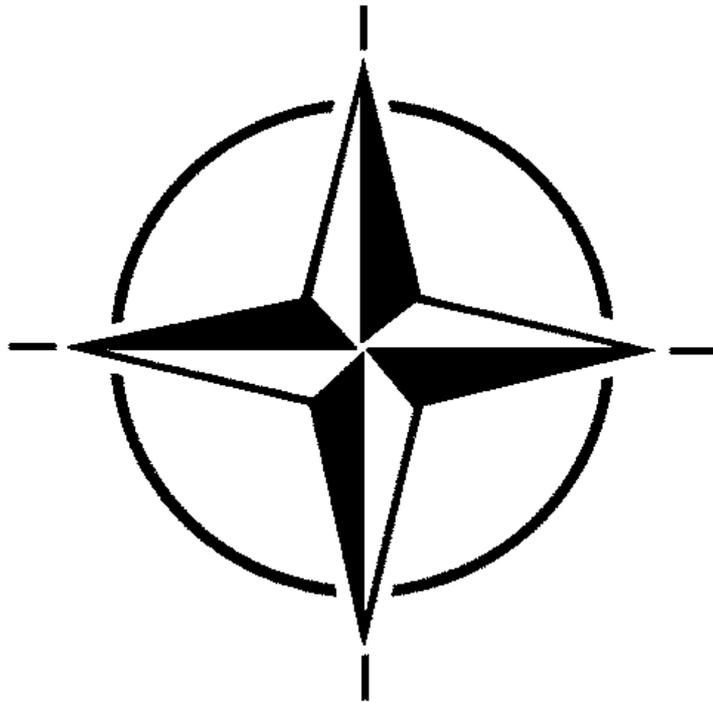


**NATO UNCLASSIFIED**



**USE OF HELICOPTERS IN  
LAND OPERATIONS**

**ATP-49(C)  
Volume 1**

**NATO UNCLASSIFIED**



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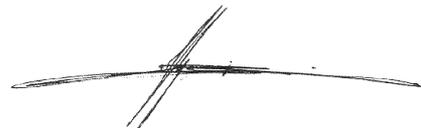
**MARCH 2000**

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**NORTH ATLANTIC TREATY ORGANIZATION  
MILITARY AGENCY FOR STANDARDIZATION (MAS)  
NATO LETTER OF PROMULGATION**

March 2000

1. ATP-49(C) Volume 1 - USE OF HELICOPTERS IN LAND OPERATIONS, is a NATO UNCLASSIFIED publication. The agreement of nations to use this publication is recorded in STANAG 2999.
2. ATP-49(C), Volume I, is effective upon receipt. It supersedes ATP-49(B) which should be destroyed in accordance with the local procedure for the destruction of documents.



A. GRØNHEIM  
Major-General, NOAF  
Chairman, MAS

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<b>Chapter</b>	<b>Record of Reservations by Nations</b>
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	

Nation	Reservations

# **ALLIED TECHNICAL PUBLICATION – 49(C), VOLUME 1**

## **USE OF HELICOPTERS IN LAND OPERATIONS**

Allied Tactical Publication – 49(C) (ATP-49(C)) March 2000 Edition,  
is promulgated

As directed by the Chiefs of Staff

A handwritten signature in black ink, appearing to be 'M. J. ...' with a stylized flourish.

Director General Joint Doctrine and Concepts Centre

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## INTRODUCTION

### Related Publications:

ATP-8	Doctrine for Amphibious Operations (STANAG 1149 AW).
ATP-40	Doctrine and Procedures for Airspace Control in the Combat Zone (STANAG 3805 TA).
AAP-6	NATO Glossary of Terms and Definitions (STANAG 3680).

- 1. Aim.** The aim of this publication is to improve inter-operability among NATO helicopter forces engaged in land operations by establishing common principles and procedures for battlefield helicopter operations. The publication has been structured into 2 volumes for ease of reference: Volume 1 concerns the doctrine and principles of helicopter operations whilst Volume 2 describes helicopter tactics, techniques and procedures, and contains information which is technical in nature.
- 2. Scope:**
  - a. This ATP is principally concerned with helicopter tactical operations in support of land forces in Europe.
  - b. The ATP is intended for use by ground and aviation (helicopter) forces from unit to formation level.
  - c. Helicopter operations as part of Amphibious Warfare are covered in ATP-8.
  - d. The special aspects of Airmobile Operations are outlined in Volume 1 Chapter 8 and Volume II Chapter 10.
  - e. Promulgation of this ATP does not negate the need for unit commanders in the field to co-ordinate international helicopter operations but provides a common basis for this co-ordination, which has been sanctioned by National Authorities.
- 3. Categories of Roles of Helicopters.** Helicopters are usually categorised with respect to their designed primary purpose. These categories vary from one nation to another to take account of the roles that their helicopters are expected to undertake and the degree to which specialisation is desirable and can be afforded. For a highly specialised helicopter the role and category may be the same (for example the Attack Helicopter). However, the versatility of helicopters is such that many types are capable of performing several roles, hence categories are listed in the Glossary. (In this tactical publication the role of the helicopter is of more relevance than the category. Roles are discussed in Chapter 2.)

4. **Performance.** An outline of the performance capability of battlefield helicopters currently in service with NATO nations is given in Volume 2, Chapter 1. These are average 'rule of thumb' figures for information and guidance. Tasking authorities will decide the types and number of aircraft to be assigned for a specific task based on the mission and available resources.
  
5. **Terms and Definitions.** Attention is drawn to the terms and definitions contained in the Glossary. These include terms and definitions from the NATO Glossary (AAP-6) and others specific to this ATP. Particular attention is drawn to the term 'enemy' which appears widely in both volumes of the ATP. 'Enemy' is used to describe forces and/or weapon systems that pose a threat to the security of NATO forces or operations. It is not used to identify those forces that are considered a threat as national enemies of NATO or any member nation involved in NATO operations.

**LIST OF CONTENTS**

	Pages
Frontispiece	i
NATO Letter of Promulgation	iii
Record of National Reservations by Chapter	v
National Reservations	vi
Reserved for National Letter of Promulgation	vii
Record of Changes	ix
Introduction	xi
List of Contents	xiii

**PART I - PRINCIPLES**

Chapter 1	Characteristics of Helicopter Operations	1-1
Chapter 2	Helicopter Roles	2-1
Chapter 3	Helicopter Survivability	3-1

**PART II - ORGANISATION**

Chapter 4	Command and Control	4-1
Chapter 5	Communication	5-1
Chapter 6	Airspace Control for Helicopters	6-1
Chapter 7	Planning and Co-ordination	7-1
Annex 7A	Designation of Days and Hours	7A-1

**PART III - OPERATIONS**

Chapter 8	Airmobile Operations	8-1
Section I	Introduction	8-1
Section II	Concept of Airmobile Operations	8-2
Section III	Characteristics of Airmobile Operations	8-3
Section IV	Capabilities and Limitations	8-5

Section V	Missions	8-7
Section VI	Organisation	8-9
Section VII	Command and Control	8-11
Section VIII	CIS	8-16
Section IX	Combat Support	8-18
Section X	Combat Service Support	8-21
Chapter 9	Attack Helicopter Operations	9-1
Chapter 10	Employment of Helicopters in the Anti-armour Role	10-1
Chapter 11	Joint Air Attack Team	11-1
Chapter 12	Air Combat Manoeuvring	12-1
Chapter 13	Airmobile Security Operations	13-1
Chapter 14	Reconnaissance Operations	14-1
Chapter 15	Military Operations Other Than War	15-1
Chapter 16	Combat Search and Rescue	16-1
List of Related STANAGS		STANAG-1
List of Effective Pages		LEP-1

## **PART I - PRINCIPLES**

### **Related Publications:**

ATP-35 Land Force Tactical Doctrine (STANAG 2868 TACDOC).  
SHAPE 1100.3/SHOPA/97 ACE Forces Standards for Air Forces Volume II NATO  
Restricted Apr 97.

### **CHAPTER 1 - CHARACTERISTICS OF HELICOPTER OPERATIONS**

0101. **General.** This chapter describes the general characteristics of helicopters used in the conduct of land operations. However, each type or category of helicopter has its own special characteristics that make it especially suitable for its primary role. A summary of the performance characteristics of helicopters in land operations is in Volume 2, Chapter 1.

#### 0102. **Characteristics:**

- a. **Versatility.** Most helicopters can carry out a wide range of tasks (see Chapter 2 - Roles). Whilst each type of helicopter is likely to be more suited to specific tasks, it will normally be capable of performing other tasks to some degree.
- b. **Mobility.** Surface features such as water, swamps, forests, and natural or man-made obstacles or hills do not inhibit a helicopter's freedom of action. It is seldom restricted in its choice of operating area since it can use confined landing sites (LS) requiring little or no preparation. Most helicopters can also load and unload external loads and personnel when circumstances do not allow them to land.
- c. **Flexibility.** The versatility and mobility of helicopters and their ability to be redeployed rapidly in response to changes in the situation give them an inherent flexibility in the land battle. Armed helicopters have a further advantage in that they are not constrained by line of sight problems to the same extent as ground direct fire systems. This gives them the ability to acquire their own targets and engage them effectively out to the limits of their weapon range. This tactical integrity provides battlefield helicopters with a very high degree of flexibility.
- d. **Speed of Execution.** Helicopters are normally deployed close to the supported forces that can thus exploit the helicopters mobility and flexibility to achieve rapid execution of tasks. This speed of execution can be further enhanced if a warning order is given, thereby allowing time for planning and briefing, and for placing helicopters and crews at high readiness (alert). The use of loiter readiness can further reduce reaction time but this is expensive in

resources and can only be justified for very high priority tasks. Helicopters should not be used in preference to ground transport when speed of execution is not important and ground transport can complete the mission satisfactorily. Furthermore, in some cases the time required to prepare loads and/or to load the helicopter can remove the aircraft's speed advantage over ground transport. The advantage will, however, return to the helicopter over longer distances or difficult terrain.

- e. **Surprise.** Because of the helicopter's speed, relative freedom of movement, ability to operate at very low altitude during both day and night and use of terrain masking to avoid detection, it can often achieve an element of surprise. This advantage may be lost if radar reflections are picked up by low-level air defence radar, or if cockpit/fuselage glint or rotor blade flicker is detected by the enemy. Where other battlefield noise levels are low, surprise may be lost due to engine or rotor noise. However, it will usually be difficult to locate the helicopter precisely from its noise alone.
- f. **Vulnerability.** Although some modern helicopters have an increased capability to survive on the battlefield and may be equipped with passive and active self-protection devices, the majority remain very vulnerable to a wide range of threat weapons. Their exposure to known or suspected threat weapons may result in an unacceptable aircraft loss rate. Helicopters can, however, survive to discharge their roles effectively provided they are employed with due regard to the threat opposing them, and preferably as part of a combined arms team. More heavily protected aircraft may be employed closer to the enemy than is normal practice provided the expected gains from their mission justify the risks involved. All helicopters will, however, aim to remain concealed from electronic or visual acquisition. Likely threats to helicopters on the battlefield, and the measures that can be taken to counter them, are covered in detail in Chapter 3.

#### 0103. Limitations:

- a. **Performance Limitations.** Helicopter performance will be affected by:
  - (1) **Altitude and Temperature.** Engine power and rotor lift are affected by air density. A reduction in air density caused by high altitude and/or high temperature may produce a significant reduction in payload and manoeuvrability.
  - (2) **Payload and Range Requirements.** Payload, referred to in kg, is the mass of the load that the helicopter can transport over a given distance. As the distance to be flown increases, fuel may have to be added at the expense of payload.

- (3) **Underslung Loads.** Normally, whenever the tactical situation permits, a helicopter will be flown at its optimum cruising speed. When an underslung load is carried it will usually be necessary to reduce airspeed to prevent the load from becoming unstable in flight. An underslung load will also reduce manoeuvrability and will hinder terrain flight. Nevertheless, the carriage of cargo externally will normally offer the most efficient utilisation of helicopter time when in the cargo role. As a general rule, carriage by underslung load will be more advantageous than internal carriage over radii of 120 km or less.
- (4) **Night Operations.** Although there are tactical advantages in operating at night, darkness requires detailed pre-mission planning and imposes some limitations on the employment of helicopters. The development of night vision aids, battlefield illumination, navigation equipment and avionics is progressively reducing these limitations, which currently may require helicopters to operate:
  - (a) At higher altitudes, following simpler flight paths.
  - (b) At slower speeds.
  - (c) With increased separation between aircraft, both in time and space.
  - (d) With a reduced ability to perform some roles.
  - (e) From landing sites requiring extra preparation, manning or illumination.

b. **Weather Limitations:**

- (1) Helicopters are capable of operating in less visibility and under a lower cloud base than fixed wing aircraft. Poor visibility may prevent or hinder all helicopter operations not carried out by specially equipped aircraft. While low visibility does hinder visual acquisition by the enemy, the helicopter remains vulnerable to acquisition by radar and thermal sensors.
- (2) Most helicopters can be flown without visual ground reference but must do so at a safe height above obstructions and must be able to descend to an LS by visual reference or with the assistance of electronic guidance, either internal or ground based.
- (3) Some helicopters have restrictions that preclude or restrict flight in icy conditions or in falling snow.

- (4) Strong surface winds may make the starting and stopping of rotors hazardous and, in extreme cases, may necessitate the suspension of flying operations.
- c. **Security.** Helicopters on the ground must be protected against enemy ground and air threats. Security of helicopter units in assembly areas is normally accomplished by use of resources from the supported unit or other organic assets. Self-defence of helicopter operating bases against a ground threat may be severely restricted due to the limited number of personnel in helicopter units. Careful selection of assembly areas is necessary to take advantage of terrain, other ground units in the general vicinity, and integration into the rear area commander's protection plan. The active protection of helicopters from enemy air action may be provided by point defence weapon systems, whilst passive protection is achieved by concealment and dispersion of aircraft. The dispersion requirements may present unique problems in conducting aircraft maintenance and complicate local defence. Commanders will have to weigh the situation and conflicting requirements of the moment to determine the greatest threat. In any case, helicopter units should be located to maximise their protection from ground or air attack. Concealment is made more difficult for helicopter units due to the helicopter's inherent lack of ground mobility, its inability to occupy rugged, irregular terrain, and the size and quantity of the supporting equipment required.
- d. **Logistic Support.** The helicopter normally requires an appreciable amount of servicing by technicians using special equipment. Consequently, when a helicopter unit is redeployed it will frequently be necessary to use some of the helicopter lift capacity to move the technicians and their equipment. Similarly, some helicopters may be required to position their own fuel and ammunition at forward sites or to ferry recovery teams to downed aircraft. This temporary reduction in the number of aircraft and the amount of payload available to the supported unit must be taken into account to ensure the optimum employment of the helicopter force.
- e. **Availability.** The maintenance system retains sufficient flexibility to allow an increased tempo of operations for limited periods. For example, high usage may occur to take advantage of good weather or to accommodate a sudden demand for extra missions. However, this will result in some reduction in the availability of the force at the end of the period until the essential outstanding maintenance has been completed. Due to an intensive flying rate and shortage of spare parts it may be necessary to 'cannibalise' in order to increase the number of available helicopters.

- f. **Aircrew Considerations.** Helicopters of the new generation are suited for 24 hrs operations and are liable to the same criteria of the fighter units of the air forces. Thus the ACE-Forces Standards for Air Forces, Volume II, issued by SHAPE, apply for NATO assigned helicopter forces. Reaction force units should maintain a minimum aircrew-to-aircraft ratio in peacetime of 1.5:1 and main defence forces a minimum of 1.2:1. Nevertheless the consequences of fatigue on aircrew can be serious and the degree of fatigue to be tolerated in a given operation must be considered.
- g. **NBC Conditions.** Although crew protection equipment is increasingly available, actual or impending Nuclear, Biological and Nuclear (NBC) conditions can impose limitations on helicopter operations.
0104. **Summary.** In any helicopter operation the aim must be to exploit the advantages and capabilities of the helicopters and to minimise the effects of limitations on the aircraft, aircrews and support. Commanders and operators must therefore plan accordingly, taking these factors into account with special attention being given to the characteristics of the particular helicopter type.

## CHAPTER 2 - HELICOPTER ROLES

0201. The characteristics of the helicopter enable it to undertake a variety of roles and partake in operations that may involve it in one or more of these roles. Similarly, a number of helicopters may be called upon to perform a specific role in concert. In addition to the principal roles discussed in this Chapter, the versatility of the helicopter enables a wide variety of minor tasks to be carried out; for example, deception whereby helicopter movements can be used deliberately to deceive an enemy.
0202. **Armed Action.** Armed helicopters provide a means of rapid application of firepower, virtually unhindered by terrain. This ability to exploit the terrain enables line-of-sight problems to be largely overcome, thus allowing the helicopter to employ its weapons at their maximum effective range.
0203. **Reconnaissance and Observation:**
- a. Reconnaissance missions involve the seeking out of particular information not necessarily concerned with enemy activity, but within a specific area. Reconnaissance tasks require specific answers. Typical examples are route, zone (e.g. bridge) or area reconnaissance, aerial photography and radiological survey. Additionally, reconnaissance of battle firing positions, air routes, and fields of fire may be required. Normally, armed actions do not occur when conducting reconnaissance but, when a tactical advantage can be gained, armed reconnaissance aircraft may engage the enemy.
  - b. Observation missions are usually intended to keep under surveillance a specific area in order to detect, track and report enemy movement, strength and avenues of approach. Observation helicopters can provide surveillance of areas either inaccessible to or not covered by ground troops. Advanced observation tasks can be carried out using special aids for target acquisition and combat intelligence gathering.
  - c. Since observation missions will normally present opportunities to engage the enemy it will be usual to make fire support available to helicopters on such missions. The role of airborne Forward Air Controller (FAC) is a vital one and can be performed from a helicopter.
0204. **Direction of Fire.** Airborne direction of fire, whether it be by artillery, naval guns or Close Air Support (CAS) aircraft, follows the same principles as direction by ground Observation Posts (OP) or FACs. The helicopter provides the mobility for deployment and a greatly increased field of view.
0205. **Assistance in Command and Control.** Exercise of command may sometimes be facilitated when the commander and his staff are mobile. A helicopter can provide

this mobility and, using its integral radios, allow the commander to keep in touch while on the move. Some helicopters may be role equipped with additional radios/secure voice equipment for use as airborne command posts. Urgent orders or messages can be physically distributed around an area of operations, particularly during periods of radio silence or lost communication. Helicopters can also be employed for traffic control.

0206. **Movement of Troops and Material.** This role covers a wide variety of tasks ranging from full-scale airmobile operations (paragraph 0207) to single-sortie tasks, and may be carried out for tactical or administrative tasks. The roles include:

- a. Movement of troops with their equipment and weapons.
- b. Evacuation of casualties or prisoners of war.
- c. Carriage of cargo, either as internal or underslung loads.

0207. **Airmobile Operations.** The fundamental concept of airmobile operations involves the use of helicopters to provide increased mobility to ground combat forces. Within the framework of the battle organisation, airmobile operations enable commanders to react quickly over the entire width and depth of their combat sectors. This capability assists in taking the initiative from the enemy and in attaining tactical freedom of action. Airmobile Operations are covered in Chapter 8.

0208. **Aerial Minelaying.** Helicopters may be used to dispense mines, especially in areas where other means of minelaying are not possible. Aerial minelaying has advantages in speed and tactical flexibility.

0209. **Electronic Warfare.** Some helicopters are equipped with specific systems designed to conduct Electronic Warfare (EW) and are dedicated to this role. EW packages may also be fitted to certain helicopters for specific operations. Additionally, any helicopter may carry electronic self-protection aids to improve survivability.

## CHAPTER 3 - HELICOPTER SURVIVABILITY

0301. **Aim.** The aim of this chapter is to provide guidance for helicopter aircrews in order to enhance survivability on the battlefield.

0302. **Introduction.**

- a. Although there are certain procedures that aircrew can employ to accomplish their mission and survive, it must be understood that success depends upon the interaction of the combined arms team. More specifically, survivability is a function of training, equipment, tactics and intelligence. To the individual aviator, survival will include a mix and interaction of many variables.
- b. In order to apply the proper countermeasures, it is essential that aircrews know the capabilities and limitations of threat weapons that will be encountered on the battlefield and how they may be employed. Additionally, they must be aware of the current order of battle for both enemy and friendly forces. With this information, aircrew can plan the mission so as to employ survival countermeasures that will achieve the greatest degree of success. Where intelligence information is very limited, aircrew should assume the worst condition and plan accordingly. The known threats to helicopters used in land operations are:
  - (1) Air defence weapons (i.e. small arms, anti-aircraft artillery, and air defence guided missiles).
  - (2) Tank main armament.
  - (3) Anti-tank guided missiles.
  - (4) Field artillery.
  - (5) Tactical aircraft.
  - (6) Armed helicopters.
  - (7) EW.
  - (8) NBC warfare.

0303. **Countermeasures:**

- a. **Terrain Flight.** The most effective countermeasure that can be employed is the use of terrain flight techniques. This countermeasure allows the aircrew to operate without being detected by either electronic or visual means. By using

the available terrain to mask the helicopter from observation, the aircrew can operate without being detected or engaged by threat weapons. The effectiveness of this technique depends to a great extent upon a knowledge of where threat forces are deployed and the availability of terrain masking features. When performing terrain flight the aircrew must be aware of the surrounding environment and minimise the aircraft signature. The proper use of terrain fold and shadow will prevent glint caused by the rotor, canopy or metal. Sky-lining can be prevented by the proper use of terrain background. When hovering the helicopter, consideration must be given to the rotor wash signature that may develop from blowing dust or snow.

- b. **Exposure Time.** If it becomes necessary to operate at altitude or over terrain that does not permit masking of the helicopter, exposure time must be minimised. This time should not exceed the acquisition and engagement time capability of threat weapons. Following a period of exposure, the helicopter should descend to a safe altitude or a masked position. This procedure should prevent successful engagement of the helicopter by threat weapon systems. Repeated exposure of the helicopter over the same spot should be avoided. If it is determined that the enemy has detected the helicopter's position or after several exposures, the helicopter should be moved to another position over a route which is masked to the enemy. This countermeasure does not allow the enemy sufficient time to place artillery fire on the aircraft or engage it with an air defence weapon.
- c. **Predictability.** When moving about the battlefield it is essential that alternative routes, landing zones and attack positions be identified. This countermeasure provides aircrews with the flexibility required to avoid engagement by unanticipated threat weapons or area artillery saturation. Also, movement of aircraft should be accomplished in small groups using multiple routes to the objective. This countermeasure minimises detection and reduces the enemy's ability to inflict mass destruction on the flight.
- d. **Communication.** Communication intercept and radio jamming by the enemy can jeopardise a pending or ongoing aviation operation. Information is normally obtained from aircrews that fail to follow proper radio security procedures. As a countermeasure to prevent the enemy from obtaining intelligence information, aircrews must perform detailed planning so as to minimise radio communication. Nevertheless, secure radio communication and non-electronic systems may still be used.
- e. **Relocation.** The enemy continually conducts reconnaissance to detect targets of opportunity on which artillery and aerial fire can be directed. As a countermeasure, aviation units must use their mobility to relocate frequently from positions within the main battle area. This requirement also applies to aviation support elements located within the division area.

- f. **NBC Protection.** NBC contamination is one of the most serious threats facing helicopter operations. Inadequate NBC protection will limit and restrict all aspects of the conduct of operations. The battlefield may become contaminated with chemical agents and/or by nuclear fallout. An essential countermeasure to the enemy NBC threat is to equip the aircrew and ground support personnel to operate in a contaminated environment. Guidelines for the decontamination of helicopters are at Volume 2, Chapter 16. Dealing with the threat and the effects of NBC warfare would slow the pace of helicopter operations.
- g. **Suppression of Enemy Air Defences.** Countermeasures must be employed which will degrade or destroy the enemy's air defence capability. Aviation must depend on artillery, tactical air support and its own attack helicopters for Suppression of Enemy Air Defences (SEAD). Electronic jammers, flares and chaff can be used to degrade the performance of air defence systems.
- h. **Air-to-Air Tactics.** During the conduct of an aviation operation it is likely that a helicopter may encounter an enemy helicopter or fighter aircraft. Although relatively new and not fully implemented by all nations, helicopter air-to-air tactics have been developed which can significantly increase the survivability of helicopters in any air-to-air engagement. A wide variety of active and passive measures may be adopted, including the fitting of weapons to enhance the self-defence capability of any helicopter, regardless of role.
- i. **Stand-Off Technique.** The enemy should be engaged beyond the effective range of their weapons. Similarly, flight routes should be planned, when possible, to remain outside the range of enemy weapon systems.
- j. **Aircraft Survivability Equipment.** Each of the above procedures enhances survivability but even greater success can be achieved when fitted with Aircraft Survivability Equipment (ASE). Items of equipment that may be used on helicopters include:
  - (1) Low-reflective infra-red paint.
  - (2) Exhaust plume suppression.
  - (3) Flare/chaff dispensing system.
  - (4) Infra-red jammer.
  - (5) Radar warning receiver.
  - (6) Missile launch/approach detectors.
  - (7) Optical warning laser detector.

- (8) Radar jammer.
- (9) Armour protection for aircrew and vital components.
- (10) Electro-optical Protective Measures.

Increasingly, these devices and other measures are being included in the design of aircraft.

## **PART II - ORGANISATION**

### **Related Publications:**

ATP-40	Doctrine for Airspace Control in Times of Crisis and War (STANAG 3805 AO).
ATP-44	Electronic Warfare (EW) in Air Operations (STANAG 3873 AO).
ATP-51	EW in the Land Battle (STANAG 6010).
STANAG 2426 NBC	NBC Contamination Control Policy for NATO Forces.
STANAG 3117 FS	Aircraft Marshalling Signals.
STANAG 3854 AT	Policies and Procedures Governing the Air Transportation of Dangerous Cargo.

### **CHAPTER 4 - COMMAND AND CONTROL**

0401. This chapter describes the organisational structures appropriate to helicopter tactical operations. Certain NATO recognised terms are used when describing types of command and control. These are defined in the Glossary.
0402. **Functions.** The organisation required for the control of tactical helicopter operations must be able to perform the following functions:
- a. Joint Planning (see Chapter 7).
  - b. Allocation of resources and priorities for support.
  - c. Liaison.
  - d. Requesting.
  - e. Tasking.
  - f. Execution.
  - g. Mission Reporting.
0403. **Command System.** Command and control systems will differ between nations, and within nations the various Services operating helicopter resources will employ command chains appropriate to the level and function of command. Whichever system is used, control agencies must be established at all levels of command, and liaison officers appointed by the various agencies.
0404. **Organisation.** In most NATO countries helicopters on the battlefield are organised in army aviation units under the operational command of army formations. In these circumstances their command and control is similar to that of the other combat arms.

Typical arrangements in most countries are:

- a. **Corps Level.** Operational command of army aviation units organic to the corps.
- b. **Division Level.** Operational control of army aviation units organic to the division.
- c. **Brigade Level.** Tactical control (can be operational control) of army aviation units attached, or organic to the brigade.
- d. **Unit Level.** Exceptionally, tactical control of army aviation unit may be passed to a unit for specific periods.

0405. **Planning and Preparation.** Decisions on the use of helicopters can be made at any level of command that has control of both the helicopters and the ground units needed for the operation. At higher levels the commander will have appropriate specialist staff advice co-ordinated with the aviation units. At lower levels, where helicopters may only be allocated on a temporary basis, the aviation unit involved should be prepared to offer advice on aircraft and aircrew capabilities at the planning stage.

0406. **Resource Allocation.** Helicopter resources will seldom be sufficient to meet all demands simultaneously. An integrated ground/aviation agency is therefore needed at the highest appropriate level to examine the requests for helicopter support, assess priorities and decide the allocation of tasks. This is especially important where helicopter resources have to be shared or are provided from outside the direct command of the land force supported (e.g. from other nation or other service etc.). The organisation is based on the principles of co-ordinated planning at each level of command, the centralised operational control of scarce assets, and the delegation of tactical control for the execution of tasks. Care must be exercised to ensure that resources are not wasted on tasks that could be satisfied more economically by other means.

0407. **Liaison.** The efforts of aviation and ground units must be integrated at all stages from planning to execution and, where units are not permanently associated, liaison must be arranged. This applies even when the aviation and ground units are under the same command at a higher level. Since the aviation plan is part of the overall ground plan, aviation specialists must be involved from the outset, during planning and reconnaissance stages.

0408. **Request and Tasking.** Where helicopters are fully integrated at the executive level there will be no requirement for a formal request for tasking since the helicopters will be disposed according to the commander's plans. However, where control of helicopters is centralised at a higher level of command, or where they may be provided from an outside organisation, a systematic request and tasking procedure is

needed. The request can be initiated at any level and will need to be forwarded through the command chain (and endorsed, assigned a priority or vetoed as appropriate) until it reaches the agency at the level capable of approving or denying the request. Standard formats for helicopter request and task messages are covered in Volume 2, Chapter 3.

## CHAPTER 5 - COMMUNICATIONS

0501. The communications required for the preparation and execution of helicopter operations are summarised in this chapter. Where possible, these communications should be secure. They are considered in 3 categories:
- a. Ground-to-Ground.
  - b. Air-to-Ground.
  - c. Air-to-Air.
0502. **Ground-to-Ground.** Ground-to-ground communications will be required for the following:
- a. Command, including request and tasking.
  - b. Co-ordination between aviation and ground units.
  - c. Liaison between participating units and other agencies:
    - (1) Tactical Air Support.
    - (2) Ground Fire Support.
    - (3) Airspace Control.
  - d. Logistic Support (LS).
0503. **Air-to-Ground.** Air-to-ground communications will be required for the following:
- a. Helicopter to ground forces.
  - b. Helicopter to aviation units.
  - c. Helicopter to aviation specialist agencies such as pathfinders, LS parties and Load Control organisation.
  - d. Helicopter to airspace control organisation.
  - e. Helicopter to ground based airspace users such as artillery, air defence and anti-tank missile units.
  - f. Helicopter to support organisations (e.g. Forward Arming and Refuelling Points (FARP), Medical and Rescue).

0504. **Air-to-Air.** Air-to-air and airborne communications will be required for the following:
- a. Helicopter to helicopter, including provision for communication between onboard ground unit commanders.
  - b. Helicopter to support aircraft (e.g. EW aircraft, fighter escort, Close Air Support aircraft).
  - c. Intercommunication between aircrew and onboard ground unit commanders.
0505. **Radio Relay.** The low altitudes flown, and the terrain masking flight profiles employed, may make air to air and air to ground communication extremely difficult to maintain in the absence of a suitable HF communications net. It may therefore be necessary to provide airborne radio relay facilities for limited periods in order to maintain adequate communication and control.
0506. **Electronic Navigation Aids.** Locations and frequencies of navigation facilities should be detailed and, where appropriate, listed in operation orders.
0507. **Identification.** Identification Friend or Foe (IFF) equipment will be operated in accordance with current standing operating procedures.
0508. **Equipment Compatibility.** Compatibility of communication equipment must be considered when planning multinational helicopter operations.
0509. **Degraded Communication.** Helicopter support must continue even when communication is degraded by enemy EW, own emission control, or radio failure.

## CHAPTER 6 - AIRSPACE CONTROL FOR HELICOPTERS

### Related Publications

ATP 40          Airspace Control.

0601. **Introduction.** Airspace control increases operational effectiveness by promoting the safe, efficient and flexible use of airspace. ATP-40: Doctrine and Procedures for Airspace Control in Times of Crisis and War, is the overall authority for airspace control within NATO, its provisions being adapted as necessary in Regional Airspace Control Plans. Within NATO, airspace control consists of a combination of positive and procedural control methods to enable NATO forces to engage the enemy while minimising the risk to all friendly users of the airspace.
0602. **Airspace Control System.** An Airspace Control System (ACS) is an arrangement of organisations, personnel, policies, procedures and facilities required to perform airspace control functions. The Airspace Control Authority (ACA) is the subordinate commander, normally the Air Commander, who has overall responsibility for the ACS within a specified area. The ACS uses a system of routes and corridors for the transit of friendly aircraft and may establish zones or areas where the operation of aircraft is restricted. To aid identification and reduce the risk of collision, there may also be restrictions on the heights and speeds as well as on the number of aircraft that can fly in a formation. The routes, corridors, zones, areas and restrictions are collectively known as Airspace Control Means (ACM). The ACA is responsible for issuing an airspace control plan that describes the ACS and gives details of any pre-planned ACM. An Airspace Control Order (ACO), valid for a specified time period, promulgates those ACM which are to be activated. Some of the more commonly used ACM pertinent to helicopter operations are as follows:
- a. **Restricted Operations Zone.** A Restricted Operations Zone (ROZ) is established in order to reserve airspace for specific activities in which the operations of one or more airspace users is restricted (e.g. refuelling orbits, terminal approach holding areas, landing/drop zones, amphibious operating areas etc).
  - b. **Weapons Free Zone.** A Weapon Free Zone (WFZ) is an Air Defence Zone established around key assets or facilities which merit special protection by ground based air defence assets, other than airbases, where weapons may be fired at any target not positively identified as friendly.
  - c. **Base Defence Zone.** A Base Defence Zone (BDZ) is a zone established around airbases to enhance the effectiveness of local ground air-based air defence systems.

- d. **High Density Airspace Control Zone.** A High Density Airspace Control Zone (HIDACZ) is airspace of defined dimensions, designated by the ACA, in which there is a concentrated employment of numerous and varied weapons/airspace users. (AAP6)
  - e. **Co-ordination Level.** The Co-ordination Level (CL) is an advisory measure established to increase aircrew awareness of conflicts between slow and fast moving traffic. To separate slow moving aircraft, including helicopters, from fast moving traffic an advisory CL will be established over the area of operations. The CL applies over the entire area, both inside and outside routes and restricted airspace. The height of the CL may differ from operation to operation and even from area to area within an AOA. Fast moving aircraft should normally operate above the CL; nevertheless, all aircraft remain responsible for their own collision avoidance.
  - f. **Transit Route.** A Transit Route (TR) is a temporary corridor of defined dimensions established in the forward area to minimize the risks to friendly aircraft from friendly air defences or surface forces (AAP6). TRs are bi-directional routes through areas of forward deployed friendly forces. TRs should avoid WFZ and BDZ.
  - g. **Standard Use Army Aircraft Flight Route.** Standard Use Army Aircraft Flight Routes (SAAFRs) are established to route helicopter traffic in the forward area in direct support of ground operations.
  - h. **Temporary Minimum Risk Route.** A Temporary Minimum Risk Route (TMRR) is a temporary route used to route air traffic between TRs or the rear boundary of the Forward Area and their operations in direct support of ground operations. TMRRs may also be established between aircraft field sites and their operations area or to accommodate major operations in a Corps area.
  - i. **Special Corridor.** Special Corridors (SCs) are established to accommodate the special routing requirements of specific missions such as airmobile operations.
0603. **Fire Support Co-ordination Centre.** To facilitate joint planning by commanders and staff at all levels and to co-ordinate intended airspace activity, a Fire Support Co-ordination Centre (FSCC) may be established. The FSCC should have the necessary communications and should accommodate the control cells of the ground force and airspace users. The purpose of an FSCC is, in practice, a normal function of most operations complexes even though there may be no formal FSCC established.
0604. **Weapons Control Order.** The Weapons Control Order (WCO) is the order which promulgates the Weapons Control Status (WCS).

0605. **Weapons Control Status.** The following weapons control status' are used to communicate the criteria that an Air Defence Commander must use for target engagement:

- a. **Weapons Free.** 'Weapons Free' is a WCO imposing a status whereby weapon systems can only be fired at any target not positively recognised as friendly. 'Weapons Free' is the usual WCS for surface-based assets or areas protected by forward area defence.
- b. **Weapons Tight.** 'Weapons Tight' is a WCO imposing a status whereby systems may be fired only at targets recognised as hostile.
- c. **Weapons Hold.** 'Weapons Hold' is a WCO imposing a status whereby weapons systems may only be fired in self defence or in response to a formal order. Typically, WCS 'Weapons Hold' is used for Minimum Risk Levels and TRs ( normally associated with a FEZ or a MEZ).

0606. **Safe Operation of Helicopters.** Commanders will ensure that all helicopters operating in the Combat Zone are equipped, advised and controlled so far as is possible to ensure their safe and effective operation within the framework of the Regional Airspace Control Plan. Important matters include:

- a. **Operations within a HIDACZ.** Helicopters will often have to operate within a HIDACZ and aircrews need to be aware of air defence areas and artillery areas within their likely area of operation.
- b. **Co-ordination Level.** All aircrews need to be aware of the CL appropriate to their area of operation.
- c. **Identification Friend or Foe/Selective Identification Feature.** The Identification Friend or Foe/Selective Identification Feature (IFF/SIF) policy will be promulgated by the ACA and all helicopter crews need to be aware of it. Special procedural arrangements will have to be made for any helicopter without IFF.

## CHAPTER 7 - PLANNING AND CO-ORDINATION

0701. This chapter provides for the planning and co-ordination of helicopter operations.

0702. **Planning:**

- a. When a helicopter operation is decided upon the following factors should be considered during the planning stage:
  - (1) The situation, enemy and friendly forces.
  - (2) The task of the force.
  - (3) Details of all units.
  - (4) Command and control arrangements.
  - (5) Communication requirements and technical limitations.
  - (6) Liaison requirements.
  - (7) A schedule of events which will include outline timings and staging arrangements.
  - (8) Delay/alternative/cancel conditions.
  - (9) Airspace co-ordination.
  - (10) Weather and illumination information for night operations.
- b. Warning orders should be sent to all participating units by the appropriate commander as soon as he has completed a preliminary appreciation. This will give an outline of his intentions for the operation together with any known timings and instructions for reconnaissance and Combat Service Support (CSS).
- c. Where possible, joint reconnaissance by commanders should take place. Objectives, landing sites and staging areas will be included in the reconnaissance plan.
- d. Preliminary orders may be issued at this stage to allow planning to continue; e.g. details of concentration area, staging area and landing sites and timings may be given at this point.

- e. Detailed planning on a joint basis by the staffs of the ground and air elements of the force will continue.

## **ANNEX 7A - DESIGNATION OF DAYS AND HOURS**

1. This annex describes the system used by NATO forces in designating days.
2. **Designation of Days and Hours.** The table below designates letters which have specified meanings for days and hours. Days before and after designated days are shown in accordance with the following system:  
  
D-2, D-1, D, D+1, D+2
3. Hours and minutes before and after a designated time are shown in accordance with the following system: (the words 'hour(s)' and 'minutes' must always be used):  
  
H-1 hour, H-30 minutes, H-hour, H+30 minutes, H+1 hour.
4. **Use of Spare Letters.** Where several operations/exercises or phases of an operation/exercise are being planned/conducted spare letters may be used for days or hours to avoid confusion. In all such cases, the operation/exercise plan or order is to have an Annex or Appendix listing the spare letters used and their meaning.
5. **General Rules.** Where it is necessary to identify a particular operation or exercise, a nickname (and, or, if applicable code words) should be placed before the letter, for example:  
  
BALD EAGLE                    -        E Day  
  
ANVIL EXPRESS                -        H Hour
6. Where nations translate operation orders etc., from one language to another they will retain the letters used in the original orders, except that D must be used for J in English versions of French documents, and vice versa.

Letter (a)	Hour (b)	Day (c)	Meaning (d)	Remarks (e)
A			Spare.	
B			Spare.	
C		X	The day on which deployment for an operation commences or is due to commence.	
D		X	The day on which an operation commences or is due to commence. This may be the commencement of hostilities or any other operation.	
E		X	The day on which a NATO exercise commences.	
F	X		F-Hour is the time at which the first helicopter crosses the Forward Line of Own Troops (FLOT) in a cross-FLOT operation.	
G	X	X	The day and/or time on which an order (normally national) is given to deploy a unit.	
H	X		<ol style="list-style-type: none"> <li>1. The specific time at which an operation or exercise commences or is due to commence. It is also the time at which the Line of Departure (LD) is crossed by the leading elements in an attack.</li> <li>2. In amphibious operations, the time at which the first waterborne wave of an amphibious assault lands on the beach.</li> </ol>	
I			Not to be used.	Could cause confusion.
J		X	French equivalent to D day.	
K	X	X	The day and/or time on which a convoy system is introduced or is due to be introduced on any particular land convoy route or sea convoy lane.	

L	X		In amphibious and airmobile operations, the time at which the first helicopter of the heliborne assault wave touches down in the landing zone (LZ).	See also Y hour.
M		X	The day on which mobilisation commences or is due to commence.	
N			Spare.	
O			Not to be used.	Could cause confusion.
P	X		In airborne operations, the time at which the lead parachute element is to arrive over the parachute impact point to begin assault operations.	
Q			Spare.	
R			Spare.	
S			Spare.	
T	X	X	The day and/or time of Transfer of Authority.	
U			Spare.	
V			Spare.	
W			Spare.	
X			Spare.	
Y	X		In airmobile operations the time at which the first helicopter in the first wave departs the 'Pick-up-Point (PUP)',	
Z			Not to be used.	Could cause confusion.

## PART III - OPERATIONS

### Related Publications:

AJP-01	Allied Joint Operations Doctrine.
ATP-08	Doctrine for Amphibious Operations.
ATP-27	Air Interdiction and Close Air Support.
AJP-3.3	Joint Air and Space Operations Doctrine.
ATP-35	Land Force Tactical Doctrine.
ATP-40	Doctrine for Airspace Control in Times of Crisis and War.
ATP-63	Tactics, Techniques and Procedures for Close Air Support.
AAP-06	NATO Glossary of Terms and Definitions.

### CHAPTER 8 – AIRMOBILE OPERATIONS

#### SECTION 1 - INTRODUCTION

0801. Airmobility involves the use of helicopters in task groupings to deploy ground combat forces to where they may be committed directly in battle. An Airmobile Operation requires the organisation of forces under specific command and control arrangements to constitute an airmobile force. The composition of such an airmobile force can be adjusted to meet the individual requirements of a wide range of missions. The force may vary in size and capability from a small number of transport helicopters and combat troops acting alone, to a major all-arms formation with transport and armed helicopters integral to its organisation, working in concert with other forces at the operational level. Airmobile operations are often complex and extensive, requiring repeated insertions and, possibly, extractions onto or from a number of objectives over a period of time. As well as formal command and control arrangements, they require the full integration of helicopters into the mission plan, the use of common doctrine and well-rehearsed procedures. Airmobile operations are defined as:

*‘Operations in which combat forces and their equipment manoeuvre about the battlefield by aircraft to engage in ground combat.’ (AAP-6)*

0802. **Other Terms Associated with Airmobile Operations.** In discussing airmobility, it is important to understand certain other terms, which may be used in association with airmobile operations:

- a. **Helicopter-borne Operations.** The tactical transfer of ground forces within or between combat zones may be accomplished by a helicopter-borne operation. Helicopter-borne operations are of comparatively short duration and are complete following the air move. Following deployment, a benign situation usually allows the ground troops to regroup prior to engaging the adversary. Co-ordination is required but command and control of the helicopters and

ground forces are retained by their respective commanders. AAP-6 defines helicopter-borne operations as:

‘An operation in which helicopters act in support of a formation, unit or organisation to accomplish the movement of troops, supplies and/or equipment’.

b. **Air Mechanisation.** Air Mechanisation is a process of achieving greater combat capability by increasing the proportion of armed helicopters to transport helicopters. Operations in which armed aviation forces conduct independent combat for a limited period without involvement of a ground manoeuvre element are referred to by some nations as air mechanised operations.

c. **Air Assault.** The US Army uses the term air assault to describe airmobile operations. The air assault formation uses its helicopters as fully integrated resources to afford mobility for its ground forces, including their Combat Support (CS) and Combat Service Support (CSS), and to provide firepower. The size of the air assault formation and its complete range of capabilities provide the strength and flexibility to undertake a wide range of missions.

0803. **Combat Capability.** Apart from size, a number of considerations will determine the capability of an airmobile force; among these, 3 key factors in the composition of the force will influence its combat potential and thus the options for its employment.

a. **Ground Forces/Transport Helicopters.** The ratio of combat troops to transport helicopter capacity will dictate the number of waves required to deploy the force. Ideally, it should be possible to lift the combat echelon in a single wave. The larger the number of transport helicopters and the greater their individual lift capability, the more readily can heavy equipment and supplies be deployed by air in support, if the tactical situation permits.

b. **Helicopter Mix.** Transport helicopters may be supported by armed helicopters to provide security en route and to neutralise the adversary in the landing zone. As the ratio of helicopter types shifts in favour of armed helicopters the force will become more capable of offensive action.

c. **Combat Support and Combat Service Support.** The proportion of CS and CSS allocated to a force will affect its capability. Logistic support will be crucial to the sustainment of the force and will include the need for large quantities of aviation fuel. As well as the ammunition supply normally required by artillery, large additional stocks will be needed to sustain operations by armed helicopters. As the size of the force grows to include not only large numbers of attack helicopters but also full-scale support elements, it becomes a fully constituted all-arms formation with considerable combat power, able to operate with a large degree of independence.

## **SECTION II – CONCEPT OF AIRMOBILE OPERATIONS**

0804. The uncertainties of today's security situation make it less easy to determine how and where NATO forces may be employed. They must be capable of a graduated response across a range of possible operations. They could be called upon to participate in Military Operations Other Than War (MOOTW), for example the provision of humanitarian aid or assistance in peace support operations, or at the other end of the spectrum to engage in regional or sub-regional conflict. Despite reduced risk of a major attack against NATO territory, forces must be prepared for general warfare. Projected force levels will reduce the ability to police potential areas of crisis on a permanent basis, and will dictate the need for flexible reaction forces at a high state of readiness. Such forces should be capable of rapid deployment with sufficient combat power and mobility to respond to diverse operational scenarios.
0805. **Concept.** The fundamental concept of airmobile operations involves the use of helicopters under the command and control arrangements discussed in Section VII to provide the necessary mobility to combat forces, their supplies and equipment, to enable them to be employed quickly and directly where they can be used to greatest effect. In war, airmobile forces enable commanders to react to enemy pressure or to initiate operations over their entire Area of Operations (AOO), thereby gaining considerable freedom of action and tactical advantage. In MOOTW, deployment of forces by air may be the only option physically possible or politically acceptable. An airmobile force can provide an important deterrent effect across a range of operations. For example, during conflict it may hold a reserve position to discourage enemy attack upon a key point, or in a peace support scenario be deployed to deter the imminent collapse of a ceasefire.

## **SECTION III – CHARACTERISTICS OF AIRMOBILE FORCES/OPERATIONS**

0806. Airmobile forces make an important contribution to manoeuvre warfare because they may be deployed with precision over a considerable distance, from an unpredictable direction and in a bold and decisive manner. They may be employed to increase the tempo and enhance the effectiveness of concurrent friendly operations beyond the capability of the enemy to respond. The primary characteristics of airmobile forces are set out below.
0807. **Speed.** Deployment of forces into an area of operations by helicopter may be accomplished much more rapidly than by surface means. This advantage assumes greater significance as the radius of action of the force is increased. Reaction time may also be shortened significantly if the airmobile force is held ready for deployment with much of the planning complete. Speed may be capitalised upon if the airmobile force is poised for deployment with much of the planning complete. The desire to maximise speed must be balanced against the need to develop intelligence and to complete planning and preparation. Contingency planning and training will help to offset these disadvantages.

0808. **Reach.** Airmobile forces may be committed over considerable distances. They are largely unaffected by terrain, obstacles or lines of communication which may be blocked by friendly forces, enemy action or refugees. With the correct co-ordination they may operate across friendly force boundaries. They may be able to avoid isolated areas of enemy activity.
0809. **Flexibility.** An airmobile force is able to conduct a variety of defensive and offensive roles throughout the spectrum of conflict. An airmobile force can remain poised for action across a wide AO, planning for a number of options so as to be ready for short notice deployment on the one selected. The helicopter offers the ground commander an added dimension in conducting manoeuvre warfare. They may be re-tasked at short notice to deploy in a variety of mixes of ground forces and armed or transport helicopter force packages. This allows commanders the flexibility to adapt to developing situations and rapidly changing tactical conditions.
0810. **Mobility.** The inherent mobility of an airmobile force provides its speed, reach and flexibility. It also overcomes some of the disadvantages other formations face in deploying to or within a theatre of operations.
- a. **Strategic Deployment.** If transport helicopters can self-deploy, considerable time and effort may be saved in what might otherwise be a lengthy process in transferring them between theatres. Armed helicopters are normally smaller and may be transported more easily by fixed-wing transport aircraft. Both types will require large quantities of manpower and equipment to be deployed and to sustain operations. Airmobile ground forces, because of their comparatively light equipment scales, can be transported quickly by air.
  - b. **Tactical Mobility.** Helicopters are able to take tactical advantage of the cover afforded by terrain which would be a barrier to ground forces and can fly over or round natural or man-made obstacles. In contrast, however, ground forces, once disembarked, are dismounted troops and possess little tactical mobility unless lightweight vehicles are also deployed. They must normally rely on helicopters for tactical redeployment during an operation and for recovery on completion of the operation.
0811. **Surprise.** Provided Operational Security (OPSEC) is successfully observed, an airmobile operation may be mounted with little or no forewarning to the enemy. The shock effect of surprise action could provide an opportunity to seize the initiative. A deception plan may assist in maintaining the element of surprise.
0812. **Concentration.** Provided sufficient transport helicopters are available the speed of deployment allows considerable weight of effort to be concentrated rapidly. The commitment of airmobile forces in conjunction with other forces may allow a commander to concentrate his forces rapidly to achieve his objective.

0813. **Light Equipment.** Ground forces are lightly equipped and lack armour for protection. They must be able to rely on effective direct and indirect fire support, armed helicopters and Close Air Support (CAS).
0814. **Sustainability.** Extensive logistic support is needed to maintain any force once deployed. For an airmobile force this will have to be provided by helicopter until surface lines of supply have been established. The helicopter units themselves will need large quantities of fuel and ammunition, much of which may also have to be deployed forward. Airmobile forces are therefore limited in the scope of operations that they can undertake without link-up to other ground formations. The provision of logistic sustainability for an airmobile force is a demanding challenge that requires a specifically designed logistics organisation and specially adapted procedures.
0815. **Economy of Effort.** A relatively small airmobile force can pose a threat over a large area. Not only can it reduce the number of troops committed to reserve operations but also its potential for offensive use may tie down enemy reserves.
0816. **Survivability.** Helicopters are vulnerable to enemy fixed-wing and rotary aircraft during all phases of an airmobile operation but particularly during the air movement and landing phase when enemy air defence assets may also pose a threat. A favourable air situation is a pre-requisite for success and self-protection equipment is also needed. To avoid fratricide, airmobile operations must be integrated into the Airspace Control (Order) Plan and Tasking Order. Particularly in the objective area, helicopters and ground forces are vulnerable to enemy attack by small arms or larger calibre direct and indirect fire weapons possibly including chemical munitions. Accurate, timely battlefield intelligence is vitally important to prevent inordinate losses. This intelligence must focus on enemy assets capable of interfering with the air operation.
0817. **Synchronisation.** Providing sufficient notice is given, airmobile operations may be timed with precision. Adequate warning must be permitted to withdraw helicopters from other tasks and to conduct operation planning. Sound intelligence and suitable weather are crucial factors for the timely employment of an airmobile force. All elements of an airmobile force must work to an integrated plan, which has been co-ordinated with other forces within in a joint/combined environment. Planning must cover all phases of the operation.
0818. **Training and Equipment.** Airmobile operations may be joint or combined, or both; close working relationships will be necessary to develop combat effectiveness and to standardise equipment and procedures. All elements of an airmobile force must train systematically and comprehensively for the role to ensure that drills and procedures can be executed promptly and precisely. This is best achieved if all components are organic to the force. Limitations in the numbers of helicopters available may, however, preclude their dedication to an airmobile formation. The effectiveness of the force, and the extent to which offensive operations can be contemplated, will depend largely on

the ability of the constituent units, particularly the planning staffs, to train intensively together.

#### **SECTION IV - CAPABILITIES AND LIMITATIONS**

0819. **Airmobile Capabilities.** An airmobile force possesses the capability to:

- a. Attack from any direction, engage objectives in otherwise inaccessible areas, over fly barriers, by-pass enemy positions, achieve tactical surprise, and cause the enemy to react prematurely or expose himself to other attacking forces.
- b. Concentrate, disperse, or re-deploy rapidly to extend its area of influence, to develop enemy contact, or to decrease its vulnerability to enemy attack.
- c. Provide flexibility to the ground commander by allowing him to rely on a small, highly mobile reserve while committing a larger portion of his force to action.
- d. Maintain a rapid tempo of operations by fighting simultaneously in more than one direction or in more than one area of operations, if the force is of sufficient size and if sufficient helicopters are available.
- e. When appropriately equipped, conduct operations in limited visibility and at night, thus facilitating deception and surprise.
- f. Conduct operations independent of a ground line of support for a limited duration.
- g. Conduct operations over a wide area including the ability to react to rear area threat.
- h. Place combat forces at the decisive point in the battle area in the most favourable tactical position.

0820. **Limitations of Airmobile Operations.** Airmobile operations may be limited by:

- a. The need for adequate planning and preparation time for complex operations, particularly at night.
- b. Extreme weather and temperatures, other environmental conditions (blowing snow and sand), and altitude that limit flight operations or helicopter lift capability. Conditions that inhibit flying operations may impede but not prevent operations by conventional ground combat forces.
- c. Limited operational capability in poor visibility and at night, although these limitations are being overcome by technical developments.

- d. The availability of suitable landing and pickup zones, including possible enemy action to deny the use of landing zones, for example by laying mines.
- e. Enemy action by ground forces, tactical aircraft, air defence and electronic warfare systems, especially during landing, assembly or take-off in unsecured areas. Enemy firepower may be sufficiently fierce to prevent the landing of forces at the most advantageous point. Alternative plans may have to be implemented.
- f. The type and quantity of supporting weapons, vehicles, and heavy equipment that can be airlifted into the objective area. This limits the mobility and firepower of the force after landing.
- g. Dependence on an air line of supply to sustain operations or to deploy reinforcements until ground link up is achieved. Re-supply of aviation fuel and ammunition may be critical.
- h. The problems associated with the extraction of forces in contact with the enemy.
- i. Enemy nuclear, chemical and biological (NBC) capabilities, the availability of NBC equipment and the skills and level of training achieved.
- j. Force protection once on the ground, due to the light nature of the force.

## **SECTION V - MISSIONS**

0821. Airmobile formations should be assigned missions that take advantage of their inherent speed, reach and flexibility. They are not suited to missions that require deliberate operations over an extended period of time nor against heavily armoured forces unless sufficient time is allowed for prepared defence. Airmobile forces may be employed in offensive, defensive and delay operations and transitional phases depending on their Order of Battle (ORBAT) and commensurate with their characteristics, capabilities and limitations. They may execute missions in Deep, Close and Rear battles and are suited to missions in MOOTW.

### **a. Offensive Operations:**

- (1) **Deep Operations.** Deep Operations are those operations launched to shape the battlefield in order to suit the Commanders intentions. They may be conducted over terrain not held by friendly forces with objectives that may be located a considerable distance forward of friendly forces. Such missions, that require detailed planning and support, may include the following:

- (a) Attack.

- (b) Raid.
  - (c) Reconnaissance in force.
  - (d) Seize and hold terrain.
  - (e) Exploitation.
  - (f) Pursuit.
  - (g) Deception operations.
  - (h) Interdiction.
- (2) **Close Operations.** The use of airmobile forces in Close Operations would normally be determined by; the availability of more heavily armed forces, the enemy and the time and space available. Once deployed on the ground, airmobile forces, in general, have similar characteristics to light infantry. They may be employed on the following missions:
- (a) Deliberate attack.
  - (b) Hasty attack.
  - (c) Vertical envelopment.
  - (d) Feint.
  - (e) Deception operations.
  - (f) Seize and hold terrain.
  - (g) Counter attack.
- (3) **Rear Operations.** Airmobile forces are suited to operations in the rear area particularly if heavier forces are employed elsewhere and the nature of the threat demands swift and flexible action. Such operations could include the following missions:
- (a) Hasty attack.
  - (b) LOC security.

## CHAPTER 9 - ARMED & ATTACK HELICOPTER OPERATIONS

### Related Publications:

STANAG 3275A - Method of Warning Own Aircraft of Suspected Enemy Fighter Attacks.

ATP 42 Counter Air Operations.

ATP 44 Electronic Warfare in Air Operations.

0901. **Aim.** The aim of this chapter is to outline the doctrine to be followed by NATO forces when employing AH. The acronym AH used throughout this ATP refers to both types of helicopter - armed and attack.

0902. **General.**

- a. **AH Units.** AH units are combat manoeuvre units. Using AH to blend air manoeuvre with ground manoeuvre in his conduct of land manoeuvre enables a force commander to mass combat power rapidly at the decisive time and place, to increase the tempo of operations, and to change a battle's outcome. Therefore, AH unit operations must be fully integrated together with other manoeuvre units into Commanders' operational and tactical manoeuvre plans.
- b. **All Arms Team.** AH unit operations are co-ordinated with other manoeuvre, combat support and combat service support, joint and multi-national forces to form an all arms team. Attacks may be conducted out of physical contact with other friendly forces but synchronised with their scheme of manoeuvre, or they may be in direct contact with friendly forces. AH units can be used to attack enemy forces in deep close and rear operations.
- c. **Spectrum of Conflict.** AH units can be used throughout the spectrum of conflict from Warfighting to Military Operations Other than War (MOOTW). Use of AH in MOOTW has proved to be particularly valuable.
- d. **Armed Helicopters.** Armed helicopters are suitable to accomplish, in a limited way, the operations described in this chapter. Therefore, most of the considerations in this chapter can also be applied to them.

0903. **AH Roles and Missions.** AH roles and missions can be broadly divided into 3 areas:

- a. **AH Raids.** AH can be used to destroy specific targets by conducting raids against the enemy. The target must be located in advance of the mission,

continuously tracked and is usually on the target list. At the limit of the range, AH has little endurance left to manoeuvre in order to search and find the target. AH raiding can be a combat support function for the Land Component Commander. However, AH may also conduct raids in support of the Air Component Commander (e.g. SEAD) or the Maritime Component Commander (e.g. advanced force operations).

- b. **AH Manoeuvre.** AH are also ideally suited to the conduct of ground-related manoeuvre missions, which require both a relatively long-term presence and operational endurance to achieve the effect. These missions include screening, guarding, delay, meeting engagement, seizing of key terrain (with all arms air manoeuvre units) the denial of ground, flank security, protection of road moves etc. All these missions require the ability to find fix and strike while manoeuvring in response to a manoeuvring enemy.
- c. **AH Reconnaissance.** Although primarily used for attack missions normally against enemy armoured forces, AH units can be used for reconnaissance. The ability to move quickly to areas of interest and then use their integral optics and sensors enable AH to provide timely intelligence across the area of operations.

0904. **Additional Roles.** The range of weapons and sensors carried by AH makes them suitable for a wide range of tasks in addition to those given above. Support to CSAR, protection of other helicopters, cueing of fixed-wing aircraft and demonstrations of force or intent are but a few; many are particular relevant in MOOTW. However, commanders will need to be aware of over-commitment or dissipation of AH on such tasks.

0905. **AH in Deep Offensive Operations.** AH in deep offensive operations can:

- a. Conduct deep raids by attacking the enemy and exploiting the opportunities that result.
- b. Create favourable conditions for the advance of armoured and non-armoured forces by dominating the ground ahead with direct fire, by controlling indirect fire (e.g. arty, Naval Gunfire Support NGS), or the use of JAAT operations.
- c. Be deployed as a formation screen in the depth, providing information on enemy dispositions or a formation guard destroying enemy reconnaissance and leading elements if required. The electronic and radar surveillance capability of some AH can also be exploited in these operations.
- d. Be allocated their own manoeuvre area of operations in the deep battle area with a mission to carry out a certain effect, such as the denial of ground to

the enemy, in support of the overall scheme of manoeuvre. This kind of operation may require a significant number of AH if there is a requirement to sustain operations over a protracted period of time.

- e. Attack static or mobile enemy forces. AH are particularly effective in exploiting gains into the deep battle area during a pursuit operation.
- f. Be held in reserve and used quickly to exploit success or to counter in the deep battle area an unforeseen enemy move such as a counter attack.
- g. AH be used in support of air operations to conduct Suppression of Enemy Air Defences (SEAD) tasks.

0906. **AH in Deep Defensive Operations.** AH raids and manoeuvre in defensive operations are very similar in character to aviation manoeuvre in offensive operations. AH units, in deep defensive operations, can:

- a. Be used offensively to cause early attrition of the enemy in the deep battle by raids or by manoeuvring in order to disrupt, delay and shape the enemy for the close defensive battle.
- b. Be used to attack deep in order to cover the disengagement of combat forces and to achieve surprise.
- c. Be employed forward of a defensive position where a commander may not wish to irreversibly commit ground forces. An example is forward of a defensive obstacle belt or a reserve demolition.
- d. Be used to distract the enemy as he closes onto the main defensive position by attacking him in his depth.
- e. Be used in a deep operation synchronised with the commitment of counter-attack forces.

0907. **AH in Close Offensive Operations.** AH units engaged in close operations will normally be fully integrated within an all arms ground manoeuvre grouping. AH in close offensive operations can:

- a. Provide reconnaissance and information on the enemy ahead of the friendly force main body and clear the route ahead of an advance.
- b. Cover and protect the ground manoeuvre force from enemy counter attacks.

- c. Provide a reserve in order to attack deep and maintain the momentum of the advance.
- d. Be used to exploit gains made by offensive operations and to harass and pursue the enemy in order to break down his cohesion.

0908. **AH in Close Defensive Operations.** AH in close defensive operations can:

- a. Be used to conduct delaying operations with the covering force and then assist in breaking contact.
- b. Be used as part of the counter attack plan. AH should not just be held in reserve in order to redeem failure.
- c. Be used to attack the enemy's second echelon battalions and regiments. While ground manoeuvre units can be used to fix the enemy first echelon units AH units can simultaneously manoeuvre to attack the enemy follow-on battalions.
- d. Be massed to defeat enemy penetrations along with other ground units, as well as to stop the enemy bypassing defensive positions.
- e. Be used to dominate avenues of approach into the rear and flanks of friendly forces. AH units can be used to reinforce the flank, screen or guard to defeat any threat from the flanks.

0909. **AH in Rear Operations.** AH units in rear operations can be given tasks to react to enemy incursions into brigade, division, or corps rear areas, in particular in reaction to enemy helicopter borne, airmobile, or airborne operations. The AH is particularly valuable if the enemy has inserted armoured vehicles as part of its force.

0910. **Combat Support to AH Operations.**

- a. **Artillery.** Field artillery provides essential fire support to AH manoeuvre in a very similar way to ground manoeuvre. Artillery provide indirect fire support in the AH operations area and fire support for Suppression of Enemy Air Defences (SEAD). Indirect fire support provides additional weight of fire to an AH attack in both the deep and close battles. It provides initial shock action, disruption and dislocation to an enemy force enabling AH to move into their battle positions, change positions and withdraw after an attack. Ideally, an AH unit should be supported by an artillery observer, possibly from the air, and with fire units either in Direct Support (DS) or Reinforcing.

- b. **Airspace Command and Control.** Airspace control is an essential combat support function to all AH operations. It provides the framework in which the mission is planned and the manoeuvre, fire support and air assets are

co-ordinated or de-conflicted. For all Airspace Control measures refer to Chapter 6.

- c. **Suppression of Enemy Air Defences.** Enemy air defences can be suppressed in deep or close operations by either physically destroying the AD systems by direct or indirect fire (lethal Suppression of Enemy Air Defences (SEAD)), or disrupting them for example by electronic means. Although some AH can conduct Self-SEAD operations whilst moving into the deep battle area and thus protect themselves and other airmobile forces, there are 4 other types of SEAD which may be conducted in support of AH operations:

- (1) **Self-SEAD.** Some AH can conduct Self-SEAD operations whilst moving into the deep battle area and thus protect themselves and other airmobile forces.
- (2) **SEAD with Artillery.** Close co-ordination by both airmobile forces and artillery is essential. Ideally most of the fire is on pre-planned SEAD targets based on intelligence.
- (3) **SEAD with EW.** If EW assets are available both ground and air EW can be used to disrupt enemy AD systems. AH may combine with other elements to conduct non-lethal SEAD.
- (4) **SEAD With Other Components.** AH may combine with air, maritime or SF forces to conduct SEAD across the JOA in support of the JFC's campaign. For example, specialist SEAD aircraft might provide support to AH operations. AH operations may also benefit from SEAD support provided to other air operations within the AH Units area of operations (AO). Details on SEAD employment, planning and co-ordination, requirements are outlined in ATP 42 and ATP 44.

- d. **Air Defence.** Air defence (ground and air) is an essential requirement for AH forces. If an AH Unit conducts operations in the deep area which include the establishment of static locations such as a logistics base or artillery fire base then air defence is an essential element of this operation. All AH should carry an Identification Friend and Foe (IFF) system to prevent fratricide.

- e. **Early Warning.** AH should utilise information on the current air situation (eg Voice Reports or Recognised Air Picture (RAP)) especially from AEW to avoid air threats. STANAG 3275 details procedures for warning of friendly aircraft of enemy fighter attacks.
  - f. **Air.** Air can significantly enhance an AH deep mission by providing fire support to AH manoeuvre and SEAD, particularly beyond the range of artillery. When sequenced with an attack it can be used to fix the enemy prior to an AH strike or vice versa. When laser guided munitions are used the AH may assist with laser target marking.
  - g. **Joint Air Attack Team Operations.** The most effective AH attack in the deep, close or rear areas is when the attack is co-ordinated into a Joint Air Attack Team (JAAT) of Close Air Support and artillery or Naval Gunfire. A full description of JAAT mission is in Vol 1 Chap 11 and Vol 2 Chap 8 of this ATP.
  - h. **Remotely Piloted Vehicles/Unmanned Aerial Vehicles.** Remotely Piloted Vehicles (RPVs) or Unmanned Aerial Vehicles (UAVs) can be used to provide intelligence prior to an AH deep mission to illuminate/reveal AD systems along the route, provide weather information or pass details of opportunity targets.
0911. **Combat Service Support to AH Operations.** AH units require operating bases to provide the full range of appropriate combat service support required for planning, command and execution of AH operations.
- a. **Forward Arming and Refuelling Points.** Forward Arming and Refuelling Points (FARP) are tactically deployed to support AH operations. They should be kept as small as possible, depending on the size of the operation, in order to make them mobile, tactical and flexible. There are two kinds of FARP:
    - (1) **Ground-Deployed FARP.** A ground-deployed FARP is a detachment with sufficient combat supplies to sustain a specific operation.
    - (2) **Air Transported FARP.** An air-transported FARP is based on supplies transported by air.
  - (b) **Protection of Logistic Assets.** Both AH operating bases and FARPs are likely to be treated as High Value Targets by the enemy. They should be masked from radar detection and defended by both ground, AD and engineers (protective defensive works) troops. The position of operating bases, whether forward or to the rear, will depend on the threat from enemy

ground and air deep attack forces. They should be moved often and FARP should, if possible, move after each re-supply has taken place.

0912. **Planning and Execution of AH Operations.** The planning and execution of AH operations is outlined in Chapter 9, Volume 2 of ATP 49.

**CHAPTER 10 - EMPLOYMENT OF HELICOPTERS IN THE  
ANTI-ARMOUR ROLE**  
(formerly STANAG 2355 HIS)

1001. **Aim.** The aim of this chapter is to standardise procedures to be followed by NATO forces when employing helicopters in the anti-armour role.
1002. **Request for Anti-armour Helicopters.** Requests for helicopter units for employment in anti-armour roles will be made through normal command channels to the commander exercising control over the helicopter units.
1003. **Command and Control:**
- a. **General.** Helicopter units employed in the anti-armour role use the same command and control procedures as other combat units.
  - b. **Command Relationship.** Helicopter units employed in the anti-armour role may be retained under corps or division control or placed under the operational control (OPCON) of a brigade or comparable sized unit. Normally, anti-armour helicopter units should not be placed under OPCON of a unit size less than a brigade. For operations of extended duration, anti-armour helicopter units may be attached to a ground force; however, for logistic support reasons, their attachment should not extend below divisional level. Command relationships will depend largely on the level of the ground force to which the helicopter units are attached and the participating nation's own doctrine. The integrity of the helicopter unit should not normally be violated. Once the attack unit has received its mission, the helicopter unit commander will task organise his force to accomplish the mission.
  - c. **Liaison.** When an anti-armour helicopter unit is first committed, liaison between the ground force and the helicopter unit must be established as early as practicable. Information exchanged should cover those topics listed in the liaison checklist (see Volume 2, Chapter 7, Annex A). When operations do take place across the boundaries of other units, a liaison officer (LO) from the helicopter unit should be located with the appropriate ground force commander for the duration of the operations. Autonomous action by anti-armour helicopter units without previous liaison may be necessary at times.
  - d. **Reconnaissance.** In addition to conducting a thorough map study, planned battle and ambush positions should be reconnoitred by the helicopter unit whenever time and the tactical situation permit. Such missions must be as thorough as time and the situation permit. However, aircrews conducting the reconnaissance must take every precaution to avoid detection by enemy forces.

- e. **Mission Briefing.** When the helicopter unit is committed to an anti-armour role, a briefing must be given by the most appropriate means and the mission integrated into the ground scheme of manoeuvre as much as possible. The mission briefing should cover the information listed in Volume 2, Chapter 7, Annex B. If there is insufficient time for a formal mission briefing, the helicopter unit must receive a target update briefing that covers the information listed in Volume 2, Chapter 7, Annex C.
- f. **Target Designation and Handover.** Targets may be designated by an anti-armour helicopter, by other helicopters or by a ground designator. The procedures for designation of a target must be co-ordinated during pre-mission planning. A standard handover format will be used so as to avoid confusion and to expedite target handover from observation helicopters or target acquisition devices. An example of target handover procedures from observation helicopters to anti-tank guided missile anti-armour helicopters is contained in Volume 2, Chapter 7, Annex D. An example of target handover with remote target designation is at Volume 2, Chapter 7, Annex E.
- g. **Co-ordinating Features:**
  - (1) Engagement areas are areas in which the commander intends to trap and destroy an enemy force with the massed fires of all available weapons. Commanders must use obstacles, fire support, fire distribution plans, and a thorough IPB to co-ordinate both joint and combined fires and mass them against the enemy force as it arrives in the engagement area.
  - (2) Battle positions for anti-armour helicopter units will be selected by the unit during its reconnaissance and/or liaison. Battle positions should be co-ordinated with the ground commander, when possible.
  - (3) Holding or rendezvous points may be specified, depending on the scheme of manoeuvre of the anti-armour helicopter unit. If specified, these points must be co-ordinated with the ground commander.
  - (4) Phase lines may be used for control and co-ordination of helicopter unit operations in much the same way as they are used by a ground manoeuvre unit, i.e. to provide a recognisable means of reference.
  - (5) Areas of operation (AO) (see NATO definition of AO) may be specified for the anti-armour helicopter units as required by their assigned mission.

- (6) Line of departure (LD), if specified, must be readily recognisable from the air.
  - (7) Co-ordinating points must be specified. Radio contact may be established prior to reaching the established co-ordinating points, which are normally located near the ground unit's rear areas.
  - (8) Other features utilised by the ground force may be used to co-ordinate the manoeuvre of the helicopter unit.
- h. **Communication.** Upon entering the ground unit's sector, contact must be established as directed. During an anti-armour mission, radio discipline must be strictly enforced. To minimise radio usage, aircrew must perform detailed pre-mission planning and use coded transmissions and non-electronic communication devices, if applicable. Communication with ground units may be difficult because of the distance between stations and the low altitudes at which helicopters fly.
- i. **Friendly Air Defence and Airspace Control:**
- (1) Helicopter units should be informed of the location and coverage of friendly air defence weapons in the area in which they are to operate, and the airspace management procedures which are in force, particularly control orders and their implications. (See also Chapter 7).
  - (2) Helicopter units should provide mission details to the appropriate authority of the formation or unit in whose area they are operating.
- j. **Means of Recognition:**
- (1) Authentication procedures in effect are to be followed.
  - (2) Identification of and by friendly forces on the ground is to be confirmed. In addition to a thorough liaison briefing, visual signals, or other means specified by the ground commander may be employed. (See also STANAG 2129 TOP.)
- k. **Indication of Targets.** Ground forces should indicate targets by notifying co-ordinates, pre-planned battle areas or distinguishable terrain features, or alternatively by direct marking by artillery, smoke, etc. Where smoke is used, obscuration of the target must be avoided. Co-ordinates of the target may be given as:
- (1) Grid reference.

- (2) Polar co-ordinates (bearing and distance).
- (3) Rectangular co-ordinates (e.g. Reef pt 400N 200E).

- l. **Field Artillery Support.** Field artillery support, if available, must be co-ordinated through the appropriate commander. Such support may be placed temporarily under control of the anti-armour helicopter unit.
- m. **Close Air Support.** Close Air Support (CAS) should be used in co-ordination with anti-armour helicopter engagements. CAS aircraft and anti-armour helicopters can complement each other's capabilities, but close co-ordination requires established procedures and mutual training.

1004. **Employment Techniques.** The aviation commander will evaluate the tactical situation and elect to attack the target using one of the three methods of attack:

- a. **Continuous Attack.** When conducting the continuous attack the force is divided into three elements. It ensures that one unit is engaged in battle, one unit is en route to the battle, and one unit conducting rearming and refuelling operation. It also permits sustained anti-armour fire over long periods of time.
- b. **Phased Attack.** The phased attack is a modification of the continuous attack method. The attack force consists of three elements. One element is initially employed to engage the target while the second element occupies an attack position and begins to engage the target. Both elements continue the battle. Depending on the reaction by the opposing force and the expenditure of munitions the third element will relieve either the first or second element and enter the battle. Each element will return for replenishment as required and rejoin the battle. The phased attack may be reversed or the commander may vary how the phase attack is conducted.
- c. **Maximum Destruction.** This form of attack calls for all available anti-armour helicopters to engage a target simultaneously. Fires will be directed against the target from several battle positions. Control is more difficult, but the advantage of surprise is gained. Continuous fire power will be limited; however, maximum effectiveness is achieved in a short period of time.

1005. **Target Priority.** Target priority is mission dependent and is established prior to entering into battle. The commander may establish the same or vary the target priority for each attack helicopter formation based on his scheme of manoeuvre. Air defence and command vehicles are considered high priority, but any vehicle capable of detecting and engaging the helicopter is given the highest priority.

1006. **Logistic Support.** Provision for logistic support will be accomplished at the appropriate level. Refuelling and rearming facilities must be located close to the area of operation, but kept beyond the range of enemy artillery. When located forward, they may have to be moved frequently to minimise the threat from enemy action.

## CHAPTER 11 – JOINT AIR ATTACK TEAM

### Related Documents:

AArtyP-1	Artillery Procedures
APP-7	Joint Publication Brevity Words
APP-8	Allied Tactical Air Messages (Formatted and Structured)
ATP-27 (AJP-3.3.2)	Air Interdiction and Close Air Support
AJP-3.3	Allied Joint Air and Space Operations Doctrine
ATP-35 (AJP-3.2)	Land Force Tactical Doctrine
ATP-40 (AJP-3.3.5)	Doctrine for Airspace Control in Times of Crisis and War
ATP-44	Electronic Warfare (EW) in Air Operations
ATP-63 (AJP-3.3.2.1)	Tactics, Techniques and Procedures for Close Air Support Operations
STANAG 3275	Method of Warning Own Aircraft of (Suspected) Enemy Fighter Attacks
STANAG 3797	Minimum Qualifications for Forward Air Controllers

1101. **Aim.** The aim of this Chapter is to standardise principles and procedures for Joint Air Attack Team (JAAT) operations.

### 1102. **Introduction.**

- a. The capabilities of Fixed-Wing (FW) aircraft and Armed/Attack Helicopters (AH) are often complementary. AH can provide direct firepower, but also have sensor and communications capabilities to mark targets and direct fire for FW aircraft. In addition, they can also provide a degree of Suppression of Enemy Air Defences (SEAD). FW aircraft can provide weight of firepower and a wide range of weaponry. Tremendous synergy can be achieved by combining both capabilities, if practicable with artillery or naval gunfire support, in JAAT operations. JAAT operations are normally planned by the surface component and supported by the air component.
- b. Each of the main force elements in a JAAT operation already has individual operational procedures. However, in order to obtain the maximum synergistic effect, these need to be combined and co-ordinated. The inherent flexibility of the weapons systems involved dictates that the procedures must also be flexible, based on a series of principles, and provide commanders and co-ordinators with the guidance needed to cater for any situation.

1103. **Definitions.**

- a. **Joint Air Attack Team.** A JAAT is a co-ordinated attack involving a number of weapons and support systems, primarily AH and FW aircraft. Whenever and wherever possible, these are supported by artillery, Electronic Warfare (EW); Air Defence (AD); and SEAD. The purpose of a JAAT operation is to create a joint team which, by using the air environment, can provide a commander with a lethal combination of firepower that can be applied rapidly throughout the battlefield.
- b. **Close Air Support (CAS).** Air action against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces (AAP-6).

1104. **Principles.** The following principles are integral to the planning and execution of JAAT operation.

- a. **Clear Responsibilities.** Clear command, control and co-ordination responsibilities are required to ensure mission success and to avoid fratricide. This includes clear mission orders for the JAAT Mission Commander.
- b. **Planning.** Successful JAAT execution depends on precise co-ordination and planning. The more complex the JAAT operation, the more planning time is required.
- c. **Standardised Drills/Standard Operating Procedures (SOP).** A JAAT operation is a joint and possibly multinational operation. Therefore procedures and drills should be standardised.
- d. **Communications.** The integration of the different elements of the joint arms team requires direct, undisturbed communications.

1105. **Command Responsibilities.**

- a. **Manoeuvre Force Commander (MFC).** The MFC is the tactical commander who is responsible for the conduct of the battle in the Area of Operations (AOO) where the JAAT operation is to take place. The MFC is responsible for:
  - (1) Deciding how and when the JAAT operation is to be integrated into his tactical plan. This will lead to a Mission and a Concept of Operations.
  - (2) Requesting, through his staff, any additional assets required for the JAAT operation from the higher formation.

- b. **Combat Support Staffs.** The MFC allocates resources, states the mission and is likely to delegate co-ordination of the JAAT mission. Combat support staffs, are responsible for:
- (1) Staffing the commander's request for JAAT assets and recommending the priority for the allocation of assets in support of the operation.
  - (2) Co-ordinating the assets required for the JAAT and writing a warning order and orders for the JAAT Mission Commander.
- c. **Air Liaison Officer (ALO).** The ALO is responsible for:
- (1) Providing information on FW assets.
  - (2) Requesting the air assets for the JAAT operation.
  - (3) Keeping the JAAT Mission Commander informed of expected FW support.
- d. **JAAT Mission Commander.** While the planning and issuing of orders for a JAAT operation must take place at the MFC's HQ, the JAAT Mission Commander is responsible for the execution of the JAAT. In addition, he must have received a mission statement, which clarifies how he is to integrate the operation into the overall plan. The JAAT Mission Commander is responsible for:
- (1) The execution of the JAAT mission orders and making any necessary adjustments to the plan to achieve the mission, especially in terms of target location, timings and detailed co-ordination as the operation develops.
  - (2) Issuing orders to include the aviation commander, Forward Air Controller (FAC)/Airborne FAC and to the Fire Support Officer (FSO). These orders would normally be in confirmation of those already issued by the relevant air and artillery staffs.
  - (3) Initiating the JAAT as ordered by the MFC.
  - (4) Keeping the MFC informed of the progress of the operation.
- e. **Selection of JAAT Mission Commander.** Based on the mission requirements and capabilities, the MFC would usually designate the aviation commander as JAAT mission commander.

1106. **Elements.**

- a. **Armed/Attack Helicopters.** Helicopters able to attack ground targets comprise an element of the JAAT. Broadly, aside from the additional planning and co-ordination needed for a joint operation, the AH will conduct JAAT operations as they would a normal mission. They will carry out varied attack actions in the engagement area, and elements may also provide a degree of SEAD for friendly FW aircraft and other AH. The size of the AH element will be tailored to the mission, in line with the MFC and JAAT Mission Commanders' estimates for the operation.
- b. **Fixed-Wing Aircraft.** A variety of FW aircraft are capable of contributing to JAAT operations. Their use significantly increases the combat power of the AH element by virtue of their larger and more varied weapons. FW aircraft are employed in accordance with the principles in ATP-27 and will use the tactics, techniques and procedures in ATP-63. The MFC or JAAT Mission Commander will request FW support through the normal air/ALO staff chain in line with their estimates and in accordance with the procedures in ATP-27. If, in the opinion of the MFC, the proximity of own forces to FW attacks will 'require detailed integration of each air mission with the fire and movement of those forces', CAS procedures must be used and a FAC will be required. The FAC may operate from the ground or the air, but must be in constant contact with the JAAT Mission Commander and the FW aircraft. In other circumstances the JAAT Mission Commander or a crewmember of another helicopter whom he appoints may direct the FW aircraft.
  - (1) **Forward Air Controller.** A qualified individual who, from a forward position on the ground or in the air, directs the action of combat aircraft engaged in close air support of land forces (AAP-6). During JAAT operations the FAC will maintain communication with the JAAT Mission Commander to adjust for necessary changes and to co-ordinate CAS employment with fire support and AH.
- c. **Fire Support.** Indirect fire support is an important adjunct to JAAT operations. Fire support assets can provide reconnaissance and target acquisition before, during and after the mission. Fire support may be used to begin the attack, to suppress or destroy enemy AD, force armoured vehicles to deploy and close down, and to create confusion within the command and control of the force under fire.
  - (1) The MFC will normally allocate field artillery support from his own direct support Field Artillery (FA) unit. He may also obtain FA support from the general support FA unit supporting the surface forces as a whole, particularly when JAAT operations are conducted for the division or corps.

- (2) If the AH elements do not have a FSO, fire support planning will come from the echelon that plans and co-ordinates the JAAT. Normally, the direct support FA units will provide an FSO. The FSO must work closely with the ALO and the armed/attack helicopter element commander so that fire support will fit smoothly into the plan. Once the JAAT operation begins, the JAAT Mission Commander works directly with the FSO to co-ordinate continuous fire support.
  - d. **Electronic Warfare (EW).** EW is an important element of JAAT operations. Its mission is to exploit enemy weakness, protect friendly freedom of action, and reduce security and communications vulnerabilities. The JAAT depends on the use of the electromagnetic spectrum for command and control (C2) and employment of weapons systems. Elements of a JAAT are vulnerable to enemy EW actions. Properly applied EW can locate, identify, target, deceive, delay, disorganize and destroy the enemy when integrated into the overall concept of the operation. ATP-44 details EW in support of air operations.
1107. **Communications.** Constant co-ordination and control of the JAAT generates a high volume of communications; therefore the communications links between the elements of the JAAT are critical. The MFC and/or the JAAT Mission Commander must co-ordinate voice frequencies, digital data frequencies and laser codes to be used. The use of standardised brevity words facilitate crisp, unambiguous voice communications. Modern frequency-agile radios ease communications problems in an Electronic Counter Measures (ECM) environment.
1108. **Mission Planning.**
- a. The planning process begins when the MFC determines that employing JAAT will assist in accomplishing his mission. Because all elements of the JAAT retain their own C2 system, mission planning must be a co-ordinated effort. Therefore, constant co-ordination between the MFC, JAAT Mission Commander, AH Commander, ALO, FAC, and FSO/Fire Support Co-ordinator (FSC) is required. A list of planning considerations is at ATP-49, Volume 2, Chapter 8.
  - b. Obtaining FW assets is likely to be the most time critical factor in JAAT planning. There are two types of JAAT operation:
    - (1) **Pre-planned JAAT.** A pre-planned JAAT is an operation incorporated into the battle plan from the outset of planning. JAAT mission orders are given as part of normal battle procedure and the attack is implemented when ordered by the MFC.
    - (2) **Immediate JAAT.** An immediate JAAT, planned in response to a changing situation and executed with the resources available at the

time, is an option. In this case the scope and flexibility of JAAT tactics will be more limited.

1109. **Execution.** Execution of the JAAT operation depends on a number of factors (Mission, Enemy, Terrain, Troops and Time). The tactics are decided as early as possible so that attacking assets can be co-ordinated. The two basic methods are: sector attacks, which allow each element of the JAAT to attack within a specified sector, and combined attacks which occur when JAAT elements mass their fires by attacking in the same sector. All options require deconfliction by time and/or space.
- a. **Sector Attacks.** The three types of sector attacks are sector-simultaneous, sector-sequential and sector-random. In order to avoid fratricide, separation criteria (lateral, altitude and/or timing) must be clearly defined and adhered to.
- (1) **Sector-simultaneous.** During sector-simultaneous attacks, each element manoeuvres to attack within its assigned sector in order to engage targets simultaneously with other JAAT elements. The co-ordination of weapons employment must consider weapons trajectory, employment methods including use of laser, and fragmentation envelopes.
- (2) **Sector-sequential.** During sector-sequential attacks, each element manoeuvres to attack within its assigned sector in order to attack in a predetermined sequence. This sequence may range from several seconds to several minutes. This option can reduce the weapon employment co-ordination problem and facilitates covering fires for each preceding element.
- (3) **Sector-free.** During sector-free attacks, each element manoeuvres to attack within its assigned sector and engages targets at will. This option requires strict adherence to a deconfliction plan. All elements must co-ordinate weapons employment to avoid fratricide.
- b. **Combined Attacks.** During combined attacks, all elements engage targets in the same sector and attack in a predetermined sequence. This sequence may range from several seconds to several minutes. This option might reduce the weapon employment co-ordination problem and facilitates covering fire for each preceding element; however, the timing must be controlled by the JAAT Mission Commander in co-ordination with the AH Commander, the FAC and the FSO/FSC and adjusted as necessary.

Procedures for the conduct of JAAT are in Volume 2, Chapter 8.

## CHAPTER 12 - AIR COMBAT MANOEUVRING

1201. **Introduction.** The ability of helicopters to destroy armour is proven. Helicopters also provide ground commanders a combat support capability, as well as a platform for gathering intelligence information. The requirement to destroy helicopter forces will raise the probability of helicopter air combat in future conflicts.
1202. **Explanation of Terms.** As used in this document, the term 'air combat' describes those actions taken by helicopters against airborne fixed- and rotary-wing aircraft. The key terms, 'avoid', 'evade', 'threaten', and 'engage' define these actions.
1203. **Scope.** Deliberate and chance encounters with enemy aircraft will occur throughout the battlefield and must be anticipated to protect the force. The scope of air combat operations will range from defensive actions that are required to protect an air assault force to limited offensive actions when aviation forces ambush an enemy air threat. Commanders at all levels must acknowledge and plan for the possibility of air combat operations during all types of missions.
1204. **Battle Drills:**
- a. Units should develop battle drills for actions on contact. These drills are reactive in nature. Their primary purpose is to preserve the force so that it can accomplish the primary mission and return to fight again.
  - b. The drills are required to provide helicopters with immediate action steps to deal effectively with an air threat. The drills should be based on the fire and manoeuvre concept with emphasis on command and control.
  - c. The primary objective of a battle drill is to alert the friendly force so that an immediate response to the threat may be initiated. This objective includes moving the force from a position of disadvantage to one of advantage.
  - d. Battle drills consist of deliberate and standard phraseology and manoeuvre. When a force completes these initial standardisation steps, the drill is over and the commander must make a tactical decision regarding the follow-on actions of his force.
1205. **Tactics, Techniques and Procedures.** The follow-on actions, or Tactics, Techniques and Procedures (TTPs), will vary as the commander evaluates each individual situation. The factors of Mission, Enemy, Time, Terrain and Troops (METT-T) affect his decision to avoid, evade, threaten or engage the threat.
1206. **The Threat.** Aviation will make a decisive contribution to operations. Consequently, friendly aviation forces are considered both crucial combined arms assets and

lucrative targets for enemy aviation forces. Enemy attempts to dominate airspace will be a constant threat to the success of combined arms operations.

1207. **Threat Overview:**

- a. The primary threat to aviation is ground to ground weapon systems such as tanks, machine guns, and anti-tank guided weapons. The air threat posed by both rotary wing and fixed wing aircraft, however, is increasing.
- b. As countries continue to modernise forces, the air threat to friendly helicopters becomes more significant. Forces are likely to encounter a mix of systems, tactical organisations, and doctrines that have their origin in the industrial nations of the East and West. A potential air threat can, therefore, be expected to operate a variety of sophisticated fixed-wing attack/fighter aircraft and armed helicopters that are available from industrialised nations.
  - (1) **The Threat.** Enemy defence weapons, ground forces, helicopters and high performance aircraft are a major threat to aviation. Soviet-model doctrine calls for priority destruction of our anti-armour capability. With the improving anti-tank capability of our forces, that doctrine is expected to remain unchanged. Therefore, the more damage aviation can inflict on the enemy's armoured forces, the more the threat will concentrate on destroying aviation's anti-armour capability.
  - (2) **Enemy Aviation Combat Capability.** As our air-to-ground combat effectiveness improves, so too will the enemy's anti-helicopter efforts. To destroy aviation forces, the enemy will use every available asset, including tactical fighter aircraft and armed helicopters.
  - (3) **Threat Awareness.** To defeat the threat, aircrews must understand the nature of the enemy threat and its employment of air and ground assets. They must also understand the doctrine, tactics and techniques of any potential enemy and its employment of weapon systems. To be successful in air combat operations, commanders, tactical planners and aircrews must know the capabilities and limitation of enemy aircraft, air-to-air tactics and air-to-ground tactics.

1208. **Helicopter Threat:**

- a. The increasing numbers of attack helicopters available to potentially hostile forces increases the likelihood of meeting engagements.
- b. The tactics used by a helicopter air threat will vary from high-speed attacks to the masked hovering engagements. These engagements are likely to be brief, violent encounters; victory will go to the side that sees first, engages

decisively, and successfully manoeuvres its forces to cover and destroy.

- c. A growing concern for most armies is the increasing threat that attack helicopters represent to armoured forces. The technological advances in lethality, accuracy, and speed of Anti-tank Guided Missiles (ATGM) carried by attack helicopters will amplify the role that attack helicopters play. The use of attack helicopters in the lower spectrum of conflict is also increasing. Armed helicopters are playing an increasing role in armed reconnaissance, security operations and raids. As its tactics and uses are developed, the helicopter will be employed throughout the entire spectrum of operations.

**1209. Fixed-Wing Threat:**

- a. The high performance fixed-wing threat against helicopters is substantial. However, the likelihood of the fixed-wing threat targeting friendly helicopters as anything other than targets of opportunity is remote. The range of operations, speed and operating environment of the helicopter makes it a relatively low priority target for fixed-wing aircraft except when massed/concentrated on the ground. In terms of cost effectiveness, the helicopter is a more suitable target for ground-based weapon systems or for other helicopters.
- b. Fixed-wing aircraft operate at a significant tactical disadvantage when attacking helicopters that are operating close to the ground. Fixed-wing aircraft are generally not adequately equipped for specific search-and-destroy helicopter missions. In addition they become lucrative targets for increasingly sophisticated helicopter air-to-air weapon systems. For this reason, battle drills are designed primarily for reaction to other helicopters.
- c. If terrain permits and the enemy has not detected the formation, the best course of action is for the friendly aircraft to disperse and mask. Movement alerts overflying aircraft to the presence of potential targets. Therefore, any movement over the ground should be minimised, if not avoided altogether.
- d. If a fixed-wing enemy detects a formation of rotary-wing aircraft, the targeted aircrew should fly toward the attacking aircraft as they perform a series of sinking manoeuvres. Once the threat has overflown the targeted aircraft, the aircrews should mask. Other aircraft should disperse, mask and prepare to engage the threat.
- e. Friendly helicopters should avoid prominent features that can be readily identified from altitude. For example, a sharp bend in a river gives the pilot of the enemy aircraft a reference point for additional passes. Downed aircraft are also conspicuous references and crews of friendly aircraft trying to assist risk the same fate.

1210. **Fundamentals.** Helicopter air combat doctrine has been developed in the absence of substantial combat experience. Generating air combat tactics, techniques and procedures is, therefore, evolutionary. Extensive testing and training have shown that adherence to various employment considerations (the principles of war, the factors of METT-T) result in effective air combat tactics. To plan and conduct successful air combat operations as part of the primary mission, commanders and aircrews must understand and use these employment considerations.

1211. **Purpose.** Battle drills and TTPs provide aviation the tools needed to perform its primary mission in an air threat environment.

1212. **Analysis of the Mission.** An analysis of air combat missions further refines tactics and makes them successful techniques and procedures upon which unit SOPs and battle drills can be based. While keeping their focus on the objective (commander's intent), leaders at all levels also must ensure that their tactical decisions enable them to win the minor air combat engagements.

- a. **Air Combat Engagements.** Air combat engagements must be responsive and effective. The air defence early warning net, cues from ground forces and other combined arms fires enhance the aviation unit's ability to manoeuvre to positions of advantage against enemy helicopter forces. The massing of fires provides immediate suppression that enables the aviation unit to disengage from or destroy the air threat by force and manoeuvre and continue the mission.
- b. **Unity of Command.** Unity of command is critical because of the flexible, dynamic and rapid tempo of air combat operations. Actions taken or not taken could, in seconds, determine the outcome of air combat engagements. Aggressive air combat operations allow the commander to gain the initiative, impose his will on the enemy, set the terms for battle and exploit windows of opportunity.

1213. **Keys to Success:**

- a. **Planning, Surveillance and Battle Drills.** Continuous planning, constant surveillance and well-rehearsed battle drills are keys to success in an air combat environment. To succeed in air combat, aviation commanders should:
  - (1) Plan for air combat regardless of the assigned mission.
  - (2) Always provide security for unarmed aircraft conducting deep operations.
  - (3) Attack aggressively at maximum stand-off ranges and minimise decisive engagements, if possible.

- (4) Use fire and manoeuvre tactics when engaging or delaying against an enemy aviation force.
  - (5) Use terrain and weather effectively.
- b. **Manoeuvrability.** Aviation forces should never lose the ability to manoeuvre and, normally, they should avoid becoming decisively engaged. Decisive engagement may be followed by systematic attrition. When this occurs against a numerically superior aviation force, the element involved must seek to break contact. Units should use co-ordinated fire and manoeuvre with available combined arms team fires to regain the freedom to manoeuvre.
1214. **Air Combat Philosophy.** Aviation's role in air combat is those defensive and limited offensive actions taken by helicopters against airborne rotary- and fixed-wing enemy aircraft. Limited offensive actions are emphasised because of the potential for offensive actions to detract from the overall support of ground forces. Limited offensive actions are also emphasised because of the questionable success of extensive helicopter air combat operations in a terrain flight environment and the current limited capabilities of friendly attack aircraft in the air-to-air role.
1215. **Air Combat Tenets.** Current air combat philosophy is based on tenets which serve to:
- a. Alert the force of a potential or impending air encounter.
  - b. Manoeuvre the force into a position to provide mutual support.
  - c. Enhance situation awareness throughout the unit.
  - d. Result in the commander's ability to exercise full command and control over his force.
1216. On the other hand, current doctrine reflects a procedural approach of avoiding, evading, threatening and engaging enemy aircraft. Each of these options incorporates the tenets that ensure the effective initiation of the battle drill and the smooth transition to the follow-on TTPs.
- a. **Contact Report.** The contact report is critical to the survival of the force. It is transmitted by the aircrew that first observes the enemy. This aircrew, at the moment the threat is observed, has the highest level of situational awareness. The contact report is a brief message that instantly raises the situational awareness of the force to the presence of a threat, to the direction of the threat and of the response to be taken to avoid, evade, threaten or engage the enemy. It is a command to act.

- b. **Manoeuvre.** The battle drill is an instinctive response to the contact report. It is a pre-planned manoeuvre that co-ordinates the movements of the friendly elements from a position of disadvantage to a position of advantage over the enemy.
- c. **Mutual Support.** The execution of the battle drill places friendly aircraft in a position to provide mutual support to each other. If necessary, friendly forces can fire to support their manoeuvre.
- d. **Situational Awareness.** Operating in the tactical environment requires that each member of the force maintains a high level of situational awareness. This is achieved by continuous education on enemy tactics and weapon system capabilities. It is also achieved by the mission briefing, which is enhanced or updated continuously during the mission through observation and communication with other members of the force. Most importantly, situational awareness is provided to other members of the element through radio calls and updates as changes occur.
  - (1) Situational awareness obtained by observation must include all dimensions of the battlefield, both ground and air. Situational awareness obtained by communication should be as required to relay essential elements of information to the force.
  - (2) During air combat operations, the aircrew that first observes the enemy dictates the battle drill. The drill alerts the remainder of the force and instantly increases its situational awareness. The drill orientates the force in order that it can avoid, evade, threaten or engage the enemy.
- e. **Command and Control.** The outcome of an air combat engagement depends on the successful execution of the correct battle drill and the follow-on tactics, techniques and procedures. The commander must be able to make an immediate and accurate assessment of the situation as it unfolds and manoeuvre his forces to avoid, evade, threaten or engage the enemy. Activation of the battle drill by any friendly crew gives the commander the critical seconds he needs to retain or regain C2 to formulate appropriate follow-on actions.

1217. **Air Combat Doctrine.** The defensive air combat doctrine is to avoid, evade, threaten and/or engage the enemy. Avoidance may not be an option. For instance, circumstances may require that an enemy is engaged immediately or that a combination of evading and threatening be applied simultaneously.

- a. **Avoid.** Unless directed by mission orders, friendly aviation forces should manoeuvre to avoid being observed by enemy aircraft. Avoidance ensures that friendly forces can continue to accomplish the mission without

interruption. Avoidance may be accomplished either passively or actively. While passive avoidance stresses effective use of terrain and aircraft survivability equipment, active avoidance emphasises physically avoiding on observed air threat; for example, changing the route of flight.

- b. **Evade.** If time and manoeuvre space permit, friendly forces should use the terrain flight environment to evade the enemy if they are observed. This action should be used to the advantage of the friendly force to avoid an engagement. Friendly forces should not attempt to evade if manoeuvre space is inadequate or if evading the enemy will result in a 'tail chase'.
- c. **Threaten.** If the enemy has initiated aggressive action and avoidance or evasion is not an option, the friendly forces should execute the appropriate battle drill to orientate their weapons on the enemy. The enemy may break off and avoid an engagement at the appearance of a well co-ordinated, formidable defence.
- d. **Engage.** If the enemy is avoided, evaded or threatened and the action is found to be inappropriate or unsuccessful, the friendly forces must act immediately and aggressively to engage and destroy the enemy.

1218. **Air Combat Imperatives.** Several air combat manoeuvring concepts have proven to be successful in the air combat environment. Although these principles originated from fixed-wing experiences, they have specific application to helicopter air combat operations. A successful engagement depends on effective lookout procedures. The timely receipt of an attack warning and prompt, accurate communication of the attack to other aircrew members is critical. Friendly forces must be able to recognise the enemy based on more than the physical characteristics of their aircraft. They must be familiar with enemy tactics and be able to recognise the enemy's intent quickly. The mission briefing should address the required actions if friendly aircraft see the enemy first. The mission may require friendly forces to bypass the enemy or engage it immediately. If the enemy is bypassed, friendly forces should forward essential elements of information to the next higher Headquarters.

a. **Observation Sectors:**

- (1) Individual aircrew members should maintain specific lookout sectors from the cockpits of their aircraft. Unit SOPs should address and standardise these sectors by the type of aircraft and formations. Each aircraft in the formation should also maintain lookout sectors assigned by the commander. As much as aircraft cockpit design will permit, the sectors of observation should equal 360 degrees around the aircraft and formation.
- (2) Commanders should analyse the factors of METT-T to determine if

other members of observation should be employed. For example, if an attack from the rear sector is possible, friendly forces may find it necessary to perform 's' turns or conduct frequent check turns to maintain observation in that sector. Utility and cargo aircrew members/door gunners can also help maintain observation to the rear and flanks of their own aircraft and the formation.

- (3) Sectors of observation also must include vertical airspace. Crews should scan areas out to the maximum ranges of the expected enemy weapon systems.
- (4) There is no safety in numbers. Aircrew members must not become complacent and assume that other crew members will detect the enemy first. They must maintain a constant visual watch. Multiple sets of eyes scanning the same sectors reduces the chances of enemy aircraft approaching a formation undetected.

1219. **Lookout Techniques.** Seeing the enemy first is the key to survival in an air combat environment. In addition to visual observation, any tool available should be used to 'see' the enemy. Some of these tools might include the Airborne Warning and Control Systems (AWACS) or forward area air defence system. Lookout techniques are discussed in the following paragraphs:

- a. **Avoid Detection.** If the enemy detects friendly aircraft, the friendly aircraft become targets. Friendly forces must, therefore, employ proper terrain flight techniques and electronic counter-countermeasures to avoid visual and electronic detection.
- b. **Recognise the Enemy.** All aircraft should be considered hostile until they are positively identified. Identifying an aircraft as a friend or foe has become increasingly difficult. Aircraft identification based entirely on its physical characteristics is dangerous. Armies of different countries may have identical aircraft in their inventories. Aircrew members must be familiar with the capabilities, weapons and tactics of all potential enemy aircraft.
- c. **Evaluation of the Enemy.** Aircrew members must assess the difference between non-aggressive manoeuvring and manoeuvring in preparation for attack. The results of this assessment may be the first indication of whether the enemy is searching or passing through and if it has detected friendly aircraft. If detected, friendly aircraft must execute the appropriate battle drill and avoid, evade, threaten or engage the enemy as the situation dictates. A drill may not be necessary to call if detection of the enemy is made with sufficient time to make a tactical decision.

- d. **Decision to Engage.** Once friendly aircraft have been detected or engaged by the enemy, they must act immediately. They must execute the correct battle drill, become the aggressors, and set the tempo of the engagement. Friendly forces must fire first to kill or discourage further aggressive actions as they manoeuvre in order to deny the enemy the chance to bring their own weapons to bear. The commander's decision to commit further follow-on forces depends on the factors of METT-T.
- e. **Unpredictability.** Repetitive patterns of response by friendly forces increase the potential for the enemy to gain and maintain an advantage. Aircrew members must maintain situational awareness at all times, especially during an engagement. Timely communication between aircrew members enhances co-ordination and situational awareness and allows for distinct, unpredictable manoeuvring.

1220. **Situational Awareness.** A successful air combat engagement is a function of the preparation and responsiveness of each member of the aviation flight. The immediacy of action at the time friendly forces execute the battle drill requires a high degree of situational awareness. All aircrew members must know the threat, mission profile, routes and actions on contact (battle drills). They also must know the rules of engagement (ROE), mission abort criteria and other elements discussed in the air combat manoeuvring concepts. Each aircrew member must know the position or relative position of other aircraft in the flight.

1221. **Execution:**

- a. Battle drills are to be executed at platoon level and below (two to six aircraft). In the drills, the assumption is made that a two-aircraft element is the basic and most efficient manoeuvring element. When a third aircraft is part of the formation, it maintains a fixed position off an assigned lead. Movements of larger organisations should be built on this base element. As an example, the commander should organise his company for movement in two platforms.
- b. Attempting to execute a battle drill with more than one platoon significantly increases the complexity of the manoeuvre. It increases both the size of the target presented to the enemy and the chance of fratricide, as it decreases the likelihood of a successful outcome. A larger manoeuvre element also reduces the commander's ability to maintain effective C2.

1222. **Drill Initiation:**

- a. The need for immediate response requires that the aircrew who first detects the enemy initiates the battle drill. That aircrew must announce the battle drill with authority, and the remainder of the friendly elements must execute the drill decisively.

- b. The battle drill must be a simultaneous movement by multiple aircraft and the threat must be destroyed or deterred. To do this, each crew in the platoon must understand the advantage each drill offers over the other.

1223. **Engagements.** Helicopter air combat engagements take place in four stages. These stages are target acquisition, closure and movement, weapons employment, and disengagement:

a. **Target Acquisition:**

- (1) Air combat engagements, like other forms of combat, start with the acquisition of an enemy aircraft. The initial acquisition range varies with the terrain, altitude, flight profile, and weather. The normal acquisition range for nap of the earth (NOE) flight can be from less than 1 kilometre to more than 6 kilometres. Seeing the enemy first allows time to make decisions and react. Air combat drills also reduce the time required to act. Once it is seen, the enemy must be kept in sight; otherwise, advantage is lost.
- (2) Enemy aircraft can be acquired visually with the naked eye, binoculars, night vision devices, telescopic sight units, or other optical systems. Also, cueing from various battlefield sensors may alert aviation units, thus enabling acquisition at extended ranges.
- (3) **Armed Aircraft:**
  - (a) Armed aircraft must remain undetected while their aircrews manoeuvre to a position whence they can engage the enemy aircraft effectively. During this manoeuvre, they must be able to observe and bring down effective direct or indirect suppressive fires on the enemy aircraft. If aircrews of the armed aircraft cannot deploy rapidly to a hasty battle position, they may have to conduct evasive manoeuvres. In either case, manoeuvring must either enhance concealment or gain a tactical advantage. A tactical advantage can be a superior firing position (ideally a flanking or a 6 o'clock position) relative to the enemy aircraft. It can also be a battle position that uses dominant and protective terrain or the massing of aircraft fires for a short time on a smaller enemy force.
  - (b) Ideally, the closure and manoeuvre stage should end with the undetected armed helicopter in a concealed battle position. It could also end with the armed helicopter occupying a superior

firing position as a result of skilful manoeuvring. Aircrews must be aware that in close and deep operations higher altitudes may subject them to enemy air defence and combined arms engagements.

- (c) Crews in armed aircraft should fly and fight NOE. Masking terrain provides the best cover and concealment against ground and air threats. The NOE environment is also the best position from which aircrews can engage enemy helicopters. However, aircrews may have to gain an advantage by executing various flight manoeuvres when available NOE firing positions are inadequate. Evasive manoeuvres may be the only means of breaking contact when no advantage can be achieved. After breaking contact, aircrews should again deploy to NOE. When in the NOE environment, they can engage enemy aircraft from concealed battle positions.

(4) **Unarmed Aircraft:**

- (a) If undetected and poorly concealed, aircrews of unarmed helicopters should remain in the NOE environment and move rapidly to a position that provides better concealment. From the concealed position, aircrews should observe, report, and engage enemy aircraft with all available suppressive fires. Aircrews of unarmed helicopters should also consider landing their aircraft to avoid detection. However, this sacrifices manoeuvrability and significantly increases vulnerability. When enemy aircraft no longer pose a threat, the aircrew should report and continue with the mission.
- (b) If detected, aircrews of unarmed helicopters must attempt to remain in the NOE environment and regain cover or concealment. Placing masking terrain between the enemy aircraft and their aircraft enables them to break contact. Aircrews would also be prepared to execute evasive manoeuvres to break contact, regain concealment, and continue with the mission. If they are unable to break contact, aircrews must request supporting fires from other members of the combined arms team to suppress or destroy enemy aircraft.

- b. **Suppressive Fires.** Helicopter crews should use all available suppressive fires to destroy enemy aircraft. These include air defence, mortars, armour, field artillery, and small arms fire from ground units. Using other combined arms weapon systems conserves helicopter air-to-air weapons, if available.

It also provides aircrews of unarmed helicopters with an effective means of destroying enemy helicopters.

- c. **Helicopter Engagements.** Engaging other helicopters, particularly armed helicopters, is more complicated than dealing with ground targets. As speed and manoeuvrability differ, fixed-wing aerial combat manoeuvres have only limited application to helicopter engagements. Achieving surprise and firing first is critical. If the aircrew fires and misses, the enemy is alerted to its position. Proper evaluation of the enemy helicopter is critical to correct weapon selection.
  
- d. **Disengagement.** Disengagement is the final stage of air combat. It consists of a rapid, concealed exit. Aviation units can disengage effectively from enemy helicopters by executing fire and movement tactics. Throughout the history of fixed-wing air-to-air combat, more aircraft have been destroyed when disengaging than in any other phase of air combat. This can be attributed to many factors, but the greatest danger is when aircrews become relaxed and careless. Disengagements are normally either free or forced. They may also occur during a surprise attack or chance encounter.
  - (1) **Free Disengagement.** Free disengagement occurs when the opposing aircraft has been destroyed or has withdrawn and pursuit is not required. The free disengagement is at the discretion of the aviation commander.
  
  - (2) **Forced Disengagement.** Forced disengagement is dictated by circumstances such as low fuel, malfunctioning weapons, depleted ammunition, wounded crewmembers, or aircraft damage. The primary way to conduct forced disengagement as a unit is to use fire and manoeuvre tactics. For example, one element provides a base of fire while the other element disengages from the enemy. The pilot must use stealth, speed, and manoeuvrability to evade the enemy. To help ensure successful disengagement, he should fly at low altitude, use covered, concealed routes, and exit at high speed.
  
  - (3) **Surprise Attack or Chance Encounter Disengagement.** A third form of disengagement may occur during a surprise attack or chance encounter when visual detection occurs at short range and there is no time to execute a battle drill. The aircrew under attack must immediately seize the initiative. To accomplish this, the aircrew changes altitude, makes an immediate turn into the enemy aircraft, and fires its available weapons. The close-range fire should distract the enemy and allow the aircrew to disengage or gain a superior firing position by manoeuvring the aircraft.

- e. **Engagements with Enemy Fixed-wing Aircraft.** Enemy fixed-wing aircraft are not the most probable air threat for helicopters. However, they do possess a potent air-to air capability which aircrews must be aware of and be prepared to counter. Encounters which helicopter units will have with enemy fighters will be primarily defensive. As in all tactical employment, effective use of fire and manoeuvre, coupled with effective terrain flight techniques, is the key to successful engagements. The employment considerations discussed earlier apply to potential engagements with the entire spectrum of the air threat. For example, aviation units that have acquired a fixed-wing threat may or may not decide to engage after having considered the factors of METT-T, especially if the mission dictates otherwise.
- (1) The enemy fighter may decide not engage the helicopter if it receives a higher priority mission. Therefore, the aircrew may never know that it was acquired by the enemy fighter. In addition, the enemy fighter may consider an attack on the helicopter too risky because of the presence of friendly fighters or the threat posed by local air defence weapons. As a rule, a fighter will execute classic manoeuvres before it attacks. These manoeuvres include circling, flying toward the helicopter, and suddenly climbing. The fighter's range and altitude will determine if it is in a position to attack. If it is not in a favourable position to attack, the fighter will have to turn, climb, or both. Since the turning radius of modern fighters is quite large, the pilot may also lose sight of the helicopter during a turn. If so, he may have to orientate his attack based on the last location of the helicopter.
  - (2) The fighter pilot will begin the firing pass and attempt to re-acquire the helicopter. Normally, his re-acquisition will occur about halfway down the attack run. If the helicopter has moved to another concealed location, even as short a distance as 100 metres, the fighter may not be able to engage on that pass.
  - (3) If the enemy fighter pilot executes a dive, the helicopter may have been acquired. A fighter pilot prefers to attack from altitude to give him time to line up the target in his sights. The steeper his dive angle, the greater the accuracy of his fixed, forward-firing weapons.
  - (4) Receiving fire is another indication that the helicopter is under attack. Fighters are almost invariably armed with fixed, forward firing weapons that require the pilots to line them up on targets. For a well-aimed shot, the pilot must track steadily. Even though the helicopter is concealed, it can still be hit if the fighter pilot fires in its general location.

1224. **Planning Considerations.** Commanders must anticipate the employment of helicopter aviation units in air combat operations. They must consider many factors that may affect the unit's response to an air threat. Air combat planning fundamentals should include, but not be limited to, analysis of the factors of METT-T; the rules of engagement; and the most effective formation and manoeuvres which position the force against an anticipated threat. Air combat planning should also include determining what systems may be available to provide early warning and how the elements of command, control, and communications can be honed to reduce response time.

1225. **Mission, Enemy, Terrain, Troops and Time Available.** The employment of any force required an analysis of the factors of METT-T. The commander must expect deliberate and chance encounters with enemy aircraft to occur on the battlefield and tailor his forces accordingly. Specific employment techniques may differ depending on where operations will occur on the battlefield - close, deep, or rear.

a. **Mission:**

(1) The aviation commander must understand his organisation's mission and his commander's intent. Air combat operations may have a specific mission. The air combat mission may be to protect the overall effectiveness of the combined arms team or to protect the aviation unit and preserve its effectiveness. Finally, friendly forces may exercise battle drills in self-defence. For example, an attack helicopter unit may be assigned air combat as a specified mission to support an air assault force, while air combat may be the implied mission of a unit conducting a screen operation.

(2) Mission planners should consider all options where the possibility of encountering an air threat exists. These considerations might include avoiding enemy aviation forces or employing other combined arms to destroy the enemy. They also might include delaying or destroying the enemy to provide reaction time and manoeuvre space.

b. **Enemy.** The increasing numbers and sophistication of potential enemy aircraft greatly increase the likelihood of planned or accidental meeting engagements between helicopters. All aircrew members must know the enemy's capabilities. Aviation units should disseminate information on enemy aircraft, weapons, and tactics using classified and unclassified sources and mission debriefings. Knowing the enemy capabilities enhances the probability of success.

c. **Terrain:**

- (1) Terrain affects air combat planning and operations. The use of valleys or marginal weather to mask the movement of helicopters is not a skill or capability unique to friendly forces.
- (2) The proliferation of helicopters capable of terrain flight operations is increasing. The ability of these aircraft to operate in marginal weather and at night means that these are no longer the exclusive capabilities of friendly forces. Realising this, planners must use unpredictability to offset the mutual advantages of terrain and weather.

d. **Troops:**

- (1) The availability of troops impacts on mission planning and organisation for combat. The types of forces available, such as air defence, close air support, helicopter aviation, and artillery also will influence mission planning.
- (2) Helicopter units may perform specific offensive air combat to augment the air defence mission. These missions, however, will restrict the potential of attack and reconnaissance units as a manoeuvre force that is fully integrated into the ground tactical plan.

- e. **Time Available.** Time may not be available to plan a mission adequately. To defeat the enemy, quick reaction missions require innovation and flexibility. Preparation for either a planned or an unplanned air combat engagement must occur well before the mission. All aircrew members must understand enemy capabilities and be able to perform the battle drills.

1226. **Tactical Employment Considerations.** Several factors should be considered when aviation units are employed in air combat operations. These factors include flight altitudes, the selection of routes and battle positions, chance encounters and meeting engagements, and reactions to ambushes. Other factors include security for unarmed aircraft and the execution of air ambushes or interception of enemy helicopters.

- a. Terrain flight masks the aircraft from visual and radar systems, hinders IR systems engagement, and provides some cover from weapon effects.
- b. Selected routes and battle positions should allow units to see the enemy first. Ideally, routes in and out of battle positions should provide concealment during ingress and egress.
- c. When chance encounters or meeting engagements occur, units must use fire

and manoeuvre to destroy enemy aircraft or to break contact. At short range, aircrews may have to use air combat manoeuvre to break contact or gain superior firing positions. Even at close range, aircrews must attempt to use mutually supporting fires and avoid decisive engagements that result in mutual attrition.

1227. **Rules of Engagement.** Depending on the mission, the ROE may change. Every mission briefing should address ROE.

- a. The terrain flight environment may provide fleeting glimpses of manoeuvring aircraft sharing the same airspace. All aircrew members should be constantly vigilant and search for other aircraft using the same airspace.
- b. Friendly forces should not engage unidentified aircraft unless they exhibit aggressive behaviour. Self-preservation and the protection of the force require that all unidentified aircraft be considered a threat until they are positively identified.
- c. To avoid fratricide, mission-briefing considerations for ROE should include precautionary measures while battle drills or the follow-on TTPs are being performed.

1228. **Tactical Movement, Formations and Manoeuvres:**

- a. A two to three aircraft element is the basic manoeuvring element. Movement of greater numbers of aircraft should build on this basic element. Executing a battle drill with more than a platoon (more than three aircraft) significantly increases the complexity of the manoeuvre. It increases both the size of the target presented to the enemy and the chances of fratricides.
- b. The commander determines the separation between his elements. The spacing he establishes for the follow-on unit gives him time to analyse the tactical situation. It also gives the commander time to decide whether to support or bypass the engagement that the other unit initiates.
- c. If the commander must manoeuvre with three aircraft, the third aircraft will maintain a position off one of the other aircraft. The crew of the third aircraft manoeuvres with his assigned lead, mimicking the lead's movements. This allows the formation to be controlled as if it consisted of only two aircraft.
- d. In addition to simplifying the execution of the battle drill, placing the third aircraft in a fixed position offers other advantages. It allows the commander to place his least experienced crew alongside the most experienced crew. It also gives him the flexibility to place the strong side of the formation towards the threat.

1229. **Early Warning.** Aircrews of helicopters have a limited visual detection capability from the cockpit. Weather, obscurants, and other factors further affect this capability.
- a. Actions in the cockpit can distract an aircrew member from his observation sector. During these brief periods, enemy aircraft can move into position to take advantage of friendly vulnerabilities. This may be more significant when the enemy approaches from the rear.
  - b. Commanders should determine the availability of advanced warning from the Forward Area Air Defence System (FAADS) radar or the AWACS. The advanced warning provided by these systems increases both survivability and the commander's options. These systems will give him additional planning and reaction time so he can avoid, ambush or take other action as deemed appropriate.

1230. **Command, Control and Communications:**

- a. **Terminology.** A battle drill is an automatic response to a given set of circumstances. It is intended to reduce confusion and enhance C3. SOPs must identify specific terms critical to activating a drill. These terms direct specific action with clear, distinct terminology.
- b. **Use of a Common Radio Frequency.** To perform battle drills and execute co-ordinated TTPs, all members of the unit, whatever the size, must respond simultaneously. Therefore, all elements need to monitor a common radio frequency.
- c. **Activation of the Battle Drill.** Friendly forces must respond immediately to an air threat. This requires that the crew first to observe the enemy initiate the battle drill. Until the commander gains situational awareness, he will respond to the command (the contact report) initiated by the crew first to observe the enemy. Once the commander regains situational awareness, he manoeuvres his force with the appropriate TTP to avoid, evade, threaten, or engage the enemy.
- d. **Position of the Commander.** The commander should position himself where he can maintain situational awareness. Based on the factors of METT-T, the commander should select a position<sup>1</sup> that gives him time to evaluate the evolving tactical situation and direct the correct TTP. The commander should be not responsible for primary navigation of the formation or have primary

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<sup>1</sup> Because the factors of METT-T are numerous and varied this document will not designate the commander's position in the formation. However, his position is important, and it must be given careful consideration.

responsibility for rear area security. He should not assume any task that detracts from overseeing and directing the mission.

1231. **Tactical Operations.** This paragraph discusses the planning and execution of air combat operations throughout the spectrum of the battlefield. The tactical scenarios are representative situations. They provide leaders at all echelons with examples of how to conduct air combat. Helicopter-equipped aviation forces will be employed in the close, deep, and rear operational areas of the modern battlefield. Based on the assessed enemy tactics and the doctrine stated earlier, air-to-air combat between opposing aviation forces will occur in future conflicts. Therefore, aviation commanders must plan for air combat. Their aircrews must prepare, using all available assets, to defeat the enemy air threat. Failure to do so will degrade aviation's ability to accomplish its primary air-to-ground mission. Aviation units will conduct air combat as an extension of their traditional missions a manoeuvre arm of the combined arms team. When analysing the factors of METT-T, commanders must consider the air and ground threat to ensure that the basic principles of doctrine are best met by the tactics, techniques, and procedures they select.
1232. **Deep Operations/Air Assault Security.** Air combat in deep operations will result primarily from the need to secure air assault or deep attack forces. Air combat in deep operations may be unavoidable because of meeting engagements or enemy air-to-air intercepts. However, it should be avoided, if possible, because of enemy air defence and its combined arms capabilities. When air combat in deep operations is unavoidable, engagements should be kept short. The objective should be quick destruction of the air threat or its rapid disengagement.
- a. Air combat should be planned to secure attack forces in the deep battle area. This planning requires detailed, real-time intelligence and requests for and use of joint target acquisition systems. Planners must also integrate all available close air, indirect fire, and electronic warfare support. Planning and co-ordination for SEAD operations will be critical in deep operations.
  - b. Since there is a potential for air-to-air engagements during deep attacks, only the time needed to complete the mission should be spent in the deep battle area. If possible, deep attacks should be conducted at night. Darkness and reduced visibility will aid aviation commanders in protecting the force.
  - c. Planning for combat operations, including deep air assault missions beyond the range of friendly air defence coverage must include the use of attack units to provide security from enemy air attacks. Attack aircraft must provide security for unarmed aircraft during deep operations. Also, enemy forces can be expected to hide in ambush positions and attack deep attack forces from the flanks and rear. Security of the assault formation may be enhanced by an

integrated lookout plan. Therefore, each aircraft within an assault formation must have assigned and overlapping search sectors.

- d. The effects of speed versus stealth must be considered when deep operations are planned. Higher speed may result in higher altitudes, which result in easy detection and vulnerability to enemy air defence artillery systems. Conversely, higher speeds decrease the time spent across the FLOT, which lessens the probability of interception if detected. Lower airspeeds and NOE altitudes decrease detection but increase the time deep attack forces are employed in enemy territory.
- e. During combat in deep operations, attack and reconnaissance aircraft plan for enemy air attacks. When used as security forces for an air assault or a ground manoeuvre force, they provide local air security, suppressive fires, and reconnaissance. Aviation forces use on-board AS, CAS, long-range artillery, and terrain flight techniques to degrade the enemy's air attack capability. The security force destroys, neutralises, or delays enemy short-range air attacks. During air assaults, attack helicopter units use fire and manoeuvre tactics to engage and neutralise the enemy. Security forces provide screening and suppressive fires en route and during insertions or raids. When required, they can also provide preparatory fires into landing zones. Their most important task, however, is to prevent enemy aircraft or ground forces from jeopardising the mission.
- f. The aviation force that provides security must be aggressive and sufficiently removed from the main body to provide reaction time and manoeuvre space. The reconnaissance elements of the security force should be employed to gain first sighting and report the threat so that a timely decision can be made. Actions on contact must be briefed to the security element, directing them to destroy, delay, or avoid contact. The decision cycle is thus shortened.
  - (1) If ordered to destroy the threat, the security element should engage at the selected weapon's maximum effective range. It should also attempt to lure, deceive, or force the air threat into the attack helicopters' fire. During the engagement, attack aircraft manoeuvre into attack positions to counter the anticipated enemy movement. The attack element should be organised into fire and manoeuvre elements to provide close mutual support during the attack on the air threat. Fire and manoeuvre elements also provide flexibility for an adjustment to the enemy's unexpected actions.
  - (2) If ordered to delay the threat force so that the mission can be completed, the security force will attempt to prevent the threat force from closing with the main body of the assault force. Fighting from subsequent battle positions, the fire and manoeuvre sections of the attack element trade

space for time while avoiding decisive engagement.

- (3) If ordered to avoid detection and engagement by the threat force, the security element will mask and continue to report to the assault force commander. The assault force will then have to manoeuvre in order to avoid detection by the enemy force.
- g. The decision to engage the enemy with insufficient forces or the failure to gain the first sighting may allow the enemy to overrun the security forces and the anti-tank or assault forces they are securing. This may result in a decisive engagement in enemy territory and possible heavy attrition of aviation forces. In this situation, aviation forces must execute pre-briefed actions on contact to disengage and reconstitute. Aviation forces must continue to fight as a unit and provide mutual support during the engagement.
- h. The security force operation that supports an air assault force will be planned and executed based upon the factors of METT-T. The location of the sub-elements of the security force are positioned to enhance:
- (1) Mutual support between aircraft against air and ground threats.
  - (2) Flexibility to manoeuvre to any area around the air assault or deep attack force.
  - (3) Element of surprise by using a small, tightly controlled force to penetrate enemy forces.
  - (4) Massing of timely, decisive combat systems.
  - (5) 360 degree security by integrating all organic firepower into the fire distribution plan including rockets and missiles.
  - (6) Simplicity.
- i. Upon reaching the objective, the aviation unit may be responsible for securing the air assault force from both aerial and ground enemy elements in the area of operations determined by the task force commander. If the objective is beyond the range of indirect fires, the aviation commander will have to plan to conduct SEAD using onboard weapons systems, electronic countermeasures, electronic counter-countermeasures and detection avoidance. The unit screens to provide reaction time and manoeuvre space for the main force. If the air assault task force mission requires that only a short time be spent on the objective, the assault aircraft may hold in an area close by the objective. This may require that the attack helicopters protect the assault aircraft or a

position or area between the ground force and screen line. Then the rear covering force will be the primary overwatch element during the exit.

1233. **Close Operations.** Air combat in the close operations area will result from enemy attacks against the combined arms team (primarily air and ground anti-armour forces). This is particularly true when the enemy attempts to penetrate or flank friendly forces. Therefore, air combat will result as an adjunct of the aviation units' primary mission to manoeuvre and support combined arms operations. While protection of the force may require air combat operations, air combat may also be the result of a meeting engagement, which will require the aviation force to engage in self-defence. To counter the air threat, aviation commanders may have to allocate a portion of their force to provide area security during close operations. This effort keeps maximum combat power directed against the ground forces and avoids surprise, disruption and decisive engagement by the enemy.
- a. In planning the primary mission, the aviation commander needs to obtain information about friendly air defence positions, weapons control status and coverage areas. He uses this information to plan battle positions, reconnaissance areas, security areas and routes. When friendly, ground-based air defence assets cover these positions or areas, the aviation commander must know their status and capabilities and organise accordingly. In all situations, especially when there are not ground-based air defence assets, the commander plans for area security and uses available forces and pre-planned fires throughout the mission.
  - b. Mission planning for assault aircraft operating on the friendly side of the FLOT must also include air defence coverage information. The Air Mission Commander (AMC) uses this information to plan flight routes to and from the mission area. He must plan to stay inside the air defence-protected areas of coverage as much as possible and to use weather and terrain to his best advantage. All aircraft must use flight routes, terrain flight techniques, reduced visibility and smoke and electronic counters to reduce possible detection by enemy aircraft and air defence systems. Detailed planning, reliable intelligence, aircraft early-warning systems, lookout techniques and terrain flight will maximise allied strengths and degrade enemy capabilities.
  - c. Attack helicopter teams seek to remain undetected, to perform their primary missions and to enhance survivability from direct fire threats. Commanders select attack and observation positions that provide concealment from enemy helicopters. The use of shadows and the sun is a prime consideration in site selection. Observation posts are positioned to give sufficient early warning and to ensure that the main force has adequate reaction time and manoeuvre space. To preclude attracting unnecessary attention, all aircraft moving into, within and out of battle positions must use covered and concealed routes.

- d. Attack helicopters units use travelling, travelling overwatch and bounding overwatch while flying to and from the mission area. If an air threat is encountered and subsequently engaged during movement, the overwatch element immediately suppresses it, depending on the factors of METT-T. The manoeuvring element seeks terrain masking if the air threat is at a distance. If the air threat is within effective weapon range of if terrain masking is not available, the moving element will engage the air threat. The overwatch and movement elements continue to engage enemy aircraft until the primary mission is no longer threatened. Because of the potential density of threat air defence artillery systems and close air support aircraft in close operations, NOE force and manoeuvre will be the primary method of engagement.
  - e. While attack aircraft are in battle positions, they concentrate on engaging ground targets. Security elements perform the primary mission of aerial security operations by overwatching the likely air avenues of approach that were determined in the IPB process. They occupy positions from where they can cover enemy air avenues of approach into the combat area not covered by friendly ground air defence. Should they acquire an enemy aircraft approaching the battle position, they will execute the stated battle drill. Rapid engagement of the most immediate threat is of greatest importance.
  - f. Flying NOE will afford aviation forces a considerable advantage in acquiring the air threat. Aircraft flying NOE can take advantage of terrain masking and ground clutter. Enemy aircraft operating at higher altitudes may silhouette themselves against the sky. When the defender capitalises on first acquisition, he can grasp the initiative and move to the offence. This tactical flexibility is enhanced by the defender's knowledge of the terrain and by anticipated air threat actions.
  - g. Based on the factors of METT-T, the aviation commander must evaluate the situation and decide whether to engage to destroy, engage to delay or avoid engagement. The mission of the aviation unit may also dictate this decision. The commander must not allow his forces to be surprised, divided or decisively engaged.
1234. **Rear Operations.** Air combat in rear operations occurs when the enemy uses helicopters to disrupt friendly C2, CS and CSS activities. They will use these helicopters in both air assault and air attack roles. Helicopter-equipped aviation units have the necessary mobility and firepower to defeat rear incursions. Aviation units may be given a primary mission to conduct rear operations. The best tactical solution for success is to defeat the enemy's air assaults or attacks before they can deliver troops or ordnance.
- a. Rear operations will be reactive; therefore, they must be executed aggressively. Aviation forces conducting rear operations must be positioned

to react quickly, intercept and engage enemy forces. To do this, aviation commanders will need real-time intelligence and early warning. Information, such as enemy objectives and likely air venues of approach, must be derived from the IPB process. Planning and co-ordination of rear operations will include a detailed analysis of the area of operations for possible routes, corridors and engagement areas.

- b. The rear operations plan should contain tactical guidance and task organisation. It will assign missions to the various elements tasked to protect the rear area. It is normally transmitted in the form of an annex to the Operations Order (OpO). This annex will provide the aviation unit that is tasked to conduct rear operations with the specific information required to develop its respective plan such as unit locations and force support co-ordination measures.
- c. Air combat in rear operations will require extensive planning and co-ordination. To plan thoroughly for air combat contingencies in conjunction with rear operations, the aviator commander and his staff should:
  - (1) Understand the commander's priority of protection of critical rear area assets as stated in the rear operations plan.
  - (2) Know the locations of all friendly elements within the rear area to prevent fratricide.
  - (3) Ensure that the aviation scheme of manoeuvre is integrated into the rear operations plan.
  - (4) Conduct a thorough IPB to determine likely air avenues of approach and probable threat targets.
  - (5) Ensure those C2 functions and facilities peculiar to rear operations is established.
  - (6) Ensure that the unit is tied into the air defence early warning network.
  - (7) Co-ordinate with formation Headquarters airspace control element for the allocation of holding areas, engagement areas, air routes, and BPs.
- d. The speed at which enemy helicopters can conduct rear area incursions will make acquisition distances and the timely flow of early warning information critical. Aviation forces must be tied into the early warning network with pre-planned procedures and pre-briefed actions on contact if effective intercepts or ambushes are to be executed.

- e. Aviation forces diverted from other missions and not already assigned an air combat mission can be employed against the air threat. Their effectiveness is degraded as a result of:
  - (1) Possible incompatible weapon mixes.
  - (2) Insufficient time to plan and brief the mission.
  - (3) Distances to intercept points.
- f. Air combat operations are an implied mission for the attack of an en route enemy force. When the aviation unit is notified of an impending air assault or air attack, aviation forces are deployed to positions along the likely air avenues of approach. Once threat aircraft are detected, the aviation commander selects the area of engagement from previously considered areas. He then moves his attack assets to battle positions near the engagement area and ambushes the enemy air formation. Fire support is used to disrupt further enemy plans and to destroy enemy forces or cause the air threat to divert into air defence or air combat engagements areas.
- g. Engagement techniques in rear operations will be consistent with those of close and deep operations with only a few differences. Aviation forces must ensure the best use of the combined arms team in the planning and execution of air combat operations. The effective use of combat-multipliers can be decisive.

## CHAPTER 13 - AIRMOBILE SECURITY OPERATIONS

1301. Security operations are conducted to gather information about the enemy and to provide reaction time, manoeuvre space, and protection for the main body. The main element is thus forewarned and has time to prepare and deploy forces and engage the enemy. Security includes all measures taken to prevent observation, harassment, and surprise. Aggressive and bold reconnaissance to reduce the unknowns about the enemy and the terrain is an integral part of security. Security operations include screen, guard, and cover missions.

1302. **Airmobile Security Forces.** Airmobile Security Forces (AMSFOR) may be:

- a. Armed helicopters.
- b. Reconnaissance helicopters.
- c. Utility helicopters.
- d. Transport helicopters.
- e. Airmobile ground forces.

These elements may be combined depending on Mission, Enemy, Time, Terrain and Troops (METT-T).

1303. **AMSFOR** may conduct:

- a. Screen operations.
- b. Guard operations.
- c. Covering operations for ground forces.
- d. Security operations during air mobile operations.

1304. **Screen Operations:**

- a. **Purpose.** A screening force maintains surveillance and provides early warning when encountering enemy forces. It impedes and harasses the enemy with organic and supporting fires and, within its capabilities, destroys or repels enemy patrols.
- b. **Screening Missions.** The screening force provides the commander with essential information at the same time denying this to the enemy. Screening

missions for AMSFOR include:

- (1) Maintaining continuous surveillance of all avenues of approach into the troop sector.
- (2) Preventing enemy reconnaissance of friendly forces.
- (3) Determining the size and composition of follow-on enemy forces, their direction of movement, and their estimated rate of advance.

1305. **Guard Operations:**

- a. **Purpose.** Guard missions are conducted to avoid being surprised to gain early reaction time, and manoeuvre space to the front, flanks, or rear of a moving or stationary force. A guard operation is usually conducted within range of the main body's artillery. A guard force may reconnoitre, screen, attack or defend.
- b. **Guard missions.** Guard missions for AMSFOR include:
  - (1) Reconnaissance and early warning of an enemy attack for the main body.
  - (2) Providing reaction time and manoeuvre space for the main body.
  - (3) Preventing enemy reconnaissance.
  - (4) Probing enemy guard forces, delaying or destroying these within the friendly guard force's capability.
  - (5) Fixing, repelling or defeating enemy forces before they can engage the main body with direct fire.

1306. **Covering Force Operations:**

- a. **Purpose.** AMSFOR can be used to reconnoitre or to act as rapid-reaction forces. They must be able to conduct combat independently for a limited period of time to prevent premature enemy engagement of the friendly major body.
- b. **Covering Force Missions.** Covering force missions include:
  - (1) Operating beyond the range of friendly artillery.

- (2) Developing situations earlier than a guard force can, fighting and fixing or defeating larger enemy forces whenever possible.
- (3) Forcing the enemy to deploy early, harassing and impeding or temporarily stopping their advance.
- (4) Reconnoitring, screening and fighting without becoming decisively engaged, bypassed, or cut off.

1307. **Security Operations during Airmobile Operations:**

- a. **Purpose.** Airmobile operations rapidly concentrate or disperse forces when time and space are critical in a tactical situation. Airmobile forces can quickly bypass forward enemy units and achieve surprise in swift, violent and bold operations to deceive disrupt and destroy. These forces can be extracted rapidly and employed in a different area after having completed their mission.
- b. **Security Operation Missions.** Security operation missions during airmobile operations include:
  - (1) Reconnaissance.
  - (2) Overwatch
  - (3) Screening
- c. Security considerations should be taken into account during all 5 phases of an airmobile operation.

## **CHAPTER 14 - RECONNAISSANCE OPERATIONS**

1401. To operate effectively, commanders require timely and accurate information about the terrain and the enemy. Therefore, it is not surprising that most successful military operations are normally preceded by a successful reconnaissance operation. The aim of this chapter is to establish the doctrinal use of helicopters for reconnaissance operations.
1402. Reconnaissance, the act of deliberately obtaining combat information by visual or other detection means, is vital to all military operations. To be effective it must be conducted both before and during operations. Normally, a small dedicated force is specifically assigned to conduct the tactical reconnaissance mission for a larger formation. This dedicated force can be either a ground force, a helicopter force, or a force comprised of a combination of both vehicle types, specially trained to accomplish the three types of reconnaissance: route, zone and area.
1403. Helicopter forces are ideally suited to perform many of the reconnaissance tasks. With the unique characteristics of terrain independence, speed, and long range optical systems, helicopters provide many significant advantages. They may perform these reconnaissance missions as a pure helicopter force, but if time and troops are available, a joint reconnaissance with a ground element is the optimum.
1404. The commander will consider the advantages of combining ground reconnaissance forces with helicopter reconnaissance and allocate forces accordingly. Each of these forces has its strengths; when they are coupled together, particularly if engineers are part of the ground force, they become exponentially more effective. Generally, helicopters offer speed and terrain independence, while ground reconnaissance provides detailed investigation and sustained presence. Ideally, the goal should be to combine and exploit the strengths of each of the forces.
1405. The detailed procedures for employing and controlling a joint helicopter and ground force reconnaissance operation is the responsibility of the designated commander. This commander must consider the complexity of joint reconnaissance operations and provide an effective C2 and co-ordination arrangement for all forces directly involved, including indirect fires. The fundamental principles of reconnaissance are well established and apply to both ground and helicopter forces. These fundamental principles are:
- a. Provide the commander with fresh, timely, and accurate information on the enemy and designated terrain.
  - b. Use the maximum number of available reconnaissance forces required to accomplish the mission.

- c. Focus on the reconnaissance objective; avoid distraction away from the objective.
- d. Gain and maintain contact with enemy forces.
- e. Develop the situation so the maximum information is obtained.
- f. Avoid becoming decisively engaged with the enemy.

1406. **Reconnaissance Methods.** The two general methods of conducting reconnaissance are by stealth and by force. Each method has unique advantages and disadvantages and helicopter forces are capable of using either method. However, the method selected for a particular reconnaissance operation will depend on factors such as Mission, Enemy, Time, Terrain and Troops (METT-T).

- a. **Reconnaissance by Stealth.** As the name describes, 'Reconnaissance by stealth', strives to acquire information without exposing the reconnaissance force to non-friendly forces. Not only does the stealth reconnaissance element avoid physical contact with the opposing force, but it also avoids being detected. This denies the opposing force the opportunity of obtaining information on the reconnaissance force and does not disclose the reconnaissance force's higher formation's intent.
- b. **Reconnaissance by Force.** This method, again as the name describes, is aggressive and bold. The reconnaissance force must be prepared to establish physical contact with opposing forces and fight to obtain information when required. Armed/Attack helicopters, with their standoff target detection ability; speed and lethal firepower, can employ this method very effectively.

1407. **Reconnaissance Types.** Reconnaissance may be divided into three types of missions: Route, Zone, and Area reconnaissance. Helicopter forces conducting any of these reconnaissance missions can employ either the 'reconnaissance by stealth' or the 'reconnaissance by force' methods.

a. **Route Reconnaissance:**

- (1) **General.** The objective of route reconnaissance is to obtain detailed information of a specific route and all aspects that could effect the military use of that route. The essential information required includes, but is not limited to: the enemy situation, condition of the route, load classification, dominating terrain, restrictions, limitations, lateral routes, obstacles and bypasses. The assigned route may be a road or an axis of advance. In either case it should be well defined and have a designated start and end point. Conducting a reconnaissance of a single route normally requires only a small team of helicopters.

However, there may be multiple route reconnaissance being conducted simultaneously, thereby requiring multiple teams of helicopters.

- (2) **Helicopter Only.** With the ability to conduct long range observation and to traverse the route rapidly, the helicopter force can quickly complete the mission. Even though, helicopters do not actually drive on or physically test the route, highly trained aerial crews can acquire all the essential information. When necessary, the crew or specific passengers can land, dismount and conduct detailed analysis/inspections at critical points.
- (3) **Joint Helicopter and Ground Operations.** When conducting joint helicopter and ground forces reconnaissance, the helicopter force can rapidly scan the route for any obvious enemy and critical points of interest. They can also inspect any dominating terrain adjacent to the route while concurrently securing the flanks for the ground reconnaissance element. This permits the ground element to advance rapidly and to concentrate on the physical condition of the route and critical points. The ground force should actually drive the route and conduct detailed inspections in those areas, such as forests and built-up areas, where helicopters cannot observe.

b. **Zone Reconnaissance:**

- (1) Zone reconnaissance is the most time consuming and comprehensive of the reconnaissance missions. Its objective is to provide its higher formation detailed information regarding the zone before this larger formation enters the zone. The level of detailed information achieved will depend on factors such as the commander's intent, and the time and troops available for the reconnaissance. Within the constraints of these factors, the following tasks should be inherent to zone reconnaissance:
  - (a) Detection of enemy activity.
  - (b) Inspection of all terrain within the zone to evaluate its military use and suitability for traffic.
  - (c) Inspection and classification of all bridges, fords, tunnels and other obstacle crossings sites.
  - (d) Classification of all routes, including overpasses and underpasses.

- (e) Location and marking of all mines, obstacles, and barriers.
  - (f) Location of bypasses for obstacles, barriers and built up areas.
- (2) A zone reconnaissance is normally conducted in advance of a larger force's offensive manoeuvre. The reconnaissance force commander will have conducted a thorough appreciation prior to the start of the reconnaissance mission. The force conducting the reconnaissance needs to be agile and afforded a great degree of freedom of how to accomplish its mission. This facilitates the discovery of a path of least resistance and opportunities may be exploited as they occur. Essentially, the reconnaissance force preserves its parent formation's combat power by 'pulling' it through the zone. A single unit or a series of adjacent units may conduct the zone reconnaissance. The dimensions of these zones are not standard, but will be based on the type of terrain, the capabilities of the reconnaissance force, and the time available to complete the mission. Within the boundaries of the zone, phase lines will be designated which are generally perpendicular to the axis of advance to control and co-ordinate the advance. Additional control measures, such as contact points, co-ordination points, or internally generated boundaries/phase lines, may be used.
- (3) **Helicopters Only.** The use of an all helicopter reconnaissance force for this operation can significantly increase speed and agility of the reconnaissance force thereby reducing the time required to accomplish the mission. However, certain features will require the helicopter crews to dismount in order to conduct detailed inspections, e.g. forest and tunnels. If a zone contains numerous such features their advantages of speed will be diminished.
- (4) **Joint Helicopter and Ground Operations.** Ideally, ground and helicopter forces should be jointly allocated to conduct the zone reconnaissance mission. By using advanced optics to observe and manoeuvrability to reposition to successive vantage points, the helicopter force can easily cover large open areas relatively quickly and detect any significant activity. This enables the ground reconnaissance forces to expedite their movement to the critical points where their detailed reconnaissance is required. Specifically, ground and helicopter forces can compliment each other during the zone reconnaissance by:
- (a) Helicopter forces reconnoitring terrain not easily accessible to ground elements, such as steep or marshy terrain features. Likewise, ground forces cover forests, built up areas, and other areas not easily accessible to helicopter elements.

- (b) Helicopter forces rapidly scanning the zone to locate large moving enemy formations and checking specific key points. The ground elements will then conduct a detailed examination of critical points, while helicopter forces secure the flanks.
- (c) Helicopter forces securing the far side of obstacles and locating potential bypasses while the ground elements conduct detailed inspections of these areas.
- (d) Reconnaissance forces being prepared to exploit opportunities by conducting joint or independent attacks.

c. **Area Reconnaissance:**

- (1) **General.** The objective of an area reconnaissance is to obtain detailed information of a specific feature such as a town, forest, valley or other identifiable feature. The entire focus of the reconnaissance force will be the designated feature. The reconnaissance activity is similar to that of a zone reconnaissance. Within the assigned area, the reconnaissance force is required to perform the same tasks as the zone reconnaissance.
- (2) Despite the similarities, the two main differences between the zone and area reconnaissance are:
  - (a) The geometry of the boundaries - with zone reconnaissance, the boundaries are distinctly linear and box-shaped. The base of the box is normally on the FLOT and designated the LD. The mission and forward movement begins at the LD with the zone frequently covering the reconnaissance elements higher formation's entire front. However, area reconnaissance is normally defined by circular or irregular but enclosed boundaries and is a comparatively smaller area than the zone reconnaissance.
  - (b) The relative location of the reconnaissance area to friendly forces - for the zone reconnaissance, normally, the reconnaissance force begins from friendly territory at the LD and moves into terrain not controlled by friendly forces. Frequently, friendly forces follow the reconnaissance force through the zone. In contrast for an area reconnaissance, the reconnaissance force must usually travel to the area, which may or may not be in friendly controlled territory. This travel may be accomplished by a tactical or administrative road march/movement to their assigned area. Enemy contact is avoided en route to their area.

Usually, friendly forces do not immediately follow the force conducting an area reconnaissance.

- (3) Similarly, as with the other two types of reconnaissance, the decision to conduct a joint ground and helicopter area reconnaissance is the commander's decision and is METT-T dependent.

## CHAPTER 15 - MILITARY OPERATIONS OTHER THAN WAR

1501. Military activities during peacetime and conflict can be classified as Military Operations Other Than War (MOOTW). Peacetime activities can occur in any country. Examples of peacetime activities include disaster relief, humanitarian assistance, counter-drug operations, support to law enforcement, military training exchanges, and multinational exercises. Conflict occurs outside the force's home country. Examples of conflict include limited attacks, raids, base defence, shows of force, support to insurgencies and counter-insurgencies, peacekeeping, and peace enforcement. Often, military forces can conduct war and MOOTW simultaneously, within the same theatre.
1502. MOOTW are operations in which aviation units can conduct combat, combat support (CS), and combat service support (CSS) missions. While no new missions for aviation forces have developed as a result of MOOTW, there is a requirement for these forces to train under the conditions under which they will operate. Examples of different type of conditions may include weather, terrain, Command and Control (C<sup>2</sup>) relationships, multinational relationships, inter-operability, and Rules of Engagement (ROE). Therefore, aviation commanders must obtain as much information as possible about the conditions surrounding MOOTW and adapt training programmes to meet mission requirements.
1503. MOOTW may require the deployment of aviation task forces of varying sizes and compositions. The command and control headquarters is normally a function of the size of the aviation force deploying. The aviation unit/element may be designated as the command and control element for additional forces, and may be attached to another headquarters for operational purposes. These higher headquarters may include a ground force, multinational force, or Joint Task Force.
1504. Frequently, MOOTW focuses on missions that require the efforts of combat support and combat service support units. These units work in concert with foreign civilian agencies of government, international organisations, and private organisations. Examples of aviation MOOTW CS/CSS operations include transportation of domestic and foreign civilian/military personnel; transportation of equipment, food, water, medical supplies, and other life sustaining materials; providing limited technical/logistical support to non-military personnel and equipment as directed. Because of the attention these type missions receive during MOOTW, combat support and combat service support units will frequently be the main effort, while combat units become the supporting effort.
1505. **MOOTW Principles.** Military doctrine has long been based on well-established principles of war. MOOTW also have principles that guide commander's actions. The relative application of each principle will vary depending on the specific operation. Aviation commanders must understand the implications of these

principles by virtue of the fact that they may be designated as task force commanders in a MOOTW. The MOOTW principles are as follows:

- a. **Objective.** Direct every military operation toward a clearly defined, decisive, and attainable objective.
- b. **Unity of effort.** Seek unity of effort toward every objective.
- c. **Legitimacy.** Sustain the willing acceptance by the people of the right of the government to govern, or of a group or agency to make and carry out decisions.
- d. **Perseverance.** Prepare for the measured, protected application of military capability in support of strategic aims.
- e. **Restraint.** Apply appropriate military capability prudently.
- f. **Security.** Never permit hostile factions to acquire an unexpected advantage.

1506. **MOOTW Missions.** The activities in which aviation forces will be employed in MOOTW can be grouped in two main categories:

- a. Security and Limited Conflict
- b. Peacekeeping and Humanitarian Operations

1507. **Security and Limited Conflict.** There are seven types of operations that have some potential to result in armed conflict:

- a. **Show of Force.** A show of force is a mission carried out to demonstrate national or international resolve in which forces deploy to defuse a volatile situation that may be detrimental to defined interests or objectives. These operations can influence other governments or politico-military organisations to respect those interests and international law. They can take the form of combined training exercises, rehearsals, forward deployment of military forces, or introduction and build-up of military forces in a region. The mobility, flexibility, agility, and firepower of aviation forces make them ideal for employment in such operations. Emphasis in show of force operations for aviation will be on readiness to conduct combat and combat support missions.
- b. **Non-combatant Evacuation Operations.** Non-combatant Evacuation Operations (NEO) relocate threatened civilian non-combatants from locations in a foreign country or host nation. These operations may involve citizens whose lives are in danger and may include selected host nation citizens or third country nationals. NEO may be conducted in the environments of

conflict or war in a peaceful, orderly fashion or may require forcible means. Aviation forces are employed in the rapid air movement of non-combatants from endangered areas not safely served by fixed-wing aircraft. Armed helicopters may provide security for the air movement and are prepared to engage hostile elements that may attempt to interfere with the NEO.

c. **Counter-Drug Operations:**

- (1) Military efforts support and complement, rather than replace, governmental counter-drug efforts. Aviation support can occur in any or all phases of a combined and synchronised effort to attack the flow of illegal drugs at the source, in transit, and during distribution. Participation in counter-drug operations will normally be in support of law enforcement agencies.
- (2) Support to host nations includes assistance to their forces to destroy drug production facilities; collaboration with host nation armed forces to prevent export of illegal drugs; and nation assistance to help develop economic alternatives to production, exportation, and distribution of drugs. Support to interdiction effort centres on monitoring and detecting illegal drugs in transit as well as integrating command, control, communications, and intelligence systems. In interdicting drug production at the source, aviation units may be used to assist in locating production facilities, inserting reconnaissance and special forces teams, and supporting troop lift of indigenous forces engaged in counter-drug operations.

d. **Support for Insurgencies and Counter-insurgencies.** Military forces may assist either insurgent movements or host nation governments opposing an insurgency.

- (1) Military resources may be used to provide logistical and training support to a host nation's counter-insurgency operations.
- (2) Where multinational forces are supporting a host nation's counter-insurgency operation, most types of aviation missions can be applied. Initially, aviation may assist host nation commanders with command and control aircraft. Units with air assault capability will be essential for tactical troop movements and armed helicopter units may be required for reconnaissance and security. Aeromedical evacuation from remote or inaccessible locations may be required.
- (3) In view of the uncertainty of counter-insurgency requirements, it may be that only a few aviation missions would be appropriate. In such a situation, it is possible that selected aviation units would be deployed

and organised into provisional units. These deployments make it imperative that a modular concept of aviation logistics is in place to support non-standard aviation organisations.

- (4) Because support for insurgencies is often covert, Special Forces are frequently involved. Due to their extensive unconventional warfare training and experience, aviation units trained for special operations are well suited to provide this support. General-purpose aviation forces may be employed when the situation requires their specialities or when the scope of operations is so vast that overt conventional forces are required.
- e. **Combating Terrorism.** There are two major components to combating terrorism: anti-terrorism and counter-terrorism. During peacetime, military forces combat terrorism primarily through anti-terrorism; passive defensive measures taken to minimise vulnerability to terrorism. Anti-terrorism is a form of force protection and is, therefore, the responsibility of aviation unit commanders at all levels. Counter-terrorism is the full range of offensive measures taken to prevent, deter, and respond to terrorism. Aviation elements assist in this interagency effort by applying specialised capabilities to preclude, pre-empt, and resolve terrorist incidents abroad. Aviation units may conduct counter-terrorism operations by inserting and extracting Special Forces and providing firepower to support their operations.
- f. **Peace Enforcement:**
- (1) Peace enforcement operations are military operations in support of diplomatic efforts to restore peace between hostile factions that may not be consenting to intervention and may be engaged in combat activities. Peace enforcement implies the use of force or its threat to coerce hostile factions to cease and desist from violent actions. Units conducting peace enforcement must be prepared at all times to apply combat power to restore order, separate warring factions, and return the situation to one more conducive to civil order and discipline.
  - (2) Aviation units, which can be deployed into the area of operations with early entry ground forces, can have a significant deterrent effect on the indigenous combatants, particularly if these factions have armoured forces. Helicopter units may be employed to conduct reconnaissance and surveillance over wide areas and provide visual route reconnaissance. They may have an important role in moving military and civil peace enforcement personnel, or in delivering required supplies when warring factions interdict surface means of transport or routes become impassable.

- (3) Aviation units employed in peace enforcement operations must operate in conjunction with ground manoeuvre forces that can interpose themselves between warring factions on the ground. Forces should expect ambiguous situations to be normal and must adhere to authorised rules of engagement. This is a difficult mission that requires restraint, patience, and a heightened awareness of force protection measures.
- g. **Attacks and Raids.** Attacks and raids can be conducted to create situations that permit seizing and maintaining political and military initiative. Aviation is well suited to these combat operations, because attacks and raids are normally conducted to achieve specific objectives other than gaining or holding terrain. Attacks by conventional air, ground, and aviation forces, acting independently or in conjunction with Special Forces, are used to damage or destroy high value targets or to demonstrate the force's capability and resolve to achieve a favourable result. Raids are usually small-scale operations involving swift penetration of hostile territory to secure information, temporarily seize an objective, or destroy a target. Raids include a rapid, pre-planned withdrawal after completion of the mission.

1508. **Peacekeeping and Humanitarian Assistance:**

a. **Peacekeeping Operations:**

- (1) Peacekeeping operations support diplomatic efforts to maintain peace in areas of potential conflict. They stabilise conflict between belligerent nations or factions and, therefore, require the consent of all parties involved in the dispute. Peacekeeping often involves ambiguous situations requiring the peacekeeping force to deal with extreme tension and violence without becoming a participant. As with peacemaking operations, aviation units engaged in peacekeeping must apply restraint, have patience, and maintain heightened security awareness in executing these missions.
- (2) Peacekeeping forces deter violent acts by their physical presence. They gather information on the situation by all means available. Command and control and liaison aircraft will enable the leaders of the force to move to critical points rapidly and remain abreast of the situation development.

1509. **Humanitarian Assistance and Disaster Relief.** Humanitarian assistance operations provide emergency relief to victims of natural or man-made disasters and are initiated in response to domestic, foreign government, or international agency requests for immediate help and rehabilitation. Disaster relief operations include refugee assistance, food programs, medical treatment and care, restoration of law

and order, damage and capabilities assessment, and damage control. Aviation units can provide logistics support to move supplies to remote areas, extract or evacuate victims, assist in establishment of emergency communications, and provide aeromedical evacuation services in support of medical operations. The ability of aviation units to deploy rapidly, and their capability to operate effectively in austere environments make them ideally suited for these missions.

- a. **Nation Assistance.** Nation assistance operations are conducted in support of a host nation's efforts to promote self-development. The goals of nation assistance normally are accomplished through education and the transfer of essential skills to the host nation. Aviation unit participation in nation assistance will normally be limited to the use of individual soldiers and teams to train and educate, and the use of liaison aircraft to assist in overcoming terrain obstacles and limited road networks and communications means.
- b. **Security Assistance.** Security assistance programs are the means by which countries, through diplomatic channels, provide defence materiel, military training, and defence-related services by grant, loan, credit, or cash sales to further national policies and objectives. Aviation soldiers may be involved in this program, particularly in training host nation aviators and support personnel.

1510. **MOOTW Planning Considerations.** Once tasked to execute an MOOTW, the aviation unit commander initiates the planning process. This planning process continues throughout the entire mission. Listed below are factors that will help in planning MOOTW.

- a. **Mission Analysis:**
  - (1) After receiving the plan or order from the next higher headquarters, the unit commander and staff analyses the mission relative to appropriate theatre strategy, campaign plans, and contingency plans. The theatre strategy articulates the Commander's vision for the theatre. It provides guidance, direction, and opportunities for peacetime activities in general terms of ends, ways, and means. Campaign plans and contingency plans identify theatre objectives, sustainment concepts, resources required, and specified and implied tasks. Supporting plans developed by headquarters above the aviation unit level provide more definitive guidance regarding essential tasks.
  - (2) The aviation unit commander should be able to articulate his unit's mission to subordinate commanders. The commander should be able to define all specified and implied tasks, and state what the current end-state of the mission is perceived to be. Commanders should plan for at least a six month rotation for any MOOTW, regardless of what the

current mission duration is forecast to be.

- b. **Intelligence Requirements/Estimates.** To assist in adjusting to variations in the level of threat during MOOTW, the aviation unit commander must be provided with pertinent intelligence reports and estimates to ensure that he may posture his force and provide the appropriate level of security for operations.
- c. **Task Organisation:**
  - (1) MOOTW Aviation units selected for MOOTW missions should carefully analyse the possibility of the mission deteriorating to conflict.
  - (2) A single aviation task force may well combine under the operational control of one headquarters with a wide variety of allocated tasks. The aviation unit commander, prior to deploying his force, must insure that the deploying force is manned with a staff whose experience will cover the range of anticipated missions.
- d. Some major areas of consideration include:
  - (1) Identify training deficiencies prior to deployment.
  - (2) Air defence threat: tactics and techniques necessary to accomplish the mission.
  - (3) Military operations in towns and cities.
  - (4) Night vision requirements in towns and cities.
  - (5) Combat Search and Rescue (CSAR).
  - (6) Extraction of downed crews in towns and cities.
  - (7) Maintenance support.
  - (8) Publications.
  - (9) Compatibility with host nation/allies maintenance system.
  - (10) Facilities.
  - (11) Cranes or other overhead lift.
  - (12) High tempo of operations.

- (13) Compatibility of aircraft to mission requirements.
- (14) Maintenance support.
- (15) Transport of civilian personnel on military aircraft: rules and authority.
- (16) Gunnery tactics, techniques, and procedures in an urban environment, limiting collateral damage, and avoiding fratricide.
- (17) Flight in areas without air traffic control support infrastructure.
- (18) Aircraft survivability equipment: survival vests, weapons selection for crews, video cameras/video play back, rules of engagement, legal status of forces, limits of legal authority.

This list is not all-inclusive. The aviation commander, using all available information at hand, will have to anticipate requirements and organise his forces accordingly.

- e. **Command and Control Relationships.** Because the aviation unit may not deploy with the next higher headquarters, C<sup>2</sup> relationships must be established early on. Specific date/time groups for C<sup>2</sup> transfer should be requested if not provided by higher headquarters. A clear understanding of the C<sup>2</sup> relationship will help reduce confusion throughout the entire preparatory and deployment phases of the operation. Additionally, units designated for attachment must also have a clear understanding of the date/time when C<sup>2</sup> transfers from their owning headquarters to the aviation unit.
- f. **Advance Party Operations.** Advance Party personnel need to have a comprehensive overview of their unit's mission and fully understand their commander's intent. Representatives of the aviation unit on the Advance Party must see and understand every facet of the operation. They must prepare to be the conduits for information flow between the in-theatre command and their home station. They must be prepared to receive and understand instructions/guidance from the in-theatre command and to transmit this critical information back to the home station commander. Reciprocally, Advance Party personnel should be prepared to request/co-ordinate with the in-theatre command that which is necessary to ensure a smooth and orderly inflow of personnel and equipment. Advance Party personnel should be prepared to provide/receive information regarding the following:
  - (1) **Unit Deployment Status.** Upon arrival in theatre, the most important information to the in-theatre command may be the deployment status of the incoming unit. Advance Party personnel must be prepared to brief

the most recent update on scheduled arrival times. Additionally, the incoming unit's task organisation structure and priority of transport will need to be updated and briefed as necessary.

- (2) **Host Nation In-processing Procedures.** Host Nation administrative procedures may require the arriving units to in-process at the port of debarkation. This in-processing may include passport/military identification checks, medical records check and/or transfer, and in-country briefings (local customs, consumable items, currency exchange, legal/illegal procedures, off-limits areas, and environmental conditions). Advance Party personnel should advise their units if this process is impending upon arrival. Additionally, prior co-ordination must be conducted at the deployment site/port of debarkation to facilitate an orderly flow of personnel/equipment into theatre.
- (3) **Helicopter Staging Area.** Helicopters being transported by land, sea, or air will need to be reconfigured for mission capability after off-loading. Advance Party personnel should request ramp space with easy maintenance vehicle/equipment accessibility. Maintenance test flight airspace for the post reconfiguration phase must also be requested / co-ordinated through the appropriate authorities.
- (4) **Petroleum, Oil and Lubricants.** Petroleum, Oil and Lubricants (POL) need to be co-ordinated in synchronisation with aircraft/ground vehicle arrival at the Sea Port of Debarkation (SPOD)/Air Port of Debarkation (APOD). Advance Party personnel need to know types of fuel available upon aircraft arrival, aircraft specific fuel load capabilities, fuel nozzle requirements, and POL handling procedures in the staging area and deployment site(s). Additionally, fuel resupply at either the operating base or forward operating base needs to be planned and co-ordinated.
- (5) **Maintenance.** Advance Party personnel need to know what the status of aviation repair parts will be on the deploying unit's arrival date. This information may help the deploying commander with regards to the transport of certain aircraft within the unit. The deploying commander may need to know what facilities/will be available upon the arrival of the unit.
- (6) **Life Support/Billeting.** Food may have to be requested / co-ordinated if incoming personnel arrival numbers exceed or are expected to exceed stocks previously shipped by the unit. Billeting space must be co-ordinated for the arriving elements. Advance Party personnel may have to request/co-ordinate tentage, open bays, barracks, or occupied urban sections within a theatre.

- (7) **Radio Frequencies/Flight-following Procedures.** Advance Party personnel need to co-ordinate with the personnel (civilian or military) responsible for authorising radio frequency usage. Gaining command operations personnel need to be briefed on intended use of administrative and tactical frequencies. Check for frequency conflict and deconflict as necessary. Co-ordinate with the airspace C<sup>2</sup> cell at the required echelon for flight following (both positive and procedural) and request airspace as necessary.
- (8) **Forward Operating Base Co-ordination.** If the aviation unit is tasked to occupy an Forward Operating Base (FOB), Advance Party personnel must, if at all possible, conduct reconnaissance operations. Specific considerations should include ground route security from the Initial Staging Base (ISB) to the FOB, aircraft parking, command post locations, environmental conditions, aircraft/ground vehicle maintenance areas, ammunition storage sites, Forward Arming and Refuelling Points (FARP) locations, and ground vehicle accessibility in and around the area.
- h. **Split-based Operations.** The full integration of supply and transportation functions into a vertical distribution system is critical. Logistics management functions may be conducted from the deploying unit's home station theatre, while only those functions critical to the operation are conducted in the deployment AO. This is called split-based operations. Split-based operations apply to all logistics functions. The aviation unit commander assesses the capabilities and assets of the logistics support network, then provides input at both the planning and execution phases as necessary to assure successful accomplishment of the mission.
- h. **Deployment.** MOOTW deployments deserve special consideration because many times the aviation unit (or elements of the aviation unit) will deploy alone, and not as part of a larger unit operation. Therefore, the aviation commander must ensure that the deploying unit(s) receive the level of attention necessary to facilitate a smooth deployment process. The commander must ensure that the deploying unit(s) are fully supported during their preparation for deployment, and deployment phases.
- i. **Lines of Communication.** Lines of Communication (LOC) are all the routes (land, sea, air) that connect an operating military force with a base of operations and along which supplies and military forces move. Maintaining uninterrupted logistics support throughout all phases of an operation is the central challenge of logistics. The aviation commander must view logistics as an implied task from the start of an operation to its conclusion. Special considerations for aviation LOC include; en route POL (if self-deploying); technical support in the deployment AO upon arrival; security at debarkation

sites and along routes to FOB.

- j. **Force Integration.** The aviation unit commander can expect his unit to conduct MOOTW in joint, multi-national, and separate agency (governmental and non-governmental) environments. The commander should be aware of several operational considerations as aviation forces prepare to execute MOOTW:
- (1) **Airspace.** Airspace C<sup>2</sup> structure will probably be based on joint procedures modified to host nation constraints. This may result in positive and/or procedural control changes, and require relatively quick adaptation on the part of unit aviators.
  - (2) Personnel must understand procedures for operating in and around multinational ground and aviation forces. Authorisations allowing transportation of non-military personnel need to be co-ordinated prior to AO arrival. Additionally, pre-flight passenger briefings need to be comprehensive and standardised.
  - (3) An aircraft tasking procedure needs to be set in place as soon as possible, preferably, before the arrival of the aviation main body. This will probably be a higher-level staff function, but critical to the initiation of operations early in the mission.
- k. **Force Protection:**
- (1) The aviation unit must consider force protection as an implied task throughout the operation. External security assets must be task organised prior to deployment, or attached immediately upon arrival in theatre. The size of the ground security force is dependent on many variables, some of which include the isolation or remoteness of the aviation assembly area or at the FOB, the enemy situation, terrorist activities, civilian attitude towards the military presence in the area, and friendly force situation. Ground security should include routes between the aviation FOB and all related LOC.
  - (2) The principle of security must be emphasised by aviation forces engaged in MOOTW. The presence of military forces in nations around the world may provoke a wide range of responses by factions, groups, or forces of unfriendly nations. Regardless of the mission, the commander must protect his force at all times. He should never be lulled into believing that the non-hostile intent of his mission does not put his force at risk. Inherent in this responsibility is the need to be capable of rapid transition from a peaceful to a combat posture, should the need arise.

I. **Rules of Engagement:**

- (1) Rules of Engagement (ROE) are designed to control the application of force. These rules stipulate under what conditions soldiers can defend against or attack an existing threat. Normally, the ROE are very restrictive. The ROE will be prepared and issued by a higher headquarters prior to any of the aviation unit elements deploying to the AO. The aviation commander must clearly understand the ROE and be prepared for them to change at any time during an operation. All ground and aircrew personnel should be re-briefed on the ROE upon arrival at the port of debarkation.
  - (2) Since the use of excessive force could impede the attainment of both short- and long-term goals, restraints will often be placed on the weaponry, tactics, and levels of violence allowed. Due to the decentralised nature of operations often found in this environment, personnel of all ranks are often placed in decision-making situations that could very well have strategic implications.
- m. **Liaison Activities.** Higher echelon mission requirements may dictate the necessity to provide aviation liaison personnel to higher/adjacent headquarters. Therefore, the aviation commander must be prepared to release personnel for these functions. To prevent subsequent shortfalls or gaps within the unit, the aviation commander should plan to attach at least one liaison officer to each higher level headquarters within the larger task force. Liaison officers should be able to discuss the doctrinal employment of aviation, operations, and logistical support. Reciprocally, the aviation unit commander should request liaison support from all elements that may effect the accomplishment of the unit's mission.
- n. **Host Nation Considerations.** The civil and military laws, airspace restrictions, radio frequency usage, ground convoy clearances, aircraft operating time restrictions, flight clearances, refuelling procedures, and product disposal procedures vary in almost every country in the world. The aviation unit commander must be prepared to adapt the unit to the Host Nation operating environment. Serious problems/complications can develop when Host Nation requirements are not being met, possibly resulting in further restrictions or even mission failure.
- o. **Re-deployment.** During MOOTW, there may or may not be local/national forces operating in theatre who are in favour of the military presence. Since the presence of military forces will probably be perceived as a stabilising factor, it is very possible that friendly or local/national forces do not see the departure of military forces as being in their best interest. In an effort to show the need for continued military force presence, factions considered friendly

may increase hostile actions against an identified threat. Therefore, the aviation unit commander may expect an increase in hostilities between factions as formal/informal announcements are circulated concerning the departure of the forces. A heightened level of security should be adopted during these times.

## CHAPTER 16 - COMBAT RECOVERY

### Editor's Notes:

1. When written this chapter will aim to standardise the procedures and equipment required to conduct Combat Recovery operations in a hostile environment.
2. The definition of Combat Recovery has not been finalised, but a definition that was discussed, but not finalised, at the Helicopter Interservice Working Group meeting Feb/Mar 2000 was as follows:

'Combat Recovery is the detection, location, identification and rescue of isolated personnel not necessarily covered under Combat Search and Rescue procedures.'

Ratification of ATP-49(C) Change 1 does not imply agreement to or ratification of this definition which is included only for information.

## **LIST OF RELATED STANAGS**

STANAG 1001 TOP	Standardised System of Designating Days and Hours in Relation to an Operation or Exercise.
STANAG 1149 AW	Doctrine for Amphibious Operations (ATP-8).
STANAG 2087 MED	Medical Employment of Air Transport in the Forward Area.
STANAG 2403 HIS	Technical Criteria for External Cargo Carrying Strops/Pendants.
STANAG 2407 HIS	Helicopter Battle Damage Assessment and Repair.
STANAG 2405 HIS	Helicopter Air-to-Air Combat (In abeyance).
STANAG 2426 NBC	NBC Contamination Control Policy for NATO Forces
STANAG 2434 TOP	Compendium of Land Forces Messages (APP-9).
STANAG 2437 AJOD	Allied Joint Operations Doctrine (AJP-01).
STANAG 2484 ARTY	Artillery Tactical Doctrine.
STANAG 2868 TOP	Land Force Tactical Doctrine (ATP-35).
STANAG 2904 HIS	Airmobile Operations (ATP-41).
STANAG 2946 SILCEP	Forward Area Refuelling Equipment.
STANAG 2947 SILCEP	Technical Criteria for a Closed-Circuit Refuelling System.
STANAG 2949 HIS	Technical Criteria for External Cargo Carrying Slings.
STANAG 2950 HIS	Technical Criteria of External Cargo Carrying Nets.
STANAG 2970 HIS	Aerial Recovery Equipment and Techniques for Helicopters.
STANAG 3105 ASSE	Pressure Fuelling Connections and Defuelling for Aircraft.
STANAG 3113 ASSE	Provision of Support to Visiting Personnel, Aircraft and Vehicles.

STANAG 3117 FS	Aircraft Marshalling Signals.
STANAG 3204 AMD	Aeromedical Evacuation.
STANAG 3278 ASSE	Aircraft Towing Attachments and Devices.
STANAG 3379 FS	In-Flight Visual Signals.
STANAG 3430 ASSE	Responsibilities for Aircraft Cross-Servicing.
STANAG 3542 HIS	Technical Criteria for the Transport of Cargo by Helicopter.
STANAG 3680 MIS	NATO Glossary of Terms and Definitions (AAP-6).
STANAG 3700 AO	NATO Tactical Air Doctrine (ATP-33).
STANAG 3805 AO	Doctrine for Airspace Control in Times of Crisis and War (ATP-40).
STANAG 3854 AT	Policies and Procedures Governing the Air Transportation of Dangerous Cargo.
STANAG 3873 TA	Electronic Warfare (EW) in Air Operations (ATP-44).
STANAG 3879 FS	Birdstrike Risk / Warning Procedures (Europe).
STANAG 6010	EW in the Land Battle (ATP-51).

## LIST OF EFFECTIVE PAGES

### VOLUME 1

<b>Effective Pages</b>	<b>Page Numbers</b>
ORIGINAL	i to x
CHANGE 1	xi to xiv
ORIGINAL	1-1 to 1-5(rb)
ORIGINAL	2-1 to 2-2
ORIGINAL	3-1 to 3-4
ORIGINAL	4-1 to 4-3(rb)
ORIGINAL	5-1 to 5-2
ORIGINAL	6-1 to 6-3(rb)
ORIGINAL	7-1 to 7-2
ORIGINAL	7A-1 to 7A-3(rb)
CHANGE 1	8-1 to 8-8
ORIGINAL	8-9 to 8-25(rb)
ORIGINAL	9-1 to 9-6
ORIGINAL	10-1 to 10-5(rb)
CHANGE 1	11-1 to 11-6
ORIGINAL	12-1 to 12-24
ORIGINAL	13-1 to 13-3(rb)
ORIGINAL	14-1 to 14-6
ORIGINAL	15-1 to 15-13(rb)
CHANGE 1	16-1(rb)
ORIGINAL	STANAG -1-STANAG - 2
CHANGE 1	LEP1 (rb)