for Fire.** This refers to the priority of fire support to the manoeuvre forces. The priority of fire from 11 Fd Regt is to 11 CIB, followed by the BCs and FOOs allocated to the battle groups of 11 CIB, and finally to the higher artillery HQ (i.e., division artillery). The CO 11 Fd Regt may further define priority of fire to specific BCs/FOOs.
- b. **Provision of Liaison Officers.** This function is provided by the BCs and FOOs of 11 Fd Regt.
- c. **Establishing Communications.** The Regt FSCC establishes communications with 11 CIB HQ, while the BCs and FOOs do the same with the manoeuvre elements to which they are assigned.
- d. **Provision of Forward Observers.** The DS field regiment is responsible for the provision of BCs and FOOs to the formation as a whole. Priorities for the assignment of BCs and FOOs will be established and groupings may change depending on the circumstances. The assignment of BCs and FOOs is accomplished using a command relationship, as highlighted in Annex A.
- e. **Positioning Authority.** In this example, the CO 11 Fd Regt is responsible for deploying the regiment so that it can support 11 CIB operations. In certain cases the CDA may wish to retain positioning authority and may assign the task of “**DS less positioning.**” This is a non-standard task in which all responsibilities associated with DS apply with the exception of positioning authority.
- f. **Zone of Fire.** 11 Fd Regt is responsible for delivering fire in the zone of action of 11 CIB. This is a factor in considering how and where the regiment will be deployed and to whom the BCs and FOOs will be assigned.

- g. **Fire Planning.** The CO, BCs, and FOOs of 11 Fd Regt are responsible for fire planning in support of 11 CIB's operations.

22. **Priority of Fire.** The most important inherent responsibility is that of priority of fire. It has a major impact on a unit's ability to respond to calls for fire. The priority of fire can be allocated to specific BCs and FOOs by the CO. This allocation can be for a fixed time period or for a particular phase of an operation. Priority of fire can be delegated in two ways:

- a. planned; and
- b. ad hoc.

23. **Planned.** By establishing priorities based on the manoeuvre plan, the CO can specify that the priority of fire from the regiment is to a particular BC or FOO for a specific period of time or phase within an operation.

24. **Ad hoc.** Occasions may arise when BCs/FOOs will require the fire of the whole regiment for a period of time. The CO is the approving authority for requests of this nature.

25. **Restrictions.** Regardless of the type of task or priority of fire assigned, the response of the field artillery unit/formation may be subject to restrictions imposed by the higher commander through the controlling HQ.

26. **Ammunition Control Measures.** These may be imposed at the time the priority of fire is initially ordered through the formation/unit SOPs or by separate order issued as necessary to meet changes in the operational situation. They may be issued in the form of a restriction by type, percentage of basic load, or as a specific allocation for a phase or task. Examples of the above are:

- a. "Smoke not to be fired without authority Division Artillery HQ";
- b. "...will not expend more than 20% basic load per day";

- c. “VT fuzes shall not be fired short of GOAT HERD”;
- d. “Priority of fire to 12 Fd Regt for Phase 1—80 rounds per gun (RPG)”; or
- e. “Phase 3—for CB 30 RPG”.

27. **Locating Artillery.** Tactical tasks are also used to control locating resources. Target acquisition resources are usually deployed in forward areas, where the individual siting requirements can be best satisfied. This suggests that command of locating artillery should be delegated. However, the combat intelligence produced by the locating artillery resources is of such importance to the successful and timely application of fire support, that it must reach the appropriate level of command without delay. This factor tends to keep command of locating artillery resources at the CMBG, divisional, and corps levels. Thus, at divisional level locating artillery resources are usually placed in General Support (GS) to the division. In rare circumstances sub-components of TA regiment can be delegated to another unit for a given operation either as DS or R/GSR.

CHAPTER 4 COORDINATION

SECTION 1 GENERAL

1. The aim of this chapter is to explain the process of coordinating the fire of field artillery through an examination of the operation of the fire support coordination centre (FSCC) and the measures used to mass fire support.

SECTION 2 FIRE SUPPORT COORDINATION

2. A supported formation or unit will have many different sources of fire support available. Depending on the circumstances, this support may consist of all or any combination of the following:

- a. artillery;
- b. mortars;
- c. close air support (CAS);
- d. naval gun fire (NGF); and
- e. offensive information operations (IO).

3. The resources listed at para 2 must be employed so that each is used to the best advantage, in the most effective and efficient manner, and such that all conflicting demands are resolved. Careful coordination of all fire support resources must thus be carried out in accordance with the following guidelines:

- a. Requests for fire support must be assigned to the agency that can deliver the most effective fire in time.
- b. Fire support requests and calls for fire must be submitted directly to the agency that will deliver the fire, if a representative is present. If no

representative is present, the request must be submitted to the next higher HQ.

- c. The effects of fire support furnished must meet the wishes of the supported arms commander. If the commander's request cannot be met, viable alternatives must be suggested and provided.
- d. Care must be taken to prevent fratricide.

4. It is the responsibility of the artillery commander at each level to carry out fire support coordination on behalf of the supported arms commander. The artillery commander advises the supported commander on the employment of all available fire support resources. At the formation level this may be achieved by assigning individual targets to different fire support resources and/or by establishing engagement zones for different weapon systems.

SECTION 3 FIRE SUPPORT COORDINATION CENTRE (FSCC)

5. To effect the required coordination, the artillery commander establishes a FSCC within the operations centre of the supported unit or formation HQ. The FSCC consists of one common operations centre, with representatives and communications from all available fire support agencies, and the Air Space Coordination Centre (ASCC). The artillery commander is responsible for the operation of the FSCC.

6. The FSCC carries out the following functions:
- a. **Advice.** It provides advice to the supported commander and staff on the capabilities and use of all indirect fire support and, where applicable, air defence AD resources.
 - b. **Coordination.** The FSCC:
 - (1) plans and coordinates all the fire support available to the formation or unit;
 - (2) coordinates fire support with adjacent units/formations; and

- (3) coordinates AD airspace control measures through the ASCC.
- c. **Allotment of Resources.** The FSCC allots and prioritizes fire support resources to support the commander's plan. This includes the processing of fire support requirements external to the supported formation.

SECTION 4 FIRE SUPPORT PLANNING

7. Fire support planning is the continual process of analyzing, allocating, and scheduling fire support and is an integral part of the commander's battle procedure. The aim of fire support planning is to integrate fire support effectively into battle plans in order to optimize combat power. To accomplish this aim, fire support planning is done concurrently with battle procedure at all levels for deep, close, and rear operations. Fire support planning must be flexible to accommodate the unexpected in combat and to facilitate rapid change. It encompasses positioning, allocation of resources, resupply, target acquisition, and target engagement. It involves the synchronization of collective and coordinated fire support resources to focus the fire support effort where the manoeuvre commander intends to fight the battle.

8. Fire planning and targeting are two separate but complementary processes. Targeting is a formal staff process comprising a series of activities and related products inherent to the operation planning process. Targeting is a continuous and cyclical activity by which the identification and engagement of priority targets is facilitated. It assists the commander in deciding what to attack with his fire support system, how to acquire these targets, and how to attack them. Fire planning is more than just planning where the guns are going to fire. It involves the collective and coordinated use of indirect fire, armed aircraft, and other lethal and non-lethal means in support of the manoeuvre commander's battle plan, integrated with the barrier and Intelligence, Surveillance, Target Acquisition, and Reconnaissance (ISTAR) plans.

9. Fire planning is often joint in nature and is carried out in all operations of war. The key aspect of fire planning is the coordination

and synchronization of all available fire support assets to support the manoeuvre commander's tactical plan. It is the responsibility of various artillery commanders to carry out this coordination.

SECTION 5

FIRE SUPPORT COORDINATION MEASURES (FSCM)

10. The basic framework for fire support coordination is established through the use of coordination measures. The aim of fire support coordination measures (FSCM) is to reduce fratricide while increasing the speed of response to calls for fire. These measures can be either permissive or restrictive. They are coordinated for all fire support impacting in the area of responsibility of the supported force by the FSCC. The FSCC will ensure that fire support will not jeopardize troop safety, is synchronized with other fire support means, and/or will not disrupt the operations of adjacent friendly units.

11. **Unit and Formation Boundaries.** Normal unit and formation boundaries extend into enemy territory and establish the limits for coordination. No fire support agency may direct fire across a boundary without seeking authority from the unit on the other side. Rear boundaries must also be respected. Boundaries are both restrictive and permissive in nature. They are restrictive in that no fire may be delivered across a boundary without approval of the neighboring force commander or a permissive FSCM is in effect. Boundaries are permissive in that commanders enjoy complete freedom of fire and manoeuvre within their own boundaries, unless otherwise restricted.

PERMISSIVE MEASURES

12. The purpose of permissive measures is to facilitate the attack of targets.

13. **Fire Support Coordination Line (FSCL).** The Fire Support Coordination Line (FSCL) is a line established by the appropriate ground commander (e.g., corps), in coordination with the appropriate tactical air commander and other supporting elements, to ensure coordination of fire not under his control but which may affect current tactical operations. The FSCL is used to coordinate the fire of air, ground or sea weapons systems using any type of ammunition against

surface targets. When detached forces are beyond the FSCL, appropriate FSCM should be established around the detached forces.⁴ Supporting elements may attack beyond the FSCL, provided that the weapons used do not produce effects on or to the rear of the line. Attacks behind this line must be coordinated with the appropriate ground force commander, unless a different FSCM, such as a No Fire Line (NFL), are in effect and require no further coordination. The FSCL should be easy to define on a map and easily recognized from the ground and air.

14. The FSCL is portrayed on maps, charts, and overlays with a solid black line. The abbreviation “FSCL” and the establishing HQ are written above the line, at the ends, with the effective date/time groups immediately below the line. If the FSCL is designated by a previously arranged code name, this is also placed below the line.⁵

15. **No Fire Line (NFL).** A No Fire Line (NFL) is a line short of which indirect fire systems do not fire except on request or approval of the commander who established the line—indirect fire systems may fire beyond the NFL at any time without danger to friendly troops. The NFL is used to expedite the quick attack of targets beyond it by fire support units (of higher levels), without the delay of unnecessary coordination. It also guarantees that no targets are attacked short of it without coordination with the responsible manoeuvre commander. The NFL is normally established by the commanders of division- or brigade-size forces. On occasion, the commander of a battalion-size force may establish a NFL.

16. The FSCC will inform all fire support units (including naval units if no naval representative is present in the FSCC) of the location and time of adoption of the NFL. To save transmission time during rapid moves, the FSCC may issue several NFLs in advance, placing each on call, and giving each a code name.

⁴ For example, a No Fire Area around the area of operation of special forces beyond the FSCL.

⁵ This is in accordance with STANAG 2934 and APP-6A.

17. The NATO term Fire Support Safety Line (FSSL) and the US term Coordinated Fire Line (CFL) are identical to the NFL.

18. The NFL is portrayed on maps, charts, and overlays with a dashed black line. The abbreviation “NFL” and the establishing HQ are written above the line, at the ends, with the effective date/time groups immediately below the line. If the NFL is given by a previously arranged code name, this is also placed below the line.⁶

19. **Free Fire Area (FFA).** A Free Fire Area (FFA) is a specifically designated area into which any weapon system may fire (e.g., to empty guns) without additional coordination with the establishing HQ. The FFA is also used to facilitate the jettison of munitions when aircraft are unable to drop them on a target area. The FFA is normally established by a division or higher commander following coordination with the host nation, if appropriate. When and where possible, it is located on identifiable terrain or designated by grid coordinates. The FFA is shown as an encircled solid line with “FFA” placed within it, followed by the establishing HQ and the effective date/time group for the area.⁷

RESTRICTIVE MEASURES

20. The purpose of restrictive measures is to provide safeguards to friendly forces. The establishment of a restrictive measure imposes certain requirements for specific coordination prior to the engagement of those targets affected by the measure.

21. **Airspace Coordination Area.** An Airspace Coordination Area is a restricted area or route of travel specified for use by friendly aircraft and established for the purpose of preventing friendly aircraft from being fired on by friendly forces. The purpose of the Airspace Coordination Area is to allow simultaneous attack of targets near each other by multiple fire support means, one of which is normally air. An Airspace Coordination Area is established by the FSCC at brigade

⁶ This is in accordance with STANAG 2934 and APP-6A.

⁷ This is in accordance with STANAG 2934 and APP-6A.

level or higher. The area will be designated by timings, grid references of a centreline, width on either side of this line, and a maximum and minimum altitude in feet.⁸ An Airspace Coordination Area is placed on call, and fire will not be delivered through it without the permission of the FSCC that ordered its establishment.

22. **No Fire Area (NFA).** An area, usually established by a division or corps, into which no fire or the effects of fire are allowed enter. Two exceptions are:

- a. when the establishing HQ approves fire temporarily within the NFA on a mission-by-mission basis; and
- b. when an enemy force within the NFA engages friendly troops, the friendly force commander may engage the enemy to defend his force.

23. The NFA is located on identifiable terrain, where possible, and is illustrated as an enclosed area with a solid line. The enclosed area is shaded with diagonals and the abbreviation “NFA,” the identity of the issuing HQ, and the effective date/time group is shown inside the encircled area.⁹

24. **Restricted Fire Area (RFA).** An area in which specific restrictions are imposed and in which fire that exceeds those restrictions will not be delivered without coordination with the establishing HQ. The purpose is to regulate fire into an area according to stated restrictions. The RFA is established by manoeuvre battalion or larger ground forces or by an independently operating company. It is usually located on identifiable terrain, and identified by a grid reference or by radius (in meters) from a centre point. It is portrayed as a solid line with “RFA” within the encircled area followed by the establishing HQ and the date/time group for the area.¹⁰

⁸ This is in accordance with STANAG 2934 and APP-6A.

⁹ This is in accordance with STANAG 2934 and APP-6A.

¹⁰ This is in accordance with STANAG 2934 and APP-6A.

25. **Restrictive Fire Line (RFL).** A Restrictive Fire Line (RFL) is a line established between converging friendly forces (one or both of which may be moving) that prohibits fire or effects from fire across the line without coordination with the affected force. The purpose of a RFL is to prevent fratricide and duplication of attacks by converging forces. It is established by the HQ that controls both forces based on submissions from them. This line is placed on easily identifiable terrain. If one force is stationary, the line will usually be placed closer to that force. The RFL is shown as a solid line with “RFL” at the ends followed by the establishing HQ and the effective date/time group for the line.¹¹

¹¹ This is in accordance with STANAG 2934 and APP-6A.

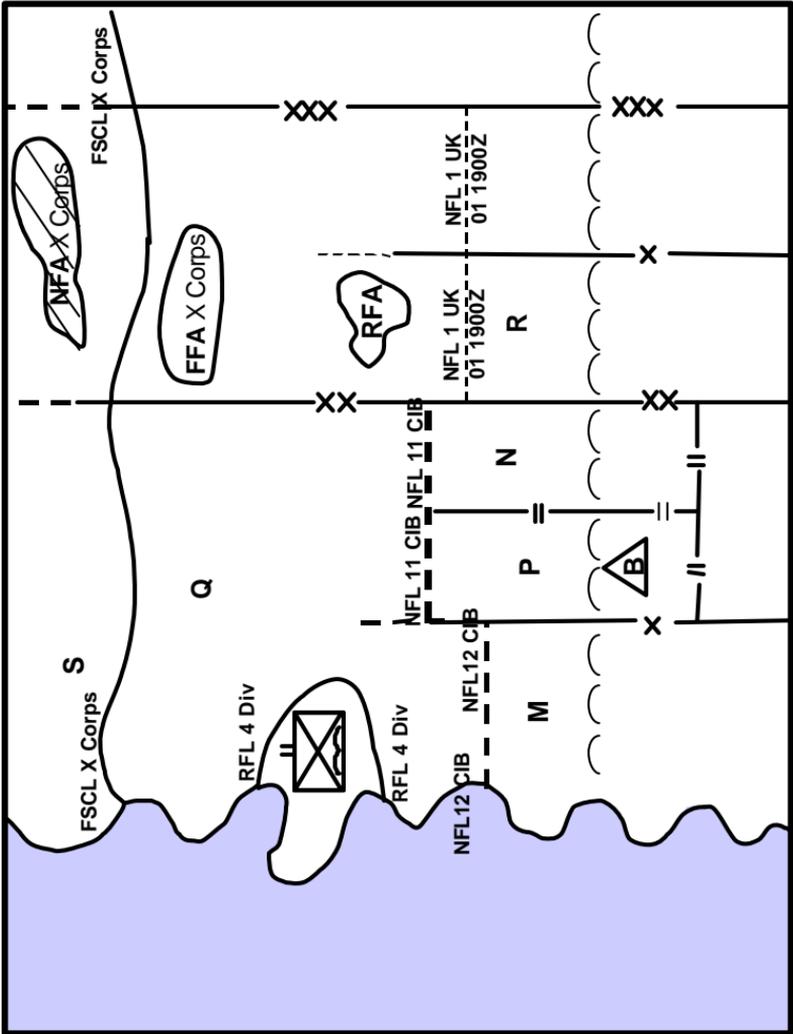


Figure 4-1: Fire Support Coordination Measures

NOTES

1. All attack resources can strike targets into the FFA and area S, except into the NFA.
2. Observer B can engage targets in areas P and Q. To engage targets in areas M, N or R, the observer must clear the fire with the appropriate formation or unit commander. This is usually done through the FSCC of the appropriate force.

SECTION 6 TERRAIN CONTROL PROCESS

26. Field artillery resources are normally deployed within Artillery Manoeuvre Areas (AMA). AMAs are not solely reserved for artillery. They delineate those areas in which the artillery is afforded priority for deployment. To correctly assess the deployment area requirements for all field artillery resources within the formation, commanders and staffs must understand and appreciate the factors affecting the deployment of artillery on the battlefield. The major factors are:

- a. the particular operation and the formation commander's concept of operations;
- b. the types and numbers of fire units or weapons systems;
- c. the counter-battery threat; and
- d. the type of terrain in the area of operations.

27. **Formation Commander's Concept of Operations.** Areas required for deployment and the deployment plan will differ considerably depending on the type of operation and the plan of the

formation commander. In general, fire units will require one or more of the following:

- a. **Artillery Manoeuvre Areas.** Formation artillery HQ will allocate one or more AMAs to each artillery unit. In most circumstances an AMA will be an area of 12-20 square kilometers and capable of supporting the deployment of three or more batteries. Coordination of deployment within the AMA is the responsibility of the CO of the unit to which the AMA has been allocated. AMAs are not exclusively for artillery use, but artillery does have priority of use. Positions within an AMA may be designated as follows:
 - (1) **Main/Alternate.** The main position is where the unit will fire the main fire plan or tasks. At least one alternate position is required for each main position to be occupied if CB fire or other interference renders the main position untenable or unsuitable. The unit's tasks must be achievable from the alternate position, which must be prepared to the same standard.
 - (2) **Temporary Positions.** Units or batteries on special tasks could be allocated temporary AMAs established specifically for those tasks. Before moving into their main position, units supporting a covering force could be located well forward of the forward edge of the battle area (FEBA) and occupy a series of temporary positions while the enemy is being delayed. Harassing fire tasks could also be conducted from temporary positions.
- b. **Proposed Artillery Manoeuvre Areas.** A proposed AMA does not afford artillery a priority of deployment until it is established as an AMA following the appropriate formation clearances. Until then, artillery units must coordinate

deployment through the HQ of the brigade in which the area lies.

- c. **Artillery Officer's Responsibility.** FOOs and BCs must send the locations of suitable areas through their units to allow planning of future AMAs, particularly in the advance. Formation artillery staffs must be constantly concerned with the clearance of AMAs and the necessity to keep an adequate number of fire units in action and in range.

28. Regardless of the type of delivery system, each artillery battery will require up to 1.5 grid squares for deployment. This will permit either dispersion between guns in the battery and/or dispersion between the sections themselves should the counter-battery/air situation warrant it. Alternate positions have the same terrain requirements. These requirements do not preclude the concurrent but compatible use of the same area by other units or elements.

29. A sufficient number of AMAs should be cleared in the forward area to permit the following:

- a. deployment of all batteries in main positions with alternates;
- b. all batteries to have the best possible range and arc coverage of the area where fire will be required; and
- c. the greatest possible number of batteries to be able to reach areas that the commander has indicated will require the maximum amount of fire.

30. Multiple launch rocket systems (MLRS) will normally deploy from a hide to a prepared firing position, fire their mission, and return to a hide. As a result, each troop of MLRS should have an area of approximately three grid squares from which to select hide and firing positions.

CHAPTER 5 ARTILLERY IN OPERATIONS OF WAR

SECTION 1 BATTLEFIELD FRAMEWORK

INTRODUCTION

1. Land operations encompass three inseparable aspects—deep, close, and rear operations—which must be considered together and fought as a whole. These operations are focused on attacking the enemy's cohesion and will be conducted on both the moral and physical planes. To gain a clear understanding of how fire support is applied on the battlefield, it is necessary to describe a typical battlefield layout. It is recognized that the modern battlefield will often not be as linear and orderly as depicted. It is likely that it will be a non-contiguous battlefield. The remainder of this manual uses the style of the linear battlefield for ease of learning and clarity.

2. The concept of deep, close, and rear operations provides a means of visualizing the relationship of friendly forces to one another, and to the enemy, in terms of time, space, resources, and purpose. Formations and units may participate in deep, close, and rear operations at different stages of the battle. Artillery is unique in the sense that it is the only arm within a formation that will regularly be involved in all three operations simultaneously. Deep and close operations should be conducted concurrently not only because each influences the other but also because the enemy is best defeated by fighting him throughout his depth. Coverage of the entire formation area must therefore be considered in the deployment of fire support assets. The concept of deep, close, and rear operations facilitates the command and coordination of operations.

DEEP OPERATIONS

3. Deep operations are generally offensive actions conducted at long range and over a protracted time scale against enemy forces and functions, beyond close operations, to shape the enemy. Fire support assets, particularly artillery and armed aircraft, and target acquisition means are major contributors to these operations. The success of deep

operations is also reliant upon air defence to protect attack resources and, as applicable, manoeuvre elements.

4. Deep operations can degrade the enemy's firepower, disrupt his command and control, destroy his logistic base, and break his morale and thus his cohesion. While fire support plays an essential role in the conduct of deep operations, the integrated applications of firepower and manoeuvre make a deep attack capability effective. Success is founded on the synchronization of all assets at all echelons. Actions associated with one objective may also support other objectives. Terms such as limit, disrupt, delay, divert, and destroy are used to describe the effects of attack on enemy capabilities. These terms are not mutually exclusive. They are defined as follows:

- a. **Limit.** Limiting enemy capabilities applies to reducing the options or courses of action available to the enemy commander. For example, the commander may direct the use of air interdiction and fire support to limit the use of one or more avenues of approach available to the enemy. He may also direct interdiction to limit enemy fire support from interfering with friendly operations.
- b. **Disrupt.** Disruption denies the enemy the efficient interaction of his combat and combat support systems. It forces the enemy into ineffective tactical dispositions and degrades the movement of material and forces.
- c. **Delay.** This objective alters the time of arrival of forces at a point on the battlefield or the ability of the enemy to project combat power from a point on the battlefield. In interdiction doctrine, delay results from disrupting, diverting or destroying enemy capabilities or targets.

- d. **Divert.** This addresses the commander's desire to tie up critical enemy resources. Attack of certain targets may result in the enemy commander's diverting capabilities or assets from one area or activity to another. The diversion of these resources indirectly reduces the capability of the enemy commander to continue his plans.
- e. **Destroy.** As an objective, this action calls for ruining the structure, organic existence or condition of an enemy target that is essential to an enemy capability.

5. The commander's battle plan for deep operations requires several special considerations. Manoeuvre forces may be required to exploit the result of large-scale, conventional fire support or to set the conditions for deep attacks. Fire support is the most responsive asset that the operational-level commander has to shape the enemy's operations. The Intelligence, Surveillance, Target Acquisition, and Reconnaissance (ISTAR) plan must include tasks supporting deep operations. Locating efforts will also be directed towards deep operations. The successful conduct of deep operations requires careful analysis of the enemy's capability to interfere with friendly operations and of enemy vulnerabilities. Only those enemy targets that pose a significant threat to friendly forces, or those which are essential to the accomplishment of a critical enemy capability, are potential targets for engagement. Examples of such targets include command and control facilities, fire support, air defence systems and ISTAR assets, weapons of mass destruction, and logistic installations.

6. At division level, deep operations are planned and controlled in the deep operations coordination centre (DOCC), located in the main division command post (CP). The DOCC is formed by selected staff members from the appropriate main CP cells under the overall direction of the division chief of staff. The DOCC provides the commander with a means to focus the activities of all the units, agencies, and cells involved in supporting deep operations. Artillery representation is a key element in the DOCC composition, particularly with respect to the targeting process.

7. Deep fire support tasks include the following:

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- a. destroying, neutralizing or suppressing selected targets in the depth of the formation's area of influence;
- b. delivering scatterable anti-tank mines, electronic jammers, and non-lethal munitions deep into the formation's area of influence;
- c. cutting off routes of withdrawal;
- d. preventing enemy counter-attack or the employment of follow-on forces;
- e. attacking enemy fire support resources; and
- f. suppressing enemy air defences.

CLOSE OPERATIONS

8. Close operations are conducted by forces in contact with the enemy and are usually fought by manoeuvre brigades and battalions. Close operations are primarily concerned with striking the enemy, although the purpose also includes fixing selected enemy forces in order to allow a strike by another component of the force. These operations are conducted at short range and in an immediate time scale. Artillery guns, with their relatively high degree of accuracy and consistency, variable rates of fire, variety of munitions, and inherent flexibility, are well suited to such operations. Artillery is commanded at the highest level, while control of fire is decentralized to the lowest levels (e.g., FOOs at company/squadron level).

9. Close operations include the battles and engagements of a force's manoeuvre and fire support units, together with the requisite combat support and combat service support functions, to seek a decision with the enemy. Close support fire is directed against targets or objectives that are sufficiently near the supported force as to require detailed integration or coordination of the supporting action with fire, movement or other actions of the supported force.

10. Fire support is used to achieve the following effects:

- a. **Destruction.** Destruction physically renders the target permanently combat-ineffective or so damaged that it cannot function unless it is restored, reconstituted or rebuilt.
 - b. **Neutralization.** Neutralization fire is delivered to render the target ineffective or unusable for a temporary period. Neutralization fire results in enemy personnel or materiel becoming incapable of interfering with an operation or course of action.
 - c. **Suppression.** Suppressive fire is intended to degrade a target (e.g., weapon system) to reduce its performance below the level needed to fulfil its mission objectives. Suppression lasts only as long as the fire is delivered onto the target.
 - d. **Harassment.** Harassing fire is designed to disturb enemy troops, to curtail movement, and, by threat of losses, to lower morale.
11. Fire support is employed in close support both to protect the force and to provide maximum combat power at the decisive point of an engagement. The direct support (DS) tactical task requires a field artillery unit to provide close supporting fire to a specific manoeuvre brigade.
12. Fire support for close operations includes the following activities:
- a. Fire support advice, planning, and coordination by artillery staffs and tactical groups at the following levels:
 - (1) division – commander division artillery (CDA) and staff;
 - (2) brigade – field artillery regiment CO and fire support coordination centre (FSCC);
 - (3) battle group – affiliated battery commander (BC) and FSCC; and

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- (4) combat team – assigned FOO.
- b. Fire support tasks for close operations include the following:
 - (1) defensive, preparatory, and covering fire that is responsive, accurate, and consistent;
 - (2) destroying, neutralizing, suppressing or harassing enemy forces;
 - (3) illuminating the battlefield;
 - (4) reinforcing obstacles;
 - (5) screening friendly movement and blinding enemy positions with battlefield obscurants;
 - (6) marking with visual indicators; and
 - (7) delivering scatterable anti-tank mines, electronic attack, and non-lethal munitions.

REAR OPERATIONS

13. Rear operations assist in providing freedom of action and continuity of operations, logistics, and command. Their primary purpose is to sustain the current close and deep operations and to posture the force for future operations. Commanders must focus their efforts on protecting the most critical capabilities. An artillery representative will be designated by the artillery commander to advise, plan, and coordinate rear area fire support. The effects of fire support are the same as outlined under close operations.

14. On occasion, rear area operations will include the engagement of enemy forces (airmobile/airborne insertions, special forces, irregular forces, etc.) by close combat manoeuvre elements. The requirement for and tasks of fire support will be similar to those in close operations. The primary difference is that fire support assets are not normally dedicated to rear operations. Accordingly, fire support to

rear operations will be planned on a contingency basis taking advantage of the fire support system's ability to quickly shift control of fire to where it is needed.

15. The primary purpose of fire support in the rear area is to protect the force. In combat operations, rear area fire support is an economy of force effort. The artillery commander's concern about rear operations goes beyond providing fire support. Field artillery relies heavily on the successful conduct of rear operations to ensure that it is kept adequately resupplied with combat supplies, particularly ammunition. Furthermore, during defensive and delaying operations, artillery commanders need to be aware of the likelihood of deliberate enemy efforts at attacking and disrupting artillery operations. During offensive operations, artillery commanders need to be aware of the threat posed by bypassed enemy forces.

OPERATIONS OF WAR

16. In order to maintain the flexibility and fluidity of land operations and to allow tempo to be varied, three operations of war are recognized: offence, defence and delay. All three operations are conducted in contact with the enemy and can be carried out simultaneously by elements within a force, or sequentially by the force as a whole. In order to move from one operation to another and to ensure continuity, operations are linked by transitional phases in which the force is disengaging or seeking to re-establish contact.

SECTION 2 OFFENSIVE OPERATIONS

GENERAL

17. Ultimate success in battle is achieved by offensive action. The principal purpose of offensive operations is to defeat the enemy, imposing our will on him by the application of focused violence, not only on his forward elements but throughout his depth. Offensive operations defeat the enemy either by breaking his cohesion or by physical destruction or both. The real damage to the enemy's will is caused by destroying the coherence of his operations and fragmenting

and isolating his combat power. By so doing, the enemy's capability to resist is destroyed.

18. In the conduct of offensive operations, the use of artillery in deep, close, and rear operations, often simultaneously, must be considered and a balance struck. Whether in the advance to contact,¹² conducting an attack, or in the pursuit, the artillery commander must develop a fire support plan that supports and complements the manoeuvre plan. In conjunction with the formation staff, the artillery commander must consider attacking enemy assets in depth (perhaps, concentrating on those assets directly interfering with the manoeuvre forces' actions) and supporting rear area operations. This section will examine how the field artillery is employed to achieve these goals.

19. The artillery commander will ensure the provision of fire support for offensive operations through a process of allocation and retention of specific fire support assets. The four basic tasks of fire support are as follows:

- a. **Support for Forces in Contact.** This task includes the allocation of artillery resources to the manoeuvre formations that will engage the enemy in close operations, i.e., field regiments direct support to manoeuvre brigades.
- b. **Support for all Aspects of the Battle Plan.** Supporting the battle plan means retaining fire support for any possible contingency. Fire support assets for deep and rear operations must be identified and deployed at the right time and place.
- c. **Synchronization of Fire Support Resources.** Fire support is synchronized through normal fire support coordination, beginning with the force commander's estimate and concept of operations. It is essential that fire support planning be performed concurrently with the plan of manoeuvre. The synchronization of

¹² The Advance to contact is not, however, an offensive operation; it is normally associated with offensive operations.

fire support at formation level is essentially a command function. The artillery commander helps the commander integrate all fire support with the appropriate combat functions.

- d. **Support and Sustainment for Fire Support Elements.** Combat sustainment includes all combat service support (CSS) activities necessary to support battles, engagements, and related actions. Artillery commanders must formulate their plans to reflect logistic limitations and to exploit logistic capabilities. Fire support for offensive operations must be sustained through all phases of an operation without a degradation of availability.

ROLES OF FIRE SUPPORT IN THE ATTACK

20. Fire Support fulfils the following roles in the attack:

- a. **Close Support.** To satisfy the close support needs of the attacking formation the artillery commander will consider the following fire support requirements:
 - (1) **Preparatory Fire.** This consists of intense, concentrated fire that supports penetrations of the enemy's main defensive belts.
 - (2) **Defensive Fire.** Defensive fire tasks are planned to isolate the main effort and fix other forces in the main defensive belt for supporting attacks. This fire may consist of anti-tank scatterable mines as coordinated by the formation engineers.
 - (3) **Covering Fire.** The neutralization or continuous suppression of direct-fire weapons systems allows manoeuvre forces to close with the enemy and destroy him with organic direct fire.

- b. **Counter-Battery Fire.** Counter-battery (CB) fire at corps and division must be aimed against specific enemy fire support functions. Through IPB and the targeting process, high payoff targets—command, control, and communication nodes, target acquisition systems, and key weapon systems—can be determined, located, and attacked. The destruction, neutralization, and suppression of these targets yield the following benefits:
 - (1) a reduction in the enemy’s ability to disrupt our attack formations with fire support resources, thus ensuring the freedom of manoeuvre for friendly forces;
 - (2) less effective enemy counter-battery, thereby ensuring continuing friendly fire support; and
 - (3) the elimination or reduction of the enemy’s capability to counter-attack.

- c. Another aspect of CB fire is the Suppression of Enemy Air Defence (SEAD). SEAD is critical for all operations and must be carefully planned and coordinated. Close air support (CAS), air interdiction, and attack helicopter operations in support of combat operations require SEAD fire against the many anti-aircraft systems that accompany the enemy’s forward elements. SEAD is usually a joint function involving field artillery, offensive Information Operations (IO), and the air force.

- d. **Deep Fire Support.** The artillery commander considers the following deep fire support requirements:
 - (1) It is likely that some of the high payoff targets identified through the targeting process will focus on the enemy’s capability to shift resources to defend or

reinforce his positions. Thus, enemy reserves and depth forces must be located as early as possible. The engagement of these targets is synchronized with the manoeuvre commander's plan to ensure that the maximum benefit is derived.

- (2) Interdiction is usually conducted at corps and higher levels. The corps possesses better resources for conducting interdiction, including attack resources like the Army Tactical Missile System (ATACMS) and locating resources. In some cases, the division may also contribute to these interdiction tasks. On its own, the division can conduct short duration and limited area interdiction.

- e. **Target Acquisition.** In order for the fire support system to provide accurate and timely fire support to the formation or unit, it is necessary to acquire targets. Locating artillery plays a major role in acquiring targets. The commander's concept of operations and the targeting process focus the efforts towards acquiring high payoff targets in an efficient and timely manner.

ALLOCATION

21. In offensive operations, fire support assets are allocated to weight the main attack. For field artillery, this is done by assigning the majority of decentralized tactical missions (direct support and reinforcing) to the main attacking force. The corps commander can also add weight to his main attacking division by attaching corps field artillery elements to the division or by providing reinforcing units to the division artillery. By decentralizing field artillery units, corps, and division commanders provide their subordinate manoeuvre commanders the support they need to gain and retain the initiative of the attack.

POSITIONING

22. Artillery retained under corps or division artillery control with a mission of general support (GS) or general support reinforcing (GSR) is positioned by the commander of the respective force artillery. By positioning artillery in particular sectors and assigning zones of fire, the force artillery commander can lend weight to the main attack, provide additional adequate support, and facilitate future operations. In the offence, both corps and division artillery are positioned well forward to exploit weapon ranges and to ensure a continuous flow of fire support. MLRS units in particular, with their inherent mobility, can be positioned nearer the forward line of own troops (FLOT) where they can engage targets that are beyond the range of tube artillery. Locating artillery will also be deployed forward to facilitate the acquisition of targets both in depth and along the FLOT.

23. In the offence, units must conduct timely deployments. Fire support must be continuous and must not be outpaced by manoeuvre. Units that are positioned by corps artillery, and even by division artillery, are in real danger of being left behind unless repositioning is frequent and synchronized to support the forward progress of manoeuvre elements. The formation FSCC must aggressively seek out the current forward line of troops to ensure that the movement of GS and GSR is coordinated with the manoeuvre forces. Survivability moves are less frequent in the offence, as superiority in combat power in the offensive zone and movement is focused more on supporting the manoeuvre force.

CONDUCT OF THE ATTACK

24. The manoeuvre commander will be assisted by the artillery commander, who will develop and coordinate all available fire support into a plan that supports the commander's manoeuvre plan. The scale of the artillery plan will be dependent on whether the attack is hasty or deliberate. The plan supporting a hasty attack would differ from that supporting a deliberate attack in that there would be less time for preparation, less build-up of ammunition or supporting artillery, and less development of intelligence and the resulting depth fire. These differences should be considered and the possible effects weighed as part of the planning process.

25. The amount of artillery support available is a major factor influencing the tactical plan. For example, the number of targets that can be engaged at one time may limit the choice of objectives for each phase as well as the choice of approaches. It may be necessary to move guns prior to an attack in order to extend their range. This requirement should be considered in the determination of the type of attack to be undertaken. Similarly, guns may have to move immediately following an attack in order to support the exploitation. Based on the volume of fire available as well as the tactical requirements, it would be possible for specific roles to be assigned to specific artillery units or formations (i.e., deep operations to an artillery brigade placed OPCOM of division artillery). This does not prevent an artillery commander from regrouping as the tactical situation changes.

26. Fire support must be concentrated on those targets whose neutralization is vital to the success of the attack. Dispersing artillery resources in an attempt to cover all targets simultaneously should be avoided. Artillery fire should be concentrated and targets engaged consecutively in order to maximize the shock effect and weight of the artillery fire. Similarly, depth targets should be engaged by an adequate number of guns available in a consecutive manner rather than fewer resources used simultaneously. Full use must be made of surprise and flexibility in order to enhance the destructive and neutralizing nature of artillery fire.

27. Attention must always be given to protection of the flanks, and the use of smoke and anti-tank scatterable mines should be considered. There will often be insufficient firepower to engage all the important targets. The commander must then decide which targets are to be engaged. A proportion of the fire support should be superimposed and available in response to emergency calls for fire or to engage opportunity targets. An adequate proportion of appropriate ammunition (e.g., anti-tank scatterable mines and dual-purpose improved conventional munitions [DPICM]) must be reserved to deal with enemy counter-attacks.

28. According to the level at which the attack is being planned, the fire plan may consist of any or all of the following:

- a. Targets in depth to neutralize the movement forward of enemy resources or reinforcements.

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- b. Preparatory bombardment, especially of enemy HQ and communications, and CB fire to neutralize or destroy guns and mortars that can bring down fire on our attacking troops. SEAD missions will also be required to support air and aviation attacks.
- c. Covering fire during the assault to neutralize enemy small arms, anti-tank weapons, and surveillance devices, as well as flanking/depth positions that could influence the battle.
- d. Defensive fire (DF) tasks during reorganization to break up or prevent enemy counter-attacks.
- e. During the exploitation phase, covering and counter-battery fire.

29. The fire plan supporting an attack may involve the operation of several levels of artillery HQ. As an example, in a divisional-level attack, corps artillery may conduct all deep operations in support of the plan while division artillery focuses on close operations. The relationships and division of responsibilities must be determined early in the planning process by the artillery commander supporting the attack.

30. During the assault phase of the attack, modifications to fire plans must be expected. Artillery commanders must be forward with the manoeuvre commander in order to be able to modify the fire plan, call for opportunity targets, and adjust and be ready to call for DF targets immediately after arriving at each objective. These modifications can involve changes to timed serials or the allocation of artillery units.

31. Artillery resources should always be retained for unforeseen events. This is achieved by superimposing artillery so that the weight of fire of a single fire unit does not become critical to the plan or an individual target. Superimposed artillery is added as extra weight on selected targets once the plan is complete but is available if artillery fire is required on an unforeseen target. As a result, the superimposed unit's fire may be shifted away from the planned fire plan without leaving the plan or target short of fire.

32. Artillery allotted to the exploitation should be nominated during the planning phase of the operation in order that the assigned units can make preparations to follow the exploiting forces if necessary. Ammunition for the exploitation phase should be kept on vehicles; this often results in the requirement to dump ammunition for the attack fire plan.

33. DF plans to support the reorganization on objectives must be made before each attack commences. Observation from the objective and any additions and adjustments to the original DF plan must be organized as soon as each objective is captured.

EXPLOITATION

34. An attack frequently creates short-term opportunities to maintain pressure on the enemy. Exploitation may prevent him from mounting counter-attacks, reorganizing his defence or conducting an orderly withdrawal. A commander should plan for exploitation and be prepared to adjust his plan as the situation develops. If exploitation is possible, it must be carried out quickly so as not to give respite to the enemy. It may even begin simultaneously with consolidation to ensure that momentum is maintained and the enemy is kept under pressure. A commander must decide whether to commit depth forces earmarked previously for exploitation or direct main attack forces to exploit. He bases this decision primarily on the condition of the main attack forces, strength of the enemy, and the difficulty of moving depth forces forward. Exploitation is an offensive operation that follows a successful attack to take advantage of weakened or collapsed enemy defences.

35. Artillery fire support required for exploitation forces should be highly mobile and flexible to respond quickly to the needs of the manoeuvre force. Artillery units should be positioned well forward and moved continually to keep pace with the exploitation operation. On-order priorities and on-order missions for field artillery must be designated to quickly shift priorities to units within the exploitation force and/or follow-on and support forces if necessary.

36. Fire support considerations include the following:

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- a. fire support for the flanks and rear as well as the front of a force;
- b. massed fire on enemy choke points and key terrain to canalize, slow, and block the enemy movement; and
- c. suppressive fire to fix bypassed enemy pockets of resistance until friendly manoeuvre elements are safely past and follow-on forces can deal with them.

PURSUIT

37. When enemy resistance has broken down entirely, an attack or exploitation may give way to a pursuit. The objective of the pursuit is to maintain relentless pressure on the enemy and completely destroy him. The pursuit is characterized by broad decentralization of control and rapid movement. Because a pursuit is rarely anticipated, forces are normally not prepared for it and lines of communication become increasingly difficult to sustain.

38. Aggressive reconnaissance, firepower, and manoeuvre can throw a slightly off-balance enemy into complete retreat. To that end, the presence of artillery commanders well forward and the prompt forward movement of guns can greatly assist in creating a favorable situation. Artillery tactics during the pursuit are not greatly different from those used in the advance to contact or the attack, other than that speed and momentum become the driving concerns.

39. Deep operations will concentrate on attacking retreating enemy columns to keep them off balance and to prevent reorganization, reinforcement or respite from the pressure. Movement will be rapid, and artillery units must be prepared to react quickly to remain in range to support the operation. Artillery will normally place the majority of its effort during the pursuit in supporting close operations. It may be necessary to decentralize command and control of artillery to the manoeuvre formations to allow continuous support. Where possible, however, attempts should still be made to concentrate artillery fire on enemy positions. The effect of concentrated artillery fire may, itself, achieve the isolation or neutralization of the enemy

and allow the advance to continue. Commanders must remain well forward to modify the plan as required.

40. Rear operations are of critical importance during the pursuit. Bypassed enemy units must be contained and eventually destroyed. To that end, artillery commanders must always ensure that artillery units are designated to support rear operations and that an effective system of passing responsibility (including targets for an isolated enemy pocket) between artillery units is developed.

41. In planning fire support for the pursuit, the following should be considered:

- a. The provision of fire support to all manoeuvre elements involved in the pursuit, e.g., to both the direct-pressure force and an encircling force.
- b. The provision of fire to slow the enemy's retreat and to allow the pursuing force to catch up.
- c. Fire to delay or stop reinforcements from interfering with the pursuit operation.
- d. The use of quick fire planning techniques for hasty attacks.
- e. Ongoing planning for the continual deployment or for artillery units to keep pace with the pursuit forces.
- f. The provision of fire to fix bypassed forces until follow-on elements can engage.
- g. The establishment of fire support coordination measures well forward to allow for the speed of the operation. Consideration must be given for the establishment of special coordination measures between the converging, enveloping, and direct-pressure forces as applicable.
- h. The provision of sustainment for artillery units involved in the pursuit, particularly for increased

petroleum, oil, and lubricants (POL) and ammunition usage.

DEEP OPERATIONS

42. Deep operations expand the battlefield in space and time to the full extent of friendly capabilities and focus on key enemy vulnerabilities. In his design of operations, the commander will normally devote information operations, firepower, and manoeuvre resources to deep operations in order to set conditions for future close operations. In this respect, although they may offer some prospect of immediate results, they are focused on providing long term benefits.

43. Normally, corps offensive operations focus on enemy units and support systems to the rear of the enemy's main defensive area (MDA). Division deep operations normally focus on the MDA second-echelon units and support. Fire support for deep operations may include the fire of field artillery, rockets, missiles, and air support as well as lethal and non-lethal Offensive IO.

44. Deep operations may include the attack of the following general target types (not all-inclusive):

- a. follow-on enemy echelons;
- b. independent tank regiments and/or battalions;
- c. command and control systems and fire direction nodes and facilities;
- d. air defence artillery systems; and
- e. weapons of mass destruction delivery systems.

45. Adequate fire support attack means and acquisition sensors must be identified and alerted for a possible deep operations commitment. Field artillery ammunition and fuel must be provided at the critical time and place. Army aviation assets must be retained until the force commander decides to employ his deep option. The factors that should be considered in the planning of deep operations in support of the offensive are as follows:

- a. Field artillery units may require non-standard tactical missions or modified command relationships. This may involve the establishment of ammunition expenditure restrictions and positioning instructions.
- b. Fire support assets committed to the close operation may be required to provide SEAD fire for tactical air and aviation assets engaged in deep operations.
- c. Specific fire support coordination measures must be implemented. Airspace coordination areas must be established in conjunction with air corridors. Restrictive fire lines (RFLs) may be used to delineate the fire of converging ground and air forces.

46. The targeting process for deep operations is usually focused on planned engagements. A planned engagement entails some degree of pre-arrangement such as general target location, weapon system designation and positioning, and ammunition selection. Planned engagements may be scheduled for a particular time or may be keyed to a friendly or enemy event. Other planned engagements may be specified by target type and may be on call based on the characteristics of the target (e.g., dwell time or high-payoff considerations). Unplanned engagements may be conducted, but they must satisfy the same relevancy criteria as those of the planned engagement.

SECTION 3 DEFENSIVE OPERATIONS

GENERAL

47. Defensive operations are normally undertaken when the enemy has the initiative, to prevent him from seizing terrain or breaking through into a defended area. The aim is to break the enemy attack, to destroy his forces and stop him from accomplishing his aim and, in so doing, to establish the conditions for maintaining the initiative through offensive action.

48. While defensive operations may take a wide variety of forms, they can essentially be divided into two broad categories: mobile defence and area defence.

49. **Mobile Defence.** Mobile defence focuses on the destruction of the attacking force by permitting it to advance to a position that exposes it to counter-attack and envelopment. The emphasis is on defeating the enemy rather than retaining or retaking ground. Mobile defences employ a combination of offensive, defensive, and delaying action necessitating the forward deployment of relatively small forces and the use of manoeuvre supported by fire and obstacles to wrest the initiative from the attacker after he has entered the defended area. At the divisional level the defended area could be up to 100 km in depth. Consequently, the defending force must have mobility equal to or greater than the enemy's and the ability to form a large reserve which will conduct the decisive counter-attack.

50. **Area Defence.** Area defence focuses on the retention of terrain by absorbing the enemy into an interlocked series of positions from which he can be largely destroyed by fire. The emphasis here is on retention of terrain or its denial to the enemy. Since, unlike mobile defence, area defence will not necessarily produce outright destruction of the enemy, it presumes some other simultaneous or subsequent operation to achieve decisive defeat of the enemy. In an area defence, the bulk of the defending force are deployed to retain ground, using a combination of defensive positions and small mobile reserves. Commanders organize the defence around the static framework provided by the defensive positions, seeking to destroy enemy forces by interlocking fire or by local counter-attack penetrating between enemy defensive positions. Unlike mobile defence (for which considerable depth is essential), area defence may be conducted in varying depth depending on the mission, the forces available, and the nature of the terrain.

51. **Stages of the Defensive Battle.** The defence is a single battle fought in two stages leading to an offensive operation. These stages are:

- a. covering force battle, and
- b. main defence battle, including countermoves (reinforcing, blocking, and counter-attacking).

52. Whether engaged in mobile or area defence, the task of fire support is to disrupt, delay, and destroy the enemy before and during his attacks and to support our own forces in countermoves. The artillery is a powerful force in helping to slow down and break up the cohesion of an enemy attack. It should also be used to shape the battlefield by compelling the enemy to conform to the commander's plan for the defence. The successful synchronization of both deep and close operations is therefore critical.

53. Success in the defence depends on the careful planning and execution, as required, of fire support in deep, close, and rear operations simultaneously. As in the offence, formation commanders normally ensure adequate fire support for defensive operations by retaining some assets and allocating others to subordinate units. The tasks of defensive fire support are as follows:

- a. **Support Forces in Contact.** Supporting forces in contact usually means providing support for close operations. If done correctly, this task ensures the survivability of friendly forces and the freedom of manoeuvre. The field artillery supports forces in contact in the defence by performing its traditional roles of close support, counter bombardment, and interdiction.
- b. **Support All Aspects of the Battle Plan.** Supporting the force commander's battle plan means retaining sufficient assets for any possible contingency. Fire support assets for rear and deep operations must be identified. The accomplishment of this task gives the force commander the means to attack high payoff targets whose destruction, neutralization or suppression is necessary for overall mission success. The vagueness of the initial situation in the defence dictates that the artillery commander maintains more centralized control of his resources. This ensures responsiveness by those units in the massing and shifting of fire.
- c. **Synchronize Fire Support.** The synchronization of fire support at formation level is essentially a command function. The artillery commander is responsible for helping the commander integrate all

fire support with the appropriate combat functions. A fire support synchronization methodology is found in the decide-detect-deliver-assess approach to targeting and battle management. The successful use of this methodology enables the commander to attack the right target with the best weapon at the right time. Thus, the force commander can take the initiative in selecting, locating, and attacking high payoff targets.

- d. **Support and Sustain.** Fire support for defensive operations must be sustained through all phases of the operation. Fire support systems must be survivable without degradation of availability.

ROLES OF FIRE SUPPORT IN THE DEFENCE

54. The roles of fire support in the defence include the following:

- a. **Close Support.** To satisfy the close support needs of the defending formations, the artillery commander considers the following requirements:
 - (1) **Defensive Fire (DF).** These are targets designed to delay, disrupt, and destroy the enemy throughout the defensive battle. The locations and timings of target engagement are chosen in concert with the manoeuvre commander's plan.
 - (2) **Final Protective Fire (FPF).** The most critical DF task or tasks may be selected as a FPF task(s). No fire unit can have more than one FPF task. Thus, the number of FPFs available within a formation depends upon the commander's assessment of the minimum number of batteries required to achieve a satisfactory immediate result given the enemy he faces. It is unusual for more than one FPF to be allocated to a battle group and, if several batteries are

required on any one target, there may be as few as one FPF per brigade. Fire units will lay, but not load, on a FPF on order.

(3) **Covering Fire.** During the covering force battle, covering fire provides fire support to the manoeuvre force by engaging enemy formations and covering the movement and disengagement of the covering force. During countermoves, covering fire is used to neutralize or suppress enemy direct fire weapons systems, permitting the countermove force to fulfil its tasks.

- b. **Counter-battery (CB) Fire.** In the same manner as during the offence, CB fire is directed against enemy fire support elements. CB fire is initially more reactive than during offensive operations; however, as the battle progresses the CB battle becomes more proactive in preparation for countermoves.
- c. **SEAD.** SEAD is also very important during defensive operations. All air and aviation activities involve some form of SEAD. Field artillery will often receive SEAD tasks against the forward enemy air defence systems.
- d. **Deep fire support.** Deep fire support tasks concentrate on delaying, disrupting, and destroying the enemy force. The aim is the destruction of key enemy capabilities, as identified through the targeting process. Deep fire support also focuses on attacking the enemy's cohesion, by separating the various echelons and disrupting unit formations and command and control structures.

55. Specific tasks for the artillery in the defence include the following:

- a. Battlefield surveillance and target acquisition.
- b. Supporting the covering force and/or guard force.

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- c. Assisting with the handover of the battle from a covering force to the main defensive battle. This is a complex procedure requiring careful coordination of fire control and the imposition of fire support coordination measures (FSCM).
- d. Disrupting enemy preparations for attack. Planning should identify likely assembly areas, forming up places, approaches, etc., and reflect them in the defensive fire plan.
- e. Attacking enemy artillery and forward air defence elements.
- f. Reinforcing barriers, gaps, and open areas, including the use of anti-tank scatterable mines to impede enemy movement, in concert with the overall obstacle plan.
- g. Supporting countermoves forces.
- h. Masking movement and deception operations.
- i. Neutralizing or isolating enemy forces that have penetrated the defensive area and impeding the movement of enemy reserves.

56. Defensive operations create several challenges for the artillery. Movement and positioning must reflect the threat to gun/launcher areas and the need to support each phase of an operation. This is particularly applicable in mobile defensive operations where an adequate balance of fire support must be maintained throughout. The allocation of fire support varies from stage to stage as explained below. Control of ammunition is critical during defensive operations. The artillery commander must strike a balance between the need to have sufficient ammunition available to support the planned battle and the risks involved in either dumping large quantities of ammunition on the ground or holding it forward on wheels.

57. Offensive action is fundamental to the defence. The defence should be creative, with every opportunity being taken to grasp the initiative and so disrupt the enemy's cohesion. For example, by

holding terrain or undermining enemy efforts and resources in one area, a commander may be able to establish the conditions for decisive action in another. The object will be to force the enemy into action that narrows his options, reduces his combat power, and exposes him to a decisive offensive action.

DEEP OPERATIONS

58. Deep operations are of vital importance in that they allow the commander to create a favorable situation by attacking the enemy's second echelon force (thereby limiting the enemy's manoeuvre) and by disrupting enemy coordination. Artillery and other fire support resources may be involved in the deep operations long before manoeuvre forces become decisively engaged. There may even be circumstances when the artillery is deployed forward of friendly positions in order to increase its range and potential targets. The successful disruption of the enemy prior to arrival at friendly positions in the covering force or main defensive area can be a major force multiplier.

59. Deep operations begin before the enemy closes with the defensive force and continue throughout the battle. Deep operations are used to effect closure times of follow-on elements and to create windows of opportunity for destructive actions against them. A successful deep operation may cause the enemy commander to change his attack plan because it disrupts his flow of echelons as they move toward the FLOT.

60. Fire support assets for deep operations are allocated by determining the friendly area of greatest vulnerability and determining, through processes such as intelligence preparation of battlefield (IPB), where the enemy will likely conduct his main attack. Specific considerations include the following:

- a. the provision of adequate fire support and target acquisition to achieve operational objectives;
- b. the destruction of high-payoff targets in depth, including command and control facilities and weapons of mass destruction delivery means;

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- c. the provision of SEAD to support tactical air and aviation operations;
- d. the disruption of enemy command and control means and facilities; and
- e. the disruption of enemy follow-on forces.

THE COVERING FORCE BATTLE

61. A covering force fights a battle of movement, and there will seldom be time to prepare battle positions. Maximum destruction is inflicted on the enemy so that he arrives at the main defensive area dislocated and in a state of undermined cohesion. Although the task of the covering force is very demanding, casualties and delay can be imposed on the enemy out of all proportion to the size of the covering force. This is particularly so if the task is handled skillfully and makes use of favorable ground. In so doing, the covering force can deceive the enemy as to the location of the main defensive area and even lead him to give away his intentions.

62. A division may have to provide its own covering force. It may alternatively be part of a corps defence plan acting as the covering force itself or as part of the main defence force with another formation acting in this role. Similarly, a brigade can act as the covering force for a division or a corps.

63. The commander will normally establish a covering force to form the first echelon of a defence in depth. A commander avoids assigning conflicting tasks to a covering force. The primary tasks may be:

- a. gaining information on the location, direction and, weight of the enemy attack (his main effort);
- b. gaining time;
- c. attrition—inflicting casualties on the enemy;
- d. providing security; and

- e. disruption—causing damage to the enemy's cohesion.

64. Initially, a portion of the available artillery is deployed well forward to support the covering force. This artillery deploys as part of the covering force, but as the latter withdraws it may move to take advantage of the protection afforded by the MDA while still supporting the covering force with fire. The proportion of artillery allotted to the covering force will depend on the commander's estimate. As is the case with any arm in the covering force, the risk of losing assets must be weighed off against the benefits of having the extra firepower forward. Sending large numbers of guns forward in the covering force will probably result in large enemy losses and substantial delay but may deprive operations in the MDA of artillery support if losses to the enemy are high.

65. The artillery commander with the covering force will move the artillery back towards the MDA and beyond if the higher artillery commander cannot re-establish command sooner. The battle can be influenced at this critical stage through the allotment of additional artillery with priority of fire to the covering force and through an appropriate allotment of ammunition. As a general rule, command should be centralized as soon as artillery deployed on the friendly side of the FEBA can provide support to the covering force.

66. A great deal of ammunition may be required for the covering force battle. It is important that an appropriate mixture be available given the likely targets, terrain, and tasks assigned. Ammunition will normally be carried on wheels. If resupply cannot be guaranteed, then dumps should be planned forward for the guns to fall back upon during the covering force battle.

67. Guns and gun areas may be vulnerable to ground attack while forward of the FEBA. It is unlikely that additional troops will be available to provide local defence, and protection of gun areas will be strictly an artillery responsibility. Artillery with the covering force will normally attempt to avoid presenting itself as a lucrative target by moving frequently.

68. Fire support tasks in support of covering force operations include the following:

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- a. the acquisition of targets in conjunction with the ISTAR plan;
- b. the early engagement of the enemy to strip away his reconnaissance elements and force him to prematurely deploy into attack formation;
- c. the provision of fire to permit manoeuvre elements to move and disengage (e.g., to break clean);
- d. the provision of SEAD to allow attack helicopters and CAS aircraft to attack, and the destruction of air defence radars located by IO assets;
- e. the provision of CB fire to reduce the effectiveness of the enemy's fire support system;
- f. the engagement of engineer mobility detachments to reduce the enemy's engineer mine clearing capability before he arrives in the MDA;
- g. the provision of massed fire to delay, disrupt or limit the enemy's advance; and
- h. the integration of fire and obstacle plans, and the coverage of obstacles by direct observation.

69. The keys to successful fire support planning for the covering force are staff interactions throughout the planning process. Since the enemy has the initiative, predictive planning for all courses of action is necessary. Once execution begins, flexibility through detailed contingency planning is required to allow response to the unexpected. Positioning of field artillery elements is a critical part of the detailed planning that must occur. Field artillery units may have to move laterally, forward or to the rear to support the changing tactical situation. This requires detailed planning and rapid coordination on the part of the FSCC.

70. Crucial to the covering force battle are planning, coordinating, and executing the battle handover. As the battle progresses, a rearward movement will eventually occur. Covering force FSCCs must ensure that needed information gets back to the

MDA. Items such as targets, targeting information, status of covering force units, ammunition states, and requirements for positioning must be kept up to date. Positioning information is particularly important if control of the battle is to be passed smoothly to the MDA force. Handing over the battle and the corresponding rearward passage of lines are difficult operations that require a significant planning effort. One of the key elements of the battle handover is the change of command and control of fire support. Control of indirect fire passes to the MDA force as the covering force hands over the battle. The handover is sequenced one sector at a time until the entire covering force has been withdrawn. Management of this operation is critical, since the confusion of combat may cause some covering force units to pass through different units other than originally planned. Detailed coordination between the passing and stationary force commanders and FSCCs is essential.

THE MAIN DEFENSIVE BATTLE

71. The decisive battle is the main defensive battle, which is fought in the main defensive area. The aim of the main defensive battle is to stop the enemy advance by a combination of firmly held battle positions within the main defensive area together with the use of obstacles and reserves. Tactics in the main defensive area will vary and there can be no set course of action. Much of what occurs will depend on a flexible plan incorporating the principles of mobile and/or area defence.

72. The main defensive battle is probably the best example of the apportionment of artillery efforts devoted to deep, close, and rear operations. Deep operations commence long before the enemy approaches the MDA and continue throughout the main defensive battle. The requirement for possible rear area support is also present.

73. In the MDA, fire support is used to delay, disrupt or destroy attacking forces. The enemy is detected early and attacked continuously with all available fire support means. Fire across the entire front forces the enemy to deploy early into his attack formation. When he masses, his formations must be attacked repeatedly and effectively with massed fire to reduce his momentum. Deep operations against the attacker's follow-on forces keep them from influencing the immediate battle.

74. Fire support for the MDA battle is allocated according to the manoeuvre commander's intent and concept of operations. Usually, the commander's main effort will receive priority of fire support resources. Fire support for the defence in general is most responsive when centrally controlled. Reinforcing field artillery, immediate CAS sorties, and offensive IO can be used to provide responsive support to forces bearing the brunt of the enemy's attack. The proper integration of IPB and the identification of high payoff targets gives commanders the best estimate of likely enemy courses of action. This analysis is used to prepare contingencies for the main battle. The covering force develops the situation and dictates which contingency should be executed. Appropriate fire support must be allocated for each of these contingencies. As much fire support as possible should be centrally controlled to facilitate a quick and smooth transition into any contingency plan. Fire support under centralized control allows the force commander to quickly shift combat power without moving manoeuvre forces.

75. During the early stages of the defence, a proportion of the formation field artillery may be deployed near or forward of the FEBA for deep fire tasks. This forward deployment gives artillery additional range to disrupt and delay the enemy's preparations for attack. As the forward deployment of artillery at this time could interfere with other elements of the defence, it is essential that appropriate deployment area clearances be arranged as early as possible. The main positions for all artillery units are prepared while the covering force is deployed and during the preparatory phase. In the main position, artillery must be sited to provide the maximum possible support to the commander's design.

76. Alternative positions will be prepared as soon as possible after the main positions are completed. Any battery, regardless of its task, which is forced to move by enemy action must be able to move to an alternative position from which it can continue its original mission.

77. Artillery command should be centralized as much as possible. Such centralization allows for the artillery commander to react to enemy action by rapid changes in allotment. It also allows for a centrally coordinated survivability plan, especially if it is based upon movement. Control of fire will continue to be decentralized and normal affiliations maintained. Control of ammunition should be decentralized, although guidance and instructions on the maintenance

of a reserve must be defined in operation orders. These parameters must be updated as the battle progresses.

78. DF plans for the main defensive battle are submitted based upon the supported arm commander's deployment plan. Countermoves fire plans are developed concurrently and are submitted, coordinated, and integrated into the larger DF plan.

79. Fire support tasks in support of the main defensive battle include the following:

- a. the provision of fire support for the disengagement and withdrawal of the covering force;
- b. the acquisition and attack of targets in depth to assist in the isolation of enemy first echelon elements by attacking follow-on forces;
- c. the provision of counter-battery and SEAD fire; and
- d. the provision of defensive fire tasks to:
 - (1) canalize and stall enemy forces, deny the enemy use of chosen avenues of approach, and destroy attacking elements;
 - (2) break up the leading wave and disrupt the enemy's effort to close up to the MDA;
 - (3) support obstacles to slow breaching attempts;
 - (4) separate the enemy infantry from its armour support, and force the infantry to dismount;
 - (5) provide a devastating weight of fire on the enemy as they fight across the MDA;
 - (6) provide covering fire to cover any redeployment of our own forces;

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- (7) provide fire support for any rear area security force that is deployed against an enemy airborne or airmobile threat; and
- (8) fire special missions, such as anti-tank missions employing scatterable mines designed to fix or halt an advancing force together with special ammunition designed to destroy armour.

COUNTERMOVES

80. Countermoves, although an integral part of the defence, are in fact very similar to the offence. The tactics and methods used by the artillery reflect this common approach. Countermoves should have a supporting fire plan, usually a series or group of targets that may have been incorporated in the DF plan. Hasty moves will have to rely upon impromptu fire plans.

81. Using the existing DF plan as the basis, a fire plan to cover the approach march and the attack will be prepared, at least in outline, for each counter-attack contingency. This may take the form of a series or group of targets to be adopted on receipt of a code word. The number of fire units and weights of fire can be determined based upon the manoeuvre commander's assessment of likely targets. It is vital that the manoeuvre commander and the artillery commander carry out this analysis carefully to allow for the proper allotment of resources.

82. Ammunition to support countermoves is normally allotted from the reserve maintained at the level of command responsible for the operation.

83. Artillery will usually be allocated in direct support of the countermove force for the countermove phase. BCs and FOOs will likely remain with the countermove force throughout the defence, while the guns are given other tasks—likely reinforcing or general support reinforcing. Other fire units will likely receive reinforcing tasks during the countermoves stage. This allocation of fire resources will be laid out in the initial fire support plan and will be modified during the battle to reflect the realities of the current operation. This

arrangement may be implemented by issue of a code word signifying the manoeuvre commander's order to carry out the countermove.

84. Locating artillery efforts will be focused towards supporting the countermoves. This involves acquiring enemy fire support assets through the use of sound ranging or counter-battery radar. Furthermore, unmanned aerial vehicles (UAVs) will be flown to identify and locate enemy follow-on forces.

85. Coordination is probably the most difficult aspect of a countermove and is particularly important in the successful use of artillery. Fire support coordination measures cannot, in themselves, solve the coordination problem. Close liaison and communications are required. Prior to implementing any countermoves operation, thorough rehearsals are required, during which the artillery commander consults with the FSCCs controlling the area through which the passage must be made. Preliminary details concerning observation, conduct of the fire plan, location of own troops, and possible observer regrouping are worked out at this time. Upon commitment of the force, last minute details concerning enemy and own troops movement and location are passed together with observation and fire plan modification/target information details.

86. The employment of anti-tank scatterable mines must be considered as a contingency, and plans for their use must be prepared and approved during planning. Anti-tank scatterable mines can be used to fix the enemy in place or to protect forces in blocking positions as well as the flanks of the countermove force. Their use must be planned and coordinated by the operations and engineer staffs, while the artillery must be prepared to advise on their delivery.

SECTION 4 DELAYING OPERATIONS

GENERAL

87. A delaying operation is "an operation in which a force under pressure trades space for time by slowing down the enemy's momentum and inflicting maximum damage on the enemy without, in principle, becoming decisively engaged" (APP-6). Such an operation is likely to be carried out in difficult conditions: the air situation may

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well be unfavorable and the initiative will tend to be with the enemy. Nevertheless, in order to enhance the chances of success, every opportunity should be taken to initiate aggressive action, to seize the initiative from the enemy, and to force him to adopt a defensive posture. This type of operation is arguably the most difficult to conduct and needs, therefore, to be thoroughly understood by all involved.

88. Delaying operations can be conducted independently or within other operations, principally as a prelude to a defensive operation and carried out by a covering force. It is also possible that transitional phases will be involved, the most likely being a withdrawal and a rearward passage of lines. It is also conceivable that other transitional phases, such as a meeting engagement, could occur. A delaying operation is likely to be conducted in one of the following circumstances:

- a. as a covering force operation for defending or withdrawing main bodies;
- b. as a reaction by the advance guard or covering forces when encountering superior forces;
- c. an economy of force operation conducted to hold an enemy attack on a less critical avenue of approach;
- d. a deception measure to set up a counter-attack; and
- e. as part of a mobile defence.

89. Delaying operations are usually conducted as a series of linked defensive operations, which may incorporate offensive phases (including counter-attacks). Typically, the delaying force occupies a series of pre-planned defensive positions, each designed to force the enemy to prepare to attack or bypass it. In each position the delaying force destroys as much of the enemy force and imposes as much delay as it reasonably can but moves to a new position before the enemy can concentrate sufficient combat power to overrun or bypass it. Deliberate targeting of specific elements of the attacking formation will aid the main defensive battle by destroying the enemy's combined arms integrity and damaging his ability to react once he arrives at the MDA.

90. The fire support tasks for a delaying operation consist of:
- a. long range fire support to wear down the enemy before the delaying force comes into close contact with the enemy;
 - b. fire support to slow the enemy as he deploys to concentrate for attack of our delaying positions;
 - c. fire support to assist in the defence of delaying positions;
 - d. acquisition of targets throughout the depth of the enemy force, in conjunction with the ISTAR plan;
 - e. counter-battery and SEAD missions to reduce the effectiveness of the enemy fire support and air defence artillery systems;
 - f. fire support to permit the manoeuvre forces to withdraw from position to position at the critical moment;
 - g. reinforcement of obstacles, barriers, gaps, and flanks with fire and anti-tank scatterable mines; and
 - h. fire support to support limited counter-attacks.

91. Artillery can make a major contribution by striking the enemy with concentrated fire at maximum range. Its ability to engage a wide variety of targets and to rapidly emplace anti-tank minefields should be used to both inflict casualties on the enemy and to create situations that permit aggressive manoeuvre by friendly combat units.

ALLOCATION

92. During the delaying operation, the majority of fire support resources are decentralized to the in-contact force, for example, 11 CIB might be supported by one field regiment in direct support reinforced by another field regiments. However, restrictions on positioning may be given to ensure that guns are not lost to the enemy.

The corps and division will continue to maintain powerful fire support resources in the general support roles to conduct deep operations.

POSITIONING

93. For close operations, artillery must be organized and positioned so that it can provide uninterrupted fire support throughout the delaying operation. The nature of delaying operations often necessitates the forward deployment of guns, MLRS launchers, and ammunition with the associated risks. The decision to deploy these resources so far forward must take into account the likely mobility of operations, the requirement to position sufficient ammunition forward (either ground dumped or held on vehicles), and the anticipated requirement for fire in subsequent stages of the battle.

94. During the conduct of deep operations for the delay, long-range ISTAR assets will play a key role in locating the enemy, identifying his axes of advance, and helping to determine his future intentions. It may be necessary to deploy GS artillery forward with the delaying force to take full advantage of the range of ISTAR systems. The need for detailed coordination with other strike assets involved in deep operations will likely mean, in the case of brigade or battle group size delaying forces, that control of the artillery assets supporting deep operations remains at division level. Movement of these systems will have to be coordinated with the delaying force. It will usually be necessary for the delaying force commander to establish a no fire line forward of the force and roll it back as the force withdraws to permit GS artillery to be used most effectively by the HQ controlling it.

DEEP OPERATIONS

95. Deep operations during the delaying operation assist the commander by delaying, disrupting and destroying the enemy. In delaying operations, the focus of deep operations is usually to delay and disrupt the forward movement of enemy formations to create windows of opportunity for the delaying force to conduct offensive operations or to move to the next defensive position. The enemy command and control structure can be attacked to reduce his tempo and ability to react to changing situations. Fire support resources and

armour formations should be targeted to delay and disrupt their actions. The objective is to reduce the enemy's cohesion.

CONDUCT OF THE DELAYING OPERATION

96. Much of the fire planning in a delaying operation is similar to that in a defensive operation, and techniques appropriate to either mobile or area defence might be employed depending upon the phase of the battle. The withdrawal from successive defensive positions may require the provision of smoke to conceal movement, the use of high explosive, dual-purpose improved conventional munitions (DPICM), and scatterable mines to enable forces to disengage and fire in support of a deception plan. While friendly forces are moving rearward, further delay may be imposed by use of an on call fire plan concentrating on choke points, defiles, and crossings.

97. When the delaying operation leads to a defensive operation, artillery assets from both the delaying and defending forces should be positioned and organized to provide maximum fire support. This fire must be highly responsive but closely coordinated by the defending force artillery commander to reduce the risk of fratricide. The establishment of a restrictive fire line (RFL) forward of the handover line will likely be required. The defensive fire plan in the area of the handover line will typically consist of a series of on call DF targets, with the details coordinated and disseminated by the defending force formation HQ. The co-location of FOOs in positions of good observation will allow fire to be brought down on both sides of the RFL as the handover draws to a conclusion.

CHAPTER 6

ARTILLERY IN TRANSITIONAL PHASES OF WAR

SECTION 1

GENERAL

INTRODUCTION

1. The previous chapter considered operations under the generic headings of offensive, defensive, and delaying. These operations of war are often linked by one or more transitional phases, which could also appear within the operations themselves. A transitional phase is never carried out in isolation. Its execution must lead to the active prosecution of one or other of the operations of war. The successful and rapid execution of these phases relies on such factors as devolution of decision, collocation of HQ, liaison, and a simple plan. This will lead to:

- a. the ability to transition between phases without a loss in tempo;
 - b. an effective passage of relevant information;
 - c. fluid movement;
 - d. effective fire control and the avoidance of fratricide; and
 - e. quick regrouping.
2. There are five transitional phases:
- a. advance to contact;
 - b. meeting engagement;
 - c. link-up;
 - d. withdrawal; and

- e. relief.

SECTION 2

ADVANCE TO CONTACT

GENERAL

3. In the advance to contact, the commander seeks to gain or re-establish contact with the enemy under the most favorable conditions for the main force. By seeking contact in this deliberate manner, the advance to contact differs from the meeting engagement where contact is made unexpectedly.
4. The advance to contact is always executed in preparation for a subsequent operation, such as an attack, and is terminated when the main body is positioned in accordance with the commander's plan. Subsequent operations will be determined by the mission assigned to the main force. This may also be determined from the posture of the main body when contact is made with the enemy. The advance to contact is characterized by the rapid movement of forces on one or more broad axes in order to establish or to regain contact with an enemy force. Orders will likely be in the form of instructions, whereby commanders are given broad freedom of action, and there may be less coordination of the movement of advancing forces.
5. A factor that contributes to the maintenance of balance is the correct placement of artillery in the order of march so that sufficient fire support is available at the time needed. This factor is critical when operating in close country. Artillery can be moved by either leapfrogging or by following the advancing forces and deploying when necessary.
6. The leapfrogging of units and sub-units ensures that guns are always ready to provide fire support. Leapfrogging is often the most suitable method when the advance is not too rapid, enemy resistance is likely, and speed of response is vital.

7. The choice of moving the guns with the advancing forces ensures their being within range. Batteries of guns should travel behind the advancing units and only deploy if fire is required. This method is best suited to high-speed movement or when road space is limited and the guns can not move freely due to congestion. The limitation, however, is that the guns must be able to deploy quickly in order to provide support. Close country or congested roads can hinder this deployment. Care must be taken to ensure that the deployment of guns does not hinder the movement of manoeuvre units.

8. The artillery commander advises the supported commander on the best method to use in any given situation. Factors to be considered are as follows:

- a. likelihood of meeting opposition;
- b. availability of road space;
- c. ability of artillery reconnaissance parties to move directly behind the lead elements and to prepare positions continually for occupation;
- d. speed of advance in relation to the range of the equipment; and
- e. suitability of the terrain for rapid deployments along the axis of advance.

9. It is vital that suitable areas are cleared for artillery use by the appropriate formation operations staff as early as possible, ideally during the initial planning sequence. Terrain will be at a premium during the advance, but it must be remembered that the successful and simultaneous conduct of both deep and close operations will require artillery units in a general support role to be deployed well forward.

10. In an advance on a wide front using several routes, centralized command of artillery may be difficult to maintain. Fire units may be unable to effectively concentrate their fire. In such circumstances, some degree of decentralization of C² or of tactical tasks may be required. In order to retain flexibility in the employment of artillery, more centralized tactical missions should be re-established as soon as possible. Normal direct support affiliations will be

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maintained for those formations fighting close operations, with additional artillery allotted as available.

11. Commanders must determine the likely ammunition expenditure rate and weapon system mix appropriate for the advance. Allocated ammunition resources must cater to the unforeseen, especially to support hasty attacks. Ammunition is a major factor in determining which artillery tactical function, and hence which type of target, is to receive the most attention. Strict ammunition control must be maintained, particularly when lines of communication are extended.

12. Depending upon the bypass policy, artillery supporting elements in the advance may become vulnerable to enemy ground attack. The risks involved will determine the need for protection of reconnaissance parties and the need for additional troops for defence of the gun position. The number of suitable gun areas may also be severely restricted because of their potential vulnerability. The commander with authority to move the guns must consider the risks involved and take action to ensure that adequate protection is afforded to the guns.

13. A series of on call targets on possible enemy locations and easily observed terrain features along the axis of advance, called a Continuous Fire Support Plan (CFSP), will usually be planned. These targets help provide the rapid response necessary to maintain the impetus of the advance and may also form the framework of a quick fire plan, if heavy resistance is encountered. The conduct of deep or rear operations is also facilitated by a deep fire plan in conjunction with a CFSP. The identification of targets is usually done by the formation artillery G2 staff. The key to successful fire planning in the advance is flexibility together with rapid and appropriate response to changing situations.

14. Locating artillery tasks will concentrate on two fronts: acquiring targets and providing survey and meteorological data. The acquisition of targets must be coordinated with the Intelligence, Surveillance, Target Acquisition, and Reconnaissance (ISTAR) plan, including the locating of enemy fire support assets.

SECTION 3 MEETING ENGAGEMENT

GENERAL

15. The meeting engagement is a combat action that may occur when both sides seek to fulfil their mission by offensive action. It will often occur during an advance to contact and can easily lead to a hasty attack. In offensive, defensive or delaying operations, it will often mark a moment of transition in that the outcome may well decide the nature of subsequent operations. This is why a meeting engagement is described as a transitional phase. Even when the main part of a force is attacking, defending or delaying, individual elements may find themselves in situations that have the characteristics of a meeting engagement.

16. The meeting engagement differs from the advance to contact in that it occurs unexpectedly, whereas in the advance to contact the commander deliberately seeks to establish contact with the enemy.

17. The amount of fire support available in the initial stages of a meeting engagement will depend on where the fire support assets are in the formation movement plan. ISTAR assets will have a significant role to play in determining the enemy's strengths and dispositions, particularly regarding the enemy's flanks. Locating artillery will be tasked to assist this role. Forward observation officers (FOOs) should be grouped with the leading elements in order to read the battle and react to the unexpected.

18. The techniques for using artillery fire in a meeting engagement are likely to resemble those of hasty attacks, into which they often develop. One of the keys to success will be the rapid application of fire resulting from pre-planning and anticipation of events.

19. The unpredictable nature of a meeting engagement will make the imposition of fire support control measures (FSCMs) difficult. In principle, a no fire line (NFL) should be established in advance of the force, moving as the force advances towards the enemy. Once contact is made, the NFL should be positioned to allow the higher formation to continue with deep operations while the meeting engagement is conducted by the manoeuvre force.

SECTION 4 LINK-UP

20. A link-up operation is conducted to join two friendly forces in enemy controlled territory. It may therefore be necessary to destroy the enemy between these forces before a link-up is established. Both forces may be moving towards one another, or one may be stationary or encircled. They may have the same or differing missions. A link-up operation could occur under the following circumstances:

- a. A link-up between two forces engaged in converging attacks may take place when each force captures adjacent objectives, thus completing an encirclement.
- b. A link-up with encircled or cut-off forces may take place on the perimeter of the defensive position established by that force. When the link-up is combined with a breakout action, it may take place at another designated objective. The encircled force should try to break out, or at least mount some form of diversionary action in order to ease the task of the relieving force by diverting enemy attention.
- c. a link-up operation with an air delivered or infiltrated force may take place on the perimeter of its defensive position. In this case, the link-up is normally followed by a passage of lines or by a relief of the forces involved.

21. Careful coordination of fire is required prior to link-up. Normal FSCMs will be used by the link-up forces including the establishment of boundaries or a restrictive fire line (RFL) between them. The establishment of a no fire area (NFA) around any isolated elements will further serve to prevent fratricide. Detailed and specific coordination will be necessary for any phase of the link-up when the fire of one force may affect the operations of the other. As the link-up forces converge, the need for positive control to avoid incidents of fratricide becomes critical and must be closely coordinated to ensure that the enemy is not able to escape between the two forces. Battery commanders (BCs) and FOOs with the leading elements should monitor a common radio net.

22. The procedures for the provision of fire support will depend on the circumstances. For mobile forces, they will be similar to those used for the advance, while a static force is likely to have a prepared and coordinated defensive fire (DF) plan.

SECTION 5 WITHDRAWAL

23. A withdrawal occurs when a force disengages from an enemy force in accordance with the will of its commander. It seeks to disengage its combat forces from the enemy although contact may be maintained through other means such as indirect fire, reconnaissance or surveillance.

24. The order to withdraw will not normally be given by the commander without the agreement or direction of his superior commander. A withdrawal may be undertaken for the following reasons:

- a. if the objective of the operation cannot be achieved, and the force is threatened by defeat;
- b. the objective is achieved, and there is no further requirement to maintain contact;
- c. to avoid battle in unfavorable tactical conditions;
- d. to draw the enemy into an unfavorable posture, for example, to extend his lines of communication;
- e. to conform to the movements of adjacent friendly forces;
- f. to allow for the use of the force or parts of the force elsewhere; and/or
- g. for combat service support reasons, i.e., the force can no longer be sustained.

25. The withdrawal will take place either in or out of contact with the enemy. Whichever is the case, the commander's primary concerns will be:

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- a. to disengage;
- b. to retain an intact front by the deployment of strong covering troops;
- c. to safeguard withdrawal routes; and
- d. to maintain balance throughout the operation.

26. Success will depend on the maintenance of morale, tight control, and secrecy. A commander must also be ready to take the offensive, if the opportunity arises, albeit with only limited objectives.

27. Artillery must be organized and employed so that it can cover the entire operation and thereby assist the break clean and redeployment to new positions. The rearward movement of guns and launchers will have to be closely coordinated with the manoeuvre forces, with new positions and withdrawal routes carefully reconnoitred. If the withdrawal is to be silent and out of contact, a DF plan must be prepared, with sufficient artillery in action and within range to execute it if the withdrawal is compromised. A detailed ammunition plan will be necessary, allowing the maximum number of logistic vehicles to withdraw as early as possible. The nature of the operation may necessitate the dumping of ammunition on future gun positions.

28. Typical fire support tasks for a withdrawal include the following:

- a. the provision of smoke to conceal movement;
- b. concentrated fire to slow the enemy, including the emplacement of anti-tank scatterable minefields;
- c. fire to support the obstacle/barrier plan;
- d. counter-battery fire and Suppression of Enemy Air Defence (SEAD) missions;
- e. target acquisition tasks along enemy approach routes;

- f. fire on enemy approach routes and choke points to delay him once the protective component of the withdrawing force has disengaged;
- g. fire in support of a deception plan; and
- h. the continuous attack of enemy in depth to impair his movement, deplete his strength, and (in conjunction with offensive IO) disrupt his command and control.

29. The effective application of FSCMs will be essential in a withdrawal where operations are fluid with great potential for confusion. Coordination measures are particularly important as the delaying action by the protective element comes to an end and the force begins its break clean at the handover line forward of the next main defensive position.

30. While the provision of FOOs is vital to the protective element, the viability of the next main defensive position will require that some FOOs accompany the manoeuvre unit representatives tasked with the reconnaissance and preparation of the next position. The commander must decide, taking into consideration the fire support requirements of the protective element, when FOOs are to move back to the next main position.

SECTION 6 RELIEF

31. A relief operation occurs when the combat activities of one force are taken over by another. Relief operations are undertaken when forces:

- a. are unable to continue with their mission;
- b. are required for operations in another area;
- c. have accomplished their mission;
- d. are due for rotation to avoid exhaustion; and/or
- e. are not suitable to accomplish the new task.

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32. Relief is normally undertaken in order to sustain the overall level of combat power. The transfer of operational responsibility for a combat mission is inherent to relief. The requirement is that this transfer should take place while maintaining the required level of operational capability. Commanders normally co-locate to effect the handover.

33. The mission will be determined by the commander's intentions, the type of operation the force has been engaged in, the type of enemy force involved, and the enemy's anticipated course of action.

34. During any relief, there is a period when congestion increases the vulnerability of the forces involved. The possibility of confusion is inherent as two parallel command systems will be operating in one area at the same time. The complexity should not be underestimated; be that as it may, the beneficial and possibly decisive effects to be gained from successful synchronization of the combat power of both forces should not be overlooked. The types of relief are defined as:

- a. **Relief in Place.** A relief in which all or part of a force is replaced in a sector by an incoming unit.
- b. **Forward Passage of Lines.** A relief in which a force advances or attacks through another that is in contact with the enemy.
- c. **Rearward Passage of Lines.** A relief where a force effecting a movement to the rear passes through the sector of a unit occupying a defensive position.
- d. **Retirement.** A retirement is different from a withdrawal in that it is a movement away from the enemy by a force out of contact.

35. **Relief in Place.** The in-place formation or unit will always provide fire support for the relieving force. If the relief is for the purpose of continuing with offensive operations, the artillery of both the in-place and relieving forces are likely to remain in support of the operation.

36. Artillery manoeuvre areas (AMAs) for the incoming artillery should normally be allocated and reconnoitred, in outline, by the in-place force. Depending upon terrain limitations, these positions should not have been used for previous deployments. Normally, the guns of the in-place formation will remain in position until the end of an operation, and all artillery should remain under the control of the outgoing commander until the change of command for the sector has been effected.

37. Liaison Officers (LOs) and FOOs from incoming units should be in position as early as possible to familiarize themselves with the details of the artillery plan, including the following:

- a. tactical tasks;
- b. logistic arrangements;
- c. target lists;
- d. FSCMs;
- e. the observation plan; and
- f. the readiness status of guns and launchers.

38. The in-place force must ensure that all DF lists and fire plans are passed to the relieving force in sufficient time for the information to be passed to all concerned. FSCMs will be imposed by the in-place force and passed to the relieving force.

39. **Passage of Lines—General.** A passage of lines can take place in either offensive or defensive operations in order to allow a moving formation to pass through a stationary one. A passage of line is usually an implied task, not a primary mission. However, detailed planning and coordination are essential during a passage as two separate units are temporarily concentrated in the same area and are therefore vulnerable to enemy attack.

40. During some stages of a passage of lines, artillery may be the only force capable of reacting quickly and effectively to unexpected enemy action. The artillery commander must consider the following when preparing his plan:

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- a. The provision of LOs from the passing formation to the HQ of the in-place formation. The exchange of information should include the following:
 - (1) unit SOPS and the resolution of differences in operating procedures;
 - (2) existing targets and fire plans;
 - (3) the status of unit target acquisition assets;
 - (4) control measures in effect (i.e., passage points, passage lanes, and contact points);
 - (5) the coordination of recognition signals;
 - (6) information on obstacles and barriers;
 - (7) the coordination of deployment areas;
 - (8) available survey data,
 - (9) Signal Operating Instructions (SOIs) and the resolution of communications differences (e.g., frequencies, call signs, challenges, and passwords); and
 - (10) intelligence.
- b. The clear allotment of fire support to both formations.
- c. The appropriate FSCMs to be imposed.
- d. A fire plan that includes the following:
 - (1) the use of smoke to obscure and/or screen;
 - (2) fire for any deception plan;
 - (3) covering fire to neutralize enemy attacks in the area of the passage;

- (4) fire to support the barrier plan; and
- (5) fire support to counter enemy artillery and restrict the movement of enemy reinforcements.

41. **Forward Passage of Lines.** During a forward passage of lines, a force advances or attacks through another force that is in contact with the enemy. Artillery with the in-place formation will continue to support the incoming formation until such time as the incoming artillery units are firmly established. Artillery staffs with both the advancing and in-place forces will need to liaise closely with the higher formation coordinating the allocation of terrain. AMAs must be far enough forward to support the operation without necessitating redeployment during critical stages of the battle, and plans must be prepared to provide adequate quantities of ammunition.

42. Fire planning considerations for a forward passage are similar to those for an advance. Arrangements for the control of fire to be passed between the two formations must be made. It will be usual to position a NFL forward of the lead elements and continually update it as the lead elements progress through the passage. Once the advancing force has completed its passage, there may be a requirement to establish a NFL forward of the original in-place elements to enable them to continue either to advance or hold the area of the Line of Departure without endangering forward elements.

43. **Rearward Passage of Lines.** During a rearward passage of lines, one force withdraws through the defensive position of another. The passage of lines may take place in or out of contact with the enemy. This operation will be especially difficult if the force making the passage has been unable to make a clean break with the enemy. The overall operational commander will need to establish a handover line. This must be located forward from the point at which the enemy is capable of engaging the in-place force's main position with observed fire.

44. The field artillery of the stationary force should be positioned well forward to provide deep fire to support the withdrawal of the passing force. These positions should be away from passage lanes. In the rearward passage, the stationary force has positioning priority. As

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the passing force artillery moves through, it should deploy behind the stationary artillery and move laterally away from the passage lanes.

45. Close coordination of plans between the commanders and staffs of the involved forces is mandatory. Once the passage of lines is ordered, the Fire Support Coordination Centre (FSCC) of the stationary force should send a LO to the FSCC of the passing force. The FSCCs define and assign mutually agreed upon fire support responsibilities to facilitate the passing force. The defensive fire plan in the area of the handover line would typically consist of a series of on call DF targets, with target information coordinated and disseminated by the in-place HQ.

46. Artillery in support of this operation must be highly responsive but closely coordinated in order to minimize the risk of fratricide. This will likely necessitate the establishment of a RFL forward of the handover line. As the passing force closes with the handover line, the FOOs of the passing and in-place forces should co-locate until the operation is completed.

**ANNEX A
COMMAND RELATIONSHIPS**

TERM	DEFINITION	SOURCE	INTERPRETATION	EXAMPLE
Full Command	The military authority and responsibility of a superior officer to issue orders to subordinates. It covers every aspect of military operations and administration and exists only within national services.	AAP-6	The national commander, normally the CDS, always retains Full Command. Canadian and allied doctrines do not permit the surrender of complete command of a unit or formation to forces of another nation or a combined force commander.	CO 20 Fd Regt has full command over his regiment.
Operational Command OPCOM	The authority granted to a commander to assign missions or tasks to subordinate commanders, to deploy units, to reassign forces, and to retain or delegate operational	B-GL-300-3 AAP-6	This is the preferred relationship for artillery assets being assigned from Corps to Division.	65 FA Bde OPCOM to 4 Cdn Div (each unit can be given separate tactical tasks, e.g., 2-661 FA GSR 12 Fd Regt, and 2-663 FA R 13 Fd Regt).

TERM	DEFINITION	SOURCE	INTERPRETATION	EXAMPLE
	and/or tactical control as may be deemed necessary. (See Note 1)		Organic artillery units may be placed under an OPCOM or a lower command relationship to another formation or unit for special circumstances. OPCOM does not place any restrictions on how a commander assigns tactical tasks to units or sub-units placed under his command	2-631 FA OPCOM 20 CMBG. 2-666 FA (MLRS) OPCOM 20 CMBG for Phase 2.
Operational Control OPCON	The authority granted to a commander to direct forces assigned so that the commander may accomplish specific missions or tasks (which are usually limited by function, time, or location), to deploy units concerned, and to retain or assign tactical control of those units. It does not include	B-GL-300-3 AAP-6	OPCON usually restricts the use of a force in such a way that it can readily be given a new mission and/or be re-deployed elsewhere. Thus, the formation or unit has to be tasked by the gaining formation/unit as a whole.	If 67 FA Bde is OPCON to 4 Div Arty Bde, the CDA has to assign a tactical task to the Bde as a whole; he can not assign individual tasks (GS, R, etc.) to the units of the Bde. 2-664 FA (MLRS) Bn OPCON 20 CMBG for Phase 2.

TERM	DEFINITION	SOURCE	INTERPRETATION	EXAMPLE
	<p>authority to assign separate employment to components of the units concerned. It does not include, of itself, administrative or logistic control.</p> <p>(See Note 1)</p>		<p>Artillery units from higher artillery formations may be placed under OPCON to lower artillery formations for the duration of a specific mission or a specific time period.</p> <p>Artillery BCs and FOOs are usually assigned to units and sub-units using this command relationship.</p>	<p>2-631 FA Bn OPCON 4 Arty Bde until 0600Z 21 Oct.</p> <p>BC and FOOs 201 Fd Bty OPCON GGFG.</p>

TERM	DEFINITION	SOURCE	INTERPRETATION	EXAMPLE
			TACOM is used where the superior commander recognizes the need for additional resources for a task but requires the resource intact for a later role.	
Tactical Control TACON	The detailed and (usually) local direction and control of movements or manoeuvre necessary to accomplish missions or tasks assigned.	B-GL-300-3 APP-6	The artillery unit or sub-unit placed under TACON of another unit or sub-unit is responsible to initiate liaison with the gaining unit to coordinate movement and local defence within the established boundaries.	Elm 4 EW Sqn TACON 132 Fd Bty. FOO 121 Fd Bty TACON A Coy until completion of bridge demolition guard.

TERM	DEFINITION	SOURCE	INTERPRETATION	EXAMPLE
			A unit placed under TACON must conform to direction from the gaining unit. BCs and FOOs may be placed TACON for the completion of a specific mission or task or when the situation dictates the requirement for rapid re-assignment and hence the need for more flexibility.	

NOTE

Sustainment responsibility is not included with the command relationship for any joint, combined or multinational operation. Within national arrangements, OPCOM, TACOM and OPCON normally include the administrative responsibility ATTACHED FOR DAILY MAINTENANCE. If the relationship is other than normal combat supplies, the exact relationship must be specified.

**ANNEX B
ARTILLERY TACTICAL TASKS**

Tactical Task of	Answers Calls for Fire in Priority from	Establishes Liaison with	Establishes Communication with	Furnishes Artillery Tactical Groups	Assets Moved and Deployed by (2)	Has, as its Zone of Fire (3) (4)	Has its Fire Planned by
Direct Support (DS)	1. Directly supported formation/unit. 2. Own Bty Tac Group 3. Force field artillery HQ (1)	Directly supported formation/unit	The directly supported manoeuvre formation/unit	BC to unit HQ. FOO party to each manoeuvre sub-unit of the directly supported formation's units	Direct support artillery unit commander	Zone of action of the directly supported formation/unit	Develops own fire plans in coordination with directly supported formation/unit
Reinforcing (R)	1. Reinforced artillery unit 2. Own Bty Tac Groups 3. Force field artillery HQ(1)	Reinforced artillery unit	Reinforced artillery unit	No inherent requirement	Reinforced artillery unit	Zone of fire of reinforced artillery unit	Reinforced artillery unit
General Support Reinforcing (GSR)	1. Force field artillery HQ (1) 2. Reinforced artillery unit 3. Own Bty Tac Groups	Reinforced artillery unit	Reinforced artillery unit	No inherent requirement	Force field artillery HQ (1)	Zone of action of the supported formation/	Force field artillery HQ (1)
General Support (GS)	1. Force field artillery HQ (1) and target acquisition artillery 2. Own Bty Tac Groups	No inherent requirement	No inherent requirement	No inherent requirement	Force field artillery HQ (1)	Zone of action of the supported formation	Force field artillery HQ (1)
Notes							
<ol style="list-style-type: none"> 1. Force Artillery HQ or Higher Artillery HQ. 2. Brigade G3 staff must be consulted before gun groups are moved within, into or across their brigade boundaries. The DS artillery CO is responsible for this coordination. 3. Zone of Action – A tactical subdivision of a larger area, the responsibility of which is assigned to a tactical unit (AAP-6). 4. Zone of Fire – An area which covers and may extend beyond the supported formation/unit's zone of action. 5. Any modification(s) to any of the above conditions will result in a "non standard task". 							