Joint Air Operations

Interim Joint Warfare Publication 3-30

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JOINT AIR OPERATIONS

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PREFACE

SCOPE

1. **Purpose**. The purpose of Interim Joint Warfare Publication (IJWP) 3-30 '*Joint Air Operations*' is to provide guidance on specific UK aspects of the planning, Command and Control (C2) and execution of joint air operations. It is primarily focused at the JTFC, his Component Commanders, and their respective staffs, but also has utility for commanders and HQ staffs at the lower tactical level. It will also be of value to joint staff officers employed in the A3 Operations and A5 Planning Divisions of the Joint Force Air Component Headquarters (JFACHQ), and to the equivalent single-Service air operations and planning staffs as well as joint and single-Service training establishments.

2. **Context**. IJWP 3-30 provides those elements of UK air operations doctrine that are not covered in sufficient detail in JWP 3-00 '*Joint Operations*'[1] or elsewhere in relevant Allied Publications.[2] Its aim is to provide necessary additional guidance to ensure the effective employment of air resources in UK joint or UK-led multinational air operations. It supports AP 3000 '*British Air Power Doctrine*' and the '*RAF Air Operations*' manual,[3] and forms the UK Supplement to Allied Joint Publication (AJP)-3.3 '*Joint Air and Space Operations Doctrine*', complementing this capstone Allied Publication in a similar manner to RN '*Fighting Instructions*' (AJP-3.1) and Army Field Manual '*Formation Tactics*' (AJP-3.2). It provides a national joint doctrinal focus, where required, for subordinate tactical publications in the UK Joint Doctrine Hierarchy that address the roles of air power.

3. **Structure**. The publication is laid out in 5 Chapters, each relating to a similar or corresponding chapter in AJP-3.3. Chapters 1 and 2 discuss the principles employed in the use of air power and expose emerging thought, based on lessons learned and pending NATO decisions, on their use in expeditionary operations. Chapter 3 covers the roles, structure and C2 functions of the UK's deployable JFACHQ organisation and the integration of joint and component air activities, with UK aspects on categories of air power and Air Manoeuvre operations covered in the following chapter. The final chapter provides a broad overview of planning and execution of air operations.

[1] JWP 3-00 '*Joint Operations Execution*' is due to be published in April 2004.
[2] For example, doctrine developed by the Air Standardisation Co-ordinating Committee (ASCC) which has not yet been endorsed by NATO.
[3] Both of which will be reviewed in 2003.

LINKAGES

4. IJWP 3-30 should be read primarily in conjunction with AJP-3.3 '*Joint Air and Space Operations Doctrine*'. It consolidates high level environmental doctrine in AP 3000, links this with JWP 3-00 '*Joint Operations*', and supplements the air operations planning aspects of JWP 5-00 '*Joint Operations Planning*',[4] providing greater procedural detail where required. JWP 3-63 '*Joint Air Defence*', JWP 3-34.1 '*Joint Airspace Control*' and the *JFACHQ CONOPS* document are also important UK references, along with the other Allied Publicationss covering Counter-air, Strategic, Anti-surface Force and Supporting Air Operations doctrine.

[4] JWP 5-00, and JWP 3-00 '*Joint Operations Execution*' are due to be published in April 2004.

JOINT AIR OPERATIONS

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Chapter 5 Planning and Execution of Air Operations

JOINT WARFARE PUBLICATIONS

The successful prosecution of joint operations requires a clearly understood doctrine that is acceptable to all nations and Services concerned. It is UK policy that national doctrine should be consistent with NATO doctrine and, by implication, its terminology and procedures (other than those exceptional circumstances when the UK has elected not to ratify NATO doctrine). Notwithstanding, the requirement exists to develop national doctrine to address those areas not adequately covered, or at all, by NATO doctrine, and to influence the development of NATO doctrine. This is met by the development of a hierarchy of Joint Warfare Publications (JWPs).

Interim Joint Warfare Publications (IJWPs) are published as necessary to meet those occasions when a particular aspect of joint doctrine needs to be agreed, usually in a foreshortened timescale, either in association with a planned exercise or operation, or to enable another aspect of doctrinal work to be developed. This will often occur when a more comprehensive 'parent' publication is under development, but normally well in advance of its planned publication.

The Joint Doctrine Development Process and associated hierarchy of JWPs is explained in JS DCI 91/2003.

RECORD OF AMENDMENTS

Amendment No	Date of Insertion	Initials

CHAPTER 1 – ASPECTS OF AIR OPERATIONS DOCTRINE

SECTION I – INTRODUCTION

101. **Guidance**. NATO is actively seeking to develop a more expeditionary posture in its air operations doctrine in line with the new strategic environment. AJP-3.3 '*Joint Air and Space Operations Doctrine*' (Change 1- May 02) already reflects this to some extent, however it requires further development and is still intended primarily for Allied air forces within NATO's static command structure. Nevertheless, NATO doctrine now allows for the conduct of Combined Joint Task Force (CJTF) operations within, or outside the NATO Area of Responsibility (AOR). Thus, the doctrine could be applied, where necessary, for operations under the umbrella of the European Union (EU) or a coalition of NATO and non-NATO nations within the framework of a CJTF. Until full development of AJP-3.3 and its subordinate Allied Publications is achieved, the doctrine described in this interim publication is intended to influence thinking and provide guidance to UK commanders and their staffs on the planning and execution of such air operations.

102. **Scope of Allied and National Doctrine**. AJP-3.3 addresses the fundamental factors that influence the employment of air and space power and the key aspects of the associated Command and Control (C2) mechanisms. It explains the stages in the development of air and space operations, their subsequent execution from a command perspective and broadly covers the doctrine associated with each of the roles of air and space power in Article 5 and Non-Article 5 Crisis Response Operations (NA5CRO). Its primary concern is with the employment of those air forces assigned to the Air Component Commander (ACC);[1] however, the principles espoused concerning the employment of air power are equally applicable to the air assets assigned to any Component Commander (CC).[2] The UK adheres to this doctrine, nevertheless IJWP 3-30 '*Joint Air Operations*' embellishes some of these aspects from a UK perspective, particularly with regard to expeditionary air operations in a coalition context, Strategic Air Operations, Air Manoeuvre Operations and Combat Support Air Operations.

103. **Command of the Air Component**. The considerations discussed in this publication will apply in UK deployed operations even if the JTFC should elect not to appoint a JFACC and direct smaller scale air operations from the Joint Task Force Headquarters (JTFHQ). The Joint Force air C2 structure in theatre is discussed further

[1] Within this publication, 'ACC' is a generic term. In the NATO static command structure the ACC is the Regional Air Commander (RAC) whilst for CJTF operations the ACC may be the RAC or a designated Combined Joint Force Air Component Commander (CJFACC). For UK or UK-led operations, the UK JFACHQ would be deployed, iaw JFACHQ CONOPS.

[2] 'Force Components' under a Component Commander refer to the major force elements of the NATO static command structure or to the components of a CJTF.

in Chapter 3, but the capabilities and considerations associated with the employment of air power argue strongly for the use of a JFACC in all but the most benign scenarios.

104. **Air Power**. Air Power is defined as:

> '*Air Power is the ability to project military force in air or space by or from a platform or missile operating above the surface of the earth. Air platforms are defined as any aircraft, helicopter or unmanned vehicle*'.

The purpose of air systems is to project military power. These systems generally include military employment of land-based and ship-borne Surface-to-Air Missile (SAM) systems, manned and unmanned aerial vehicles (UAV) and their weapon systems, enhanced by space facilities utilised in support of the application of military force. Air power is used to attain operational objectives or achieve strategic goals through joint or independent air operations.

105. **Component Air Assets**. Component organic air assets are those assets recognised as being integral to the component warfighting capabilities, which may be offered to the JFACC for allocation in response to a request from the JFACC or at the direction of the JTFC.

SECTION II – EVOLVING NATURE OF AIR DOCTRINE

106. **Air Operations**. This publication is written to reflect current practice, however two issues have emerged from ongoing national conceptual development that are likely to have an impact on air operations in the future. These issues are the migration from the current 'platform-based' categorisation of air power to a 'capability-based' methodology, and further development of an Effects Based Approach to operations in general. The former is already undergoing study within the UK as part of the review of AP 3000 and the '*RAF Air Operations*' manual, and the latter is a fundamental aspect of the Joint Doctrine and Concept Centre's work on a future High Level Operational Concept (HLOC). HLOC studies have already highlighted that an Effects Based Approach to joint operations will require changes to the way joint effects are planned and executed, with consequent implications for existing processes such as Joint Guidance, Apportionment and Targeting (JGAT) and tasking methods.

107. **Air Doctrine and Training**. The human factor is the most decisive in conflict. To prevail in war, a force must comprise a wide-ranging group of skilled professional personnel whose full development requires a balance of training, military education, experience and motivation. Training is the basis of operational preparedness. The practical aspects of the relevant level of doctrine provide the framework for the training required to develop the professional capabilities needed for success.

Therefore, air forces must practise and train as they plan to fight, and their combat ready status must reflect, as far as it is achievable, exposure in training to the chaos, stress, intensity, tempo, unpredictability and violence of war. Such training must encompass newly-acquired systems and equipment, or those fielded at short notice through Urgent Operational Requirement (UOR) action.[3] To this end training and evaluation must be conducted at all levels of the air component, including the most senior command level. Exercises must be rigorously analysed and evaluated by specialist staff in order to validate or amend the doctrine and to feed back improvements in organisation, training and equipment.

[3] UAVs, Weapon Locating Radars and specialist munitions are examples of this from OP TELIC.

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CHAPTER 2 – EMPLOYMENT OF AIR POWER

SECTION I – CONSIDERATIONS FOR THE USE OF AIR POWER

201. **Capabilities of Air Power**. Air power, the roles and missions of which are represented at Annex 2A, is an essential element in virtually all military operations. It can be employed over the full spectrum of military operations, at any level, in support of national or multinational objectives. It can be co-ordinated with land, maritime and space operations, or it may be employed independently. Air power has the ability to engage an aggressor actively through precision engagement or passively without applying firepower; for example, the overt presence of air power, such as in air surveillance, reconnaissance or air patrolling, may coerce an adversary to the point where he modifies his behaviour and the objective is achieved. The capability of air power is greatly enhanced through the use of space facilities.

202. **Communications and Information Systems**. Timely and efficient communications are essential to co-ordinate and execute air operations effectively. Communications and Information Systems (CIS) must be reliable, secure, survivable and capable of operating in adverse climatic, geographic and operational environments. The CIS architecture for air operations must be rapidly deployable and linked to the Permanent Joint Headquarters (PJHQ), Joint Task Force Headquarters (JTFHQ) and each of the Component HQs by suitable communications bearers and be compatible with associated joint, single-service and Allied CIS.[1] In the early stages of a crisis, elements of the Joint Force Air Component Headquarters (JFACHQ) may be required to deploy early into theatre at short notice with their own independent CIS capability.[2]

203. **Lines of Communication and Forward Basing**. Air power can be applied over large distances, thereby crossing the sovereign airspace of many countries (subject to diplomatic clearance). Air refuelling can reduce dependence upon staging and forward base requirements by air assets, as could the timely deployment of an aircraft carrier. Nevertheless, in order to apply large-scale air power in a responsive and visible manner, the availability of secure staging facilities sufficiently close to the theatre of operations, over-flight rights, flexible use of airspace and the necessary support must be considered. An aircraft carrier may be able to secure forward-basing in theatre for limited air power over extended periods with the potential to exploit its tactical freedom and ability to poise.

204. **Defence and Protection**. Air assets are of ‘high value’ in both monetary and operational terms, are likely to be scarce and may be vulnerable, particularly when on

[1] See Chapter 3 for details of the JFACHQ CIS requirements.
[2] The JFACHQ Air Liaison and Reconnaissance Team (ALRT). This includes advanced deployment of ALRT/JFACHQ elements afloat.

the ground. Survivability and sustainability are therefore important considerations in preserving their warfighting potential against the prevailing threat in peace, crisis and conflict in both conventional and Nuclear, Biological and Chemical (NBC) warfare environments. The lack of a sufficiently protective infrastructure for Deployment Operating Bases[3] (DOBs) could mean that surviving an NBC attack would, almost certainly, preclude continued air operations until a safe environment was subsequently achieved at the DOB. The assets needed to defend and protect air assets on the ground and at sea are essential to the successful exploitation of air power, however defence and protection requirements may be reduced if aircraft are carrier-based. Such protection must not be considered in isolation, divorced from sound operational thought or logistics support. Adequate capabilities must also be maintained to provide effective protection of air assets during post-conflict periods.

SECTION II – PRINCIPLES OF WAR APPLIED TO AIR OPERATIONS

205. **British Defence Doctrine**. Although the Principles of War are spelt out in JWP 0-01 '*British Defence Doctrine*', they are interpreted here in an air power context to emphasise their importance as the most fundamental form of military doctrine, representing the basic guiding elements of warfare. The Principles are not separate and distinctive items from which a commander selects a few when employing his forces, nor do they represent a checklist. They are inter-related and interacting elements designed to provide a better understanding of warfare. It is essential for any student of air warfare not only to understand them, but also to be completely familiar with their application in the context of air operations.

206. **Selection and Maintenance of the Aim**. The JFACC selects his aim during the Air Estimate process in the knowledge of the military strategic objectives and the direction from the Joint Task Force Commander (JTFC) based on the campaign objectives.[4] He will articulate and promulgate his objectives through the Joint Air Operations Plan (JAOP) and during the operation the daily prioritisation of objectives and allocation of weight of effort will be laid out in the Air Operations Directive (AOD).[5] In that way the JFACC's objectives are a critical link in the strategy-to-task process. He revisits the Estimate and JAOP to ensure that the plan continues to achieve his aims as circumstances change. Carefully focused and highly visible JFACC objectives are the driver for the deduction of tactical decisive points and courses of action; they are critical to the apportionment and targeting processes. The aspiration at the outset is always a clear political aim but the complexity of Crisis

[3] Sometimes referred to as **Deployed** Operating Base.
[4] Refer to JWP 5-00 '*Joint Operations Planning*', due to be published in April 2004, for greater detail on the air input to the campaign planning process.
[5] See Chapter 5 for details of the air operational planning process and development and dissemination of the JAOP, AOD and ATO.

Response Operations (CRO) usually militates against clarity, placing a much greater emphasis on the articulation of the limits of constraint. The selection and maintenance of Rules of Engagement (ROE) can provide this.

207. **Maintenance of Morale**. Deployed and extended operations, such as CRO, pose major challenges for morale. Constraints may well prevent achieving 'success in battle' and, particularly in the absence of a clear political aim, the JFACC must identify and exploit the most effective 'stimulant'.

208. **Security**. Deployed operations often create additional Force Protection problems, including the constraints applied by the Host Nation. Continued functioning of the civilian air space infrastructure will place limits on control of the air. The increased emphasis on non-standard, deployed operations brings new dimensions of security considerations for the JFACC. These new challenges demand a rigorous approach to control of the air, a fundamental concern of the JFACC, and are reflected in the added weight given to overall Force Protection measures. Increasing reliance on secure CIS is a particular concern. Other Operations bring their own peculiar challenges involving poorly-defined boundaries, bare and austere base operations, the increasing use of Special Forces and stand-off weapons.

209. **Surprise**. The JFACC will rely heavily on Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) assets to provide the Operational Intelligence (OPINTEL) needed to surprise an opponent.[6] Even then, due to global media capability it is unlikely that he will be able to achieve surprise at the strategic or operational levels. He must therefore aim to surprise tactically by the speed and efficiency of his decision cycle. To enable this, effective employment of ISTAR assets will be required. A legacy of the largely pre-scripted Cold War has been a decline in the art of deception. The JFACC should encourage lateral thinking amongst his planning staffs to achieve surprise through deception.

210. **Offensive Action**. The extent to which the JFACC is able to seize the initiative through offensive action will be dictated by the constraints placed upon him, not least those politically driven through the ROE. The degree of initiative held fundamentally affects the decision cycle and hence the basic battle rhythm of a JFACHQ. If forced to be reactive, tasking procedures will need to be timely and flexible in order to enable rapid transition to offensive action.

211. **Concentration of Force**. The JFACC achieves concentration of force at the operational level by compiling the air apportionment recommendation for the JTFC. He is also heavily dependent on the timely collection, analysis, and fusion of relevant tactical information when deciding his priorities for concentration of force in day-to-day air operations. Similar focus for ISTAR assets and A2 staffs is achieved through

[6] Refer to JWP 2-00 '*Intelligence Support to Joint Operations*'.

the Collection, Co-ordination and Intelligence Requirements Management (CCIRM) process.

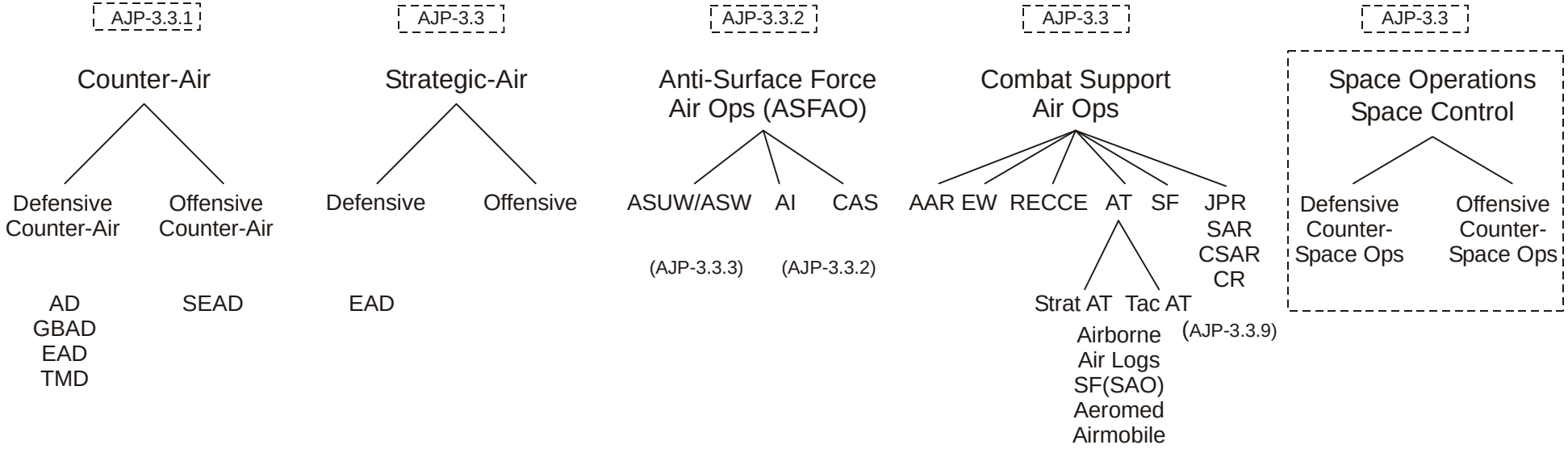
212. **Economy of Effort**. The importance to the JFACC of Combat Assessment (CA), which includes Battle Damage Assessment (BDA), in achieving economy of effort cannot be over-emphasised. It is key to the JFACC achieving the necessary balance of investment of effort towards meeting a task. Whilst acknowledging the difficulties involved in gaining timely and accurate CA, when such information becomes available it must have an immediate effect on the targeting and tasking processes.

213. **Flexibility**. A critical consideration for the JFACC in achieving the optimum degree of flexibility is the extent to which he delegates authority and control to subordinate formations, and which support arrangements for air tasking are established. The principle of centralised control and decentralised execution, as discussed later in this publication, produces a constantly changing dilemma for the JFACC – efficient use of scarce assets demands centralisation whilst flexibility usually requires decentralisation. Getting the balance in C2 arrangements right and providing mechanisms for their rapid adjustment is a critical part of the JFACC's operational art. The impermanence of air power has been reduced through the wider use of Air Refuelling, geostationary satellites and high-endurance UAVs. The constraints imposed by weather have also been significantly reduced through the application of technology, including the use of GPS for navigation and Precision Guided Munitions.

214. **Co-operation**. The Collective Training (CT) of forces from the commander downward is critical to producing the levels of co-operation necessary for operational effectiveness of HQ staffs and front-line units. Joint and multinational operations demand that particular skills are acquired and maintained; bilateral or multinational standing air elements such as the NATO AWACS Force or Combined Air Operations Centre staffs greatly assist this process, however opportunities for CT in these environments are scarce. The JFACC has, therefore, an important responsibility to ensure the CT objectives of his force, particularly on exercises, are focused on the optimum improvement in capability through co-operation and adherence to interoperability standards.

215. **Sustainability**. Logistic support is critical to the success of air operations, especially when operating from DOBs. It is vital, therefore, that the JFACC involves his logistic staff in the earliest stages of planning for deployed air operations – the initial air estimate, and continuously thereafter. In that way, the operational priorities will always directly drive those for sustainability. Offensive action to achieve initiative, for instance, may rely on surge rates of flying which must be matched by equivalent surge rates of sustainability

ANNEX 2A – ROLES & MISSIONS OF AIR POWER



Notes:

1. ‘Combat Support Air Ops’ equate to ‘Supporting Air Ops’ in NATO Doctrine.

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CHAPTER 3 – COMMAND AND CONTROL OF AIR OPERATIONS

SECTION I – INTRODUCTION

301. This chapter provides additional guidance on the UK approach towards the principles and procedures for Command and Control (C2) of air operations that are described more fully in AJP-3.3 '*Joint Air and Space Operations*', Chapter 3. It provides a UK view on the relationship between the Joint Task Force Commander[1] (JTFC) and the Joint Force Air Component Commander (JFACC) in a multinational context. However, its main purpose is to provide a broad overview of the UK Joint Force Air Component Headquarters (JFACHQ) C2 structure and functions, including the Joint Air Operations Centre (JAOC) and the Theatre Air C2 System (TACCS),[2] and to describe their integration with component air activities.

SECTION II – PRINCIPLES OF AIR COMMAND AND CONTROL

302. Unified action is essential for the effective use of air power; however, the inherent speed, reach and flexibility of air power may allow it to be exploited on diverse and multiple tasks simultaneously. To achieve the strength of unified air action, and to ensure that the capabilities of air power are used as the overall situation demands, the following key principles must be recognised:

a. **Unity of Command**. The unity of air effort is most likely to be achieved when command of the force air assets is exercised from the highest practicable level where the relative priorities of combined/joint demands on those assets can best be assessed. Only the JTFC is in a position to balance the changing and often conflicting requirements of a joint campaign, thus he should be the single focus for operational control of all the theatre air assets.

b. **Centralised Planning**. Flowing from this, centralised planning of the joint air effort is essential to ensure integrated air operations to meet the JTFC's overall intent and avoid mutual interference. Centralised planning of joint air operations is therefore a prerequisite of the wider joint fires co-ordination process. It will preclude air assets being exploited randomly by unco-ordinated users, tasked against impractical objectives or divided into small and ineffective packages that would inhibit flexibility and hinder rapid

[1] Not to be confused with the role of the NATO Joint Force Commander (JFC) referred to in AJP-3.3; this function equates to the UK Joint Commander (Jt Comd). JTFC, as used here, equates to the relevant NATO CJTF Commander; JTFC is therefore used throughout the publication.

[2] Air Defence and Airspace Control are important aspects of air C2 enacted by the JAOC, however they are only briefly covered in this publication; refer to JWP 3-63 '*Joint Air Defence*' (AJP-3.3.1) and JWP 3-34.1 '*Joint Airspace Control*' (AJP-3.3.5) for greater detail.

concentration of force. Thus the employment of limited air assets can be concentrated at the critical time and place to achieve decisive results, maximising joint synergy.

c. **Decentralised Execution**. A single commander cannot personally direct the detailed execution of air operations in a joint campaign. Thus decentralised execution is essential, and is accomplished by delegating the authority to plan and execute missions to subordinate commanders and aircrews. This approach ensures the tried-and-tested British approach to command is preserved. It is essential that the commanders with delegated authority are fully aware of their superior commander's and other component commander's operational objectives and intent, allowing them to act on their own initiative without weakening the cohesion of the campaign by taking divergent action. It is also necessary that commanders delegated with the necessary level of control have full access to relevant operational and tactical information to avoid confliction in the execution of air operations.

d. **Strategy-to-Task**. In order that scarce air assets are not wasted, the objective of every air task must be traceable upwards through the command chain and be shown to be related to the high level strategy; the objective of every air task must contribute directly to achieving previously defined military-strategic objectives.

SECTION III – JOINT TASK FORCE COMMANDER'S AIR COMMAND AND CONTROL CONSIDERATIONS

303. **Joint Force Air Component Commander**. The roles and responsibilities of a NATO Combined/Joint Force Air Component Commander and the structure for his Headquarters are covered in detail in AJP-3.3.7 '*Combined Joint Force Air Component Commander*'.[3] This section provides additional guidance to the JTFC and his staff on the roles of the UK JFACHQ for UK or UK-led operations. The Joint Commander will appoint the JFACC after consultation with the Front Line Commanders and the JTFC. The JFACC will normally be appointed from the service providing the preponderance of air assets for a campaign. There are a number of options available for fulfilling the JFACHQ role in a NATO context, however in UK national or UK-led coalition operations, the C/JFACC's capability to plan, task and control joint air operations will, in all but exceptional circumstances, be based on the UK JFACHQ. The JFACC holds Tactical Command (TACOM) of forces allotted to him by the JTFC. In considering C2 of multinational air operations, it should be noted that occasions may arise where the transfer of authority for certain national forces operating within a multinational joint force may be strictly limited. This may result in

[3] AJP-3.3.7 will be incorporated into AJP-3.3 in 2004, after which it will be removed from the Allied Joint Doctrine Hierarchy.

delegation of authority being limited solely to the granting of Tactical Control (TACON) to the JFACC or appropriate Component Commander (CC) over all, or some of a particular nation's air forces made available for tasking.

304. **Location of the Joint Force Air Component Commander**. During operations, circumstances may require the maritime and land CCs to be deployed with their forces, but this is unlikely to be the case for the JFACC. When acting as the senior component advisors to the JTFC, the CCs are involved in decision-making at the operational level. However, they conduct operations primarily at the tactical level of war. The JFACC functions at the operational level in his role as senior air advisor to the JTFC and TACOM authority for all air assets assigned to him. The JFACC's central involvement in the Guidance, Allocation and Targeting (GAT)[4] process for air operations and his ability to provide responsive forces in a crisis dictate that his optimum site is collocated with the JTFC. In the event that the JFACHQ is remotely located, the JFACC with his A5 Strategy Division may decide to collocate with the JTFC leaving the Joint Air Operations Centre (JAOC) and other HQ functions under the control of his Deputy. This arrangement ensures that the JFACC can be directly involved in the Joint Co-ordination Board.[5] The options for determining the location of the JFACHQ in a multinational context are discussed in AJP-3.3 however, unless the operational situation otherwise dictates, for UK national or UK-led coalition operations co-location of the JFACHQ with the JTFHQ is always assumed.[6]

305. **Relationship between Joint Task Force Commander and Joint Force Air Component Commander**. The JFACC will be designated, and his authority and responsibilities defined, in the JTFC's Campaign Plan. The JFACC will be assigned missions and receive mission-type orders, as will the other CCs. With receipt of a mission goes the authority to a particular CC to conduct operations in accordance with the JTFC's direction and guidance. However, in addition to his own component, the JFACC is responsible for the planning and subsequent execution of all air operations involving other component air assets that have been allotted to him by the JTFC. Such allotment decisions will be made by the JTFC, after consultation with his CCs, in response to the JFACC's air apportionment recommendations. Only the JTFC has the authority to re-assign a component's organic air assets to support the JFACC or

[4] UK doctrine defines JGAT as Joint Guidance, **Apportionment** and Targeting, the process being applicable to all effects, not just those in air operations. Apportionment is the responsibility of the JTFC, therefore in practice the JGAT process in this context focuses on tactical **allocation** of air assets rather than the apportionment carried out within the A5 strategy process.

[5] Referred to as the Joint Targeting and Co-ordination Board (JTCB) in NATO.

[6] This also greatly assists provision of a centralised air operations input to the joint fires co-ordination process enacted through the Joint Effects Meeting (JEM)/JCB, and generation of the JTFC's Joint Integrated Prioritised Target List (JIPTL).

another component, and air assets may be tasked directly by the JTFC or by the JFACC depending on the JTFC's apportionment decisions.[7]

306. **National Liaison**. All nations providing air assets should provide expert liaison staff. National liaison elements should consist of experienced air warfare specialists as appropriate, who assist in the integration of national air assets with joint air operations. They should co-ordinate and de-conflict national direct support air operations with multinational joint air operations.

SECTION IV – JOINT FORCE AIR COMPONENT

307. **Designation of Joint Force Air Component Commander**. There may be situations where the designation of a JFACC is not required. Typically, this would occur when a conflict or situation requires only a very limited scale air operation that is of limited duration, scope, and/or complexity. In cases where a JTFC does not designate a JFACC, the JTFC may elect to directly task joint force air assets.[8] If this option is exercised by the JTFC, the JTFC's staff will plan and co-ordinate air operations for his approval and control of execution.

308. **Appointment of the UK Joint Force Air Component Commander**. Although it is expected that in the majority of cases the JFACC will be an airman, the Joint Commander is not constrained by Service. In consultation with the JTFC, he will appoint as JFACC the officer who has the best capability, or most pressing need, to plan, task and control the joint air operation. This appointment will also take into account the Service that fields the preponderance of air assets in theatre. Because the required rank and experience of the JFACC is very much dictated by the size, nature and span of an operation, it would be very difficult to pre-select JFACCs for every eventuality. Consequently, no permanently-assigned JFACC is appointed in peacetime. Notwithstanding this, in recognition of their likelihood to carry out JFACC tasks, expected sources of potential JFACCs are:

a. RAF - HQ Strike Command and HQs 1/2/3 Groups.

b. RN - Commander UK Maritime Force and CVS Commanding Officers.

c. Army - Joint Helicopter Command and 16 Air Assault Brigade.

309. **Joint Force Air Component Commander's Responsibilities**. The responsibilities of the JFACC normally include:

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[7] For co-ordination and de-confliction purposes it is essential that force component organic air assets appear on the Air Tasking Order (ATO) in as much detail as possible and that their airspace requirements are included in the Airspace Control Order (ACO).

[8] Control and tasking of certain specialist air and/or space-based assets may invariably be retained at the military strategic or operational levels.

a. Developing a Joint Air Operations Plan from the Air Estimate to best support joint force objectives as assigned by the JTFC or higher authority.

b. Recommending to the JTFC apportionment of the joint air effort, after consulting with other CCs through their respective liaison elements, officers or cells.

c. Requesting through his command chain any required changes to the extant ROE profile.

d. Providing centralised direction for the allocation and tasking of air and other force contributions made available according to the JTFC's air apportionment.

e. Controlling execution of joint air operations as specified by the JTFC, to include making timely adjustments to air targeting and air tasking of the contributions made available.

f. Co-ordinating joint air operations with operations of other CCs and assets assigned to or supporting the JTFC.

g. Evaluating the results of joint air operations.

h. Performing the duties of the Airspace Control Authority (ACA).

i. Performing the duties of the Air Defence Commander (ADC).

j. Functioning as the Supported Commander for:

(1) Counter-air Operations.

(2) Strategic Air Operations.

(3) Airborne Reconnaissance and Surveillance (could also be conducted as a supporting commander).

(4) The JTFC's overall Air Interdiction effort.

k. Functioning as a Supporting Commander, as directed by the JTFC, for specific land and maritime Anti-surface Force Air Operations.

l. Directing and managing the first and second line elements of logistics support for air assets and force elements allotted to him.[9]

[9] This is an entirely new function for the JFACC which has been recognised at all levels.

310. **Role of the Joint Force Air Component Headquarters Staff**. The primary role of the JFACHQ staff is to support the JFACC in the prosecution of joint air operations. No matter what his background, when nominated, the JFACC will be dependent on an expert core JFACHQ staff and infrastructure immediately available to conduct the myriad of functions associated with the management of an air operation. This staff support can be categorised under 2 headings:

a. **Joint Air Operations Management**. This concerns the planning, tasking and control of the joint air operation along with administration of the associated air aspects of the campaign planning process. A significant element of this function will be Integrated Battlespace Management,[10] under the JAOC Director of Operations. The air environment is but one element of the battlespace, however its use and manipulation is a critical element of the overall Integrated Battlespace Management function. The JAOC's role includes implementing airspace co-ordination, air defence C2 and tactical data link management whilst contributing to the co-ordination of ISTAR activities and joint fires co-ordination.[11] Whilst it is not exclusive to air operations, Integrated Mission Support (IMS) is an increasingly important aspect of joint air operations management.[12]

b. **Support Functions**. This concerns JFACHQ support to facilitate the A1, A4, A6, A8 and A9 functions.

311. **Joint Force Air Component Commander's Representatives**. The JFACC will, even when the JFACHQ is collocated with the JTFHQ, appoint a Liaison Officer (LO) to the JTFC. To be of value, this LO must have an in-depth understanding of the air component and its mission, and have the trust of the JFACC. The JFACC should have personal knowledge of, and full confidence in, the officers chosen thus ensuring that they have the necessary knowledge and authority to properly represent him. Without a high standard of representation, the high-level operational transparency essential to the component system will not be achieved. Such considerations are equally important in the choice of leaders of the Air Operations Co-ordination Centres (AOCCs), and of any other LOs the JFACC may decide to deploy, which are described in Section V below.

[10] The Battlespace consists of Land, Sea (including underwater environment), Air (including space environment), the Electromagnetic Spectrum (EMS), Cyberspace and Time.
[11] The JTFHQ Battlespace Management Group (BMG) is responsible for co-ordinating the allocation of battlespace responsibilities, however Airspace Co-ordination responsibilities are discharged by the Joint Airspace Co-ordination Cell (JACC), which is collocated with the CC to whom the JTFC has delegated Airspace Co-ordination Authority (ACA) - usually the JFACC. The routine management of battlespace is co-ordinated by an A3 (Battlespace) representative who is usually located within the JFACHQ. If a JFACHQ is not involved in a particular operation, this function may be subsumed within another component HQ, augmented by Battlespace Management specialists if required.
[12] Refer to IJWP 3-70 '*Integrated Mission Support*', to be published in 2004.

SECTION V – STRUCTURE AND COMPOSITION OF THE JOINT FORCE AIR COMPONENT HEADQUARTERS

312. **Joint Force Air Component Headquarters Core Structure**. The JFACHQ is structured into 5 functional Divisions; Strategy, Intelligence, Combat Plans, Combat Operations and Support. These functional elements form the basis of the deployed JFACHQ; Combat Plans, Combat Operations and Intelligence are generically referred to as the Joint Air Operations Centre (JAOC) which carries out the short-term planning, tasking and management of the air campaign assisted by elements of the Support Division. The Strategy Division and the remaining command elements, including the GAT Cell and the Applied and Targeting Intelligence elements, form the JFACC's command team that conducts the campaign planning and management function.[13] In addition to these Divisions, co-ordination and Liaison Elements from other components complete the JFACHQ structure.[14]

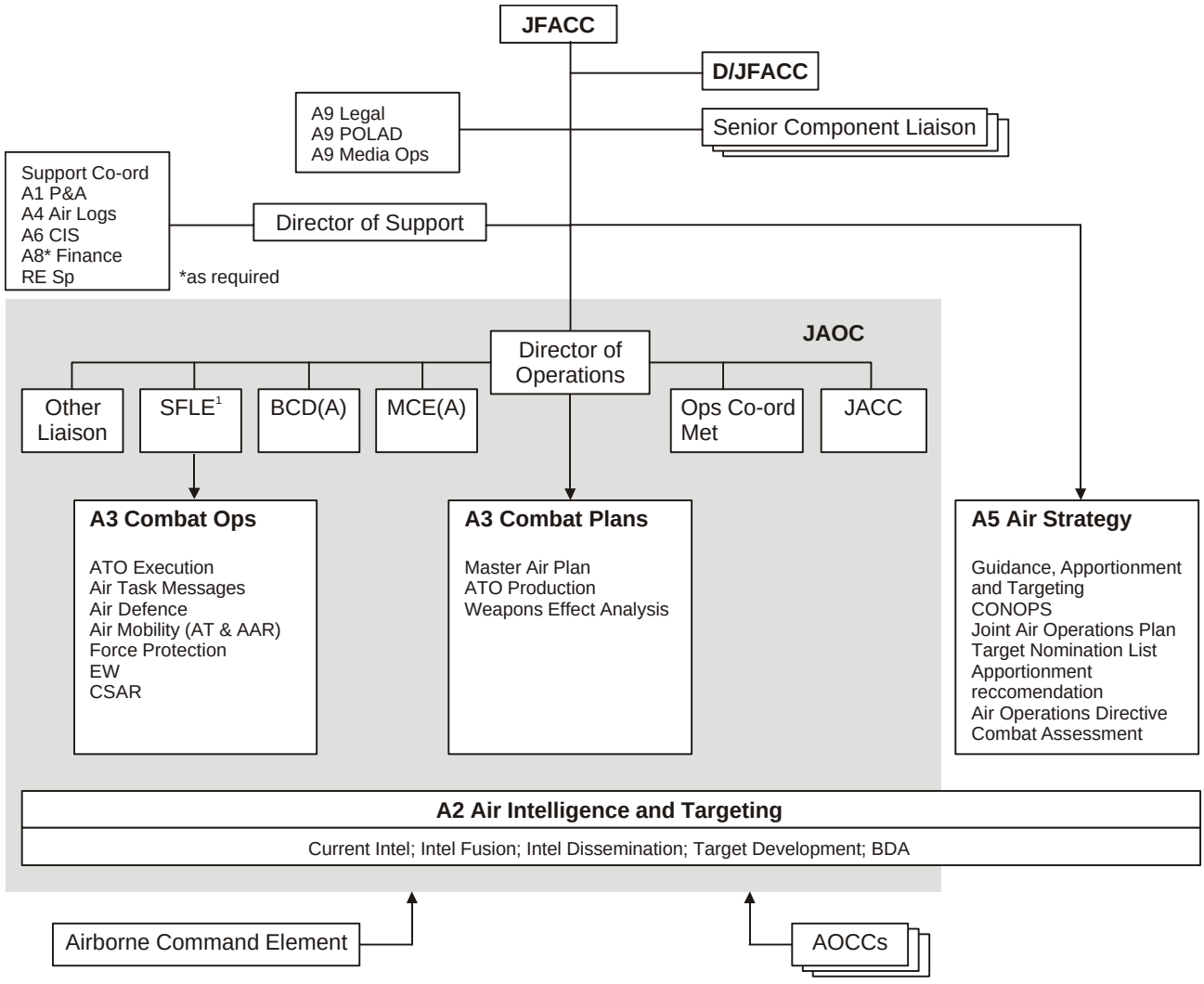
313. **The Joint Air Operations Centre**. The JAOC is the principal deployed air operations centre from which air operations are directed, monitored and controlled. It is structured to operate as a fully integrated facility within the JFACHQ and is staffed to fulfil all of the JFACC's command, control and co-ordination responsibilities. However, to reduce vulnerability in-theatre, or if HNS does not exist, a deployed or forward JAOC may be reduced to essential elements, complemented by a rear operations support centre located out of theatre. Equally, maritime forces may well be able to support the JAOC functions afloat. JFACHQ organisations may differ based on the specific mission requirements and the scope and scale of operations. However, the two functions that should be common to all JAOCs are Combat Plans and Combat Operations under the Director of Operations. Short-term planning of joint air operations is the responsibility of Combat Plans, which includes the responsibility for building the daily Air Tasking Order (ATO) based on the Joint Air Operations Plan and Air Operations Directive (AOD). Execution of the ATO is carried out by Combat Operations. This organisation closely follows the conduct of current joint air operations, shifting missions from their scheduled times or targets and making other adjustments as the situation requires. An outline organisation of a JFACHQ showing the JAOC elements in more detail is at Figure 3.1 below. Not all functions will necessarily be required for all operations or by all nations.

314. **Joint Force Air Component Headquarters Command Functions**. The combined staffs within the JAOC also support the JFACC's additional functions, including acting as ADC, ACA, Tactical Data Link Co-ordinating Authority (TDLCA),[15] and, where applicable, directing the Joint Rescue Co-ordination Centre

[13] See Chapter 5 for more details.
[14] See Section VI.
[15] Data link management and co-ordination is a major consideration in air operations, however the TDLCA's function should also embrace data link co-ordination with all other environments. See JDP 2/01 '*Real-time Exchange of Tactical Data*' and JWP 6-00 '*CIS Support to Joint Operations*' for details.

(JRCC).[16] Referring to Figure 3.1, the A2 staff will co-ordinate closely with the other JAOC staffs on Guidance, Allocation and Targeting (GAT), Air Strategy, as well as Combat Assessment (CA), including Battle Damage Assessment (BDA), within the operational planning timeframe of 0-72 hours. Moreover, the A2 staff would be required to provide intelligence support to the A5 Strategy staff charged with planning the air operation 3-5 days ahead and beyond. The JAOC will also be closely involved with the JTFHQ J2 staff, Battlespace Management Group and Joint Effects Meeting (JEM)[17]. Each of the Command and JAOC staff elements relies on the expertise from the other embedded Inter-component Co-ordination and Liaison (ICCL) elements to co-ordinate Air Requests and provide expert advice on their own component capabilities (these ICCL elements consist of the Battlefield Co-ordination Detachment (Air) (BCD(A)), Maritime Co-ordination Element (Air) (MCE(A)), Special Forces Liaison Element (SFLE) and Air Movements Liaison staff in the AT Cell of the JAOC). The JAOC will also liaise closely with the Tactical Air Control Centre (TACC) to maintain an up-to-date picture of current air operations and co-ordinate the myriad of Integrated Battlespace Management tasks.

[16] Refer to JWP 3-66 '*Joint Personnel Recovery*'.
[17] Previously known as Joint Fires Element (JFE).



Note:
1. Equates to US Special Ops Liaison Element (SOLE)

Figure 3.1 - JFACHQ Generic Structure and Functions

315. **Air Operations Co-ordination Centres**. To effect the close co-ordination and liaison required between the air component and the other components, AOCCs may be established on behalf of the JFACC within the organisation of each of the other components (e.g. AOCC(M) with the JFMC HQ, AOCC (L) with the JFLC HQ and AOCC (SF) with the JFSFC HQ). AOCCs are collocated with and responsive to the host CC, but are responsible to and commanded by the JFACC.

316. **Airborne Command Element**. The Airborne Command Element (ACE) is a small team of joint staff officers experienced in operations planning and execution, placed on an air platform to perform tactical command, control and co-ordination functions. For specific operations the ACE platform can be used by an ACE team to exercise the required level of command or control, delegated from either the JTFC or JFACC. The composition of the ACE team is flexible, dependent upon the mission requirements, but it is essential that the team is involved in the planning stages of an

operation in order that they are aware of the higher commander's intent, and the mission objectives and requirements. The E-3D can accommodate an ACE team of up to 3 personnel, but their effectiveness is currently limited by the availability of consoles, radio communications and CIS support. There is an aspiration to develop an ACE capability using other suitable component air platforms, such as the Sea King ASaC Mk7.

317. **Joint Force Air Component Headquarters Communications and Information Systems Resources**. The JFACHQ's CIS architecture is based on RAFCCIS. This provides a deployable 52-station, networked air planning and tasking system that interacts with the RAF operational architecture, providing limited gateways to JOCS, component CCIS systems and the Defence Information Infrastructure. RAFCCIS also provides connectivity with individual Deployment Operating Bases[18] and, where necessary, with other units such as HQSTC, the Defence EW Centre for EW and/or the AWC or other agencies for IMS functions. The embedded air C2 application in RAFCCIS consists of NATO's Interim CAOC Capability (ICC) planning and ATO production tool.

318. **Joint Force Headquarters (Afloat)**. Deployment of the JFACHQ in an afloat capacity creates a significant CIS challenge. Primarily, the JFACHQ will use the CIS provided by the JFHQ (Afloat) C2 architecture fitted in the relevant naval unit, however there will also be a requirement to deploy a limited amount of specialist JFACHQ CIS. This is mainly for ICC functionality and ATO production, therefore connectivity for RAFCCIS with the onboard CIS infrastructure is fundamental to successful JFACHQ (Afloat) operations.

319. **Multinational Communications and Information Systems Considerations**. In NATO or UK-led operations ATO production and dissemination is based on ICC, however for US-led coalition operations the Theatre Battle Management Core System (TBMCS) is necessary. These 2 systems are currently incompatible,[19] therefore the information exchange requirement for each operational scenario must be made clear, particularly for ATO dissemination. UK JFACHQ personnel have become familiar with TBMCS through operational experience alongside US forces, therefore until seamless functionality for both systems is provided through RAFCCIS, interoperability within a US-led JFACHQ is achieved by embedding UK JFACHQ personnel directly into the deployed HQ organisation using TBMCS terminal equipment. In a multinational JFACHQ, the limitations imposed by differing national CIS capabilities may require an ATO 'dissemination matrix' to be drawn up to facilitate ATO distribution. Furthermore, foreign disclosure limitations may be implemented by some nations, and this may need to be taken into consideration in

[18] Sometimes referred to as **Deployed** Operating Base.
[19] Although the CIS hardware is incompatible, both systems implement the standardised ATO message (APP-11).

setting up the CIS architecture and providing access to information within the JFACHQ.

SECTION VI – INTEGRATION OF COMPONENT AIR OPERATIONS

320. **Provision of Component Air Support**. Component air support can be integrated autonomously into joint operations, however it is more likely that certain component air assets will be tasked directly by the appropriate TACOM authority for joint missions such as Close Air Support (CAS) and Joint Air Attack Team (JAAT)[20] or maritime air defence/attack support operations.[21] In the case of SF air operations, it is important that the C2 structure for SF air assets is clarified at an early stage of the operation. Direct tasking is becoming predominant in joint operations, where certain missions lend themselves to one type of support (e.g. JAAT operations). The dynamic tasking and tactical control of component air assets that is therefore needed is provided by the flexible use of the 3 types of air support: Direct Support, Associated Support and Area Air Operations. These enable the Establishing Authority to clarify the degree of support being provided, and the tactical C2 arrangements thereby implied, when one unit or force provides air support to another:

a. **Direct Support**. Direct Support (DS) air operations are those where air assets are prioritised and assigned by the JTFC, under joint procedures, to the support or protection of a particular unit/force, or to the conduct of a specific mission. The supporting unit or force joins and fully integrates with the supported unit or force for a specified period in prosecution of the same mission, under the supported unit/force's TACOM or TACON. Whilst on DS, aircraft may need to communicate with a variety of agencies, but will mainly work under the tactical control of a designated Aircraft Control Unit (ACU) or Tactical Air Control Party (TACP) from within the supported unit or force.[22]

b. **Associated Support**. Associated Support (AS) air operations are those where air assets provide a degree of assistance to another unit or force that is under independent tactical command, neither being subordinate to the other. The supporting unit/force does not fully integrate with the supported unit/force, however both are likely to prosecute the same mission. Unless ordered otherwise by the Establishing Authority, the commanders of the two units or forces will co-ordinate their tactical operations and exchange tactical information. TACOM/TACON of the units/forces concerned remains with the

[20] For CAS/JAAT tasking procedures refer to AJP-3.3.2 (ATP-27) '*Air Interdiction & CAS*'. CAS is discussed in more detail in Chapter 4.
[21] For maritime ASFAO tasking procedures refer to AJP-3.3.3 '*Air/Maritime Co-ordination*'.
[22] Examples of DS air operations include CAS/JAAT missions, Surveillance and/or Attack aircraft being integrated into a naval TF/TG, RN support helos being assigned to a land commander (e.g. N. Ireland, Mozambique) or tactical assignment of ASTOR or WATCHKEEPER to a specific Component Commander.

relevant component authority who co-ordinates tasking and movement of any assets in response to the Supported Commander's requirements; this may involve the transfer of TACON for limited periods if the situation demands. Should a higher priority or alternative tasking requirement for a particular asset(s) arise during an AS mission, the designated Establishing Authority may consult with the Supported Commander to agree re-tasking of that particular asset(s) if the current situation allows.[23]

c. **Area Operations**. Area air operations are those air operations conducted in a geographic area, the tasking of which is not directly related to the support or protection of a specific force or unit. The supporting unit/force commander has discretion how best to provide support if requested. Area operations differ from DS and AS in that the missions of the respective units/forces may be different. Close co-ordination and liaison are fundamental prerequisites for Area Operations to eliminate mutual interference and enhance efficient use of resources. TACOM/TACON of units/forces is likely to be retained throughout by the relevant component authority.[24]

321. **Application of Air Support**. The 3 types of air support are used to refine the Supported/Supporting relationship established between components by indicating the level of support required from a Supporting Commander's assets for a particular mission or task. They are a useful indicator of the different levels of TACOM/TACON that are likely to be required for each level of support provided, and also facilitate multiple tasking of assets within a particular mission. [25] In all cases, the level of support is derived from the original Air Request.

322. **Air Manoeuvre Operations**. Air Manoeuvre (AM) operations are those 'primarily within the land scheme of manoeuvre, seeking advantage by the exploitation of the third dimension by combined arms forces centred around rotary-wing aircraft, within a joint framework'. AM operations may support other components, and are often likely to require specific fixed-wing AT and/or Support Helicopter (SH) support by the JFACC, but whether supporting air, maritime or land objectives they will need to be integrated with JFAC operations to be fully effective. Attack Helicopter (AH) operations are particularly complex. Their reach, endurance, firepower and surveillance capabilities will bring a new dimension to the land battle, with major ramifications for joint air operations.

[23] Examples of AS air operations include support provided by MPA or AD fighters to a naval TF/TG or AS provided by WATCHKEEPER or ASTOR to a particular Component Commander.

[24] Area Operations may apply in many air operations scenarios, however it is particularly pertinent for surveillance operations where a particular air asset may be in a position to provide surveillance information over a wide area to a number of units/forces, each conducting different missions.

[25] For example provision of a dedicated period of DS by a particular air asset to complete a specific task whilst that asset is also tasked on a concurrent AS mission of a longer duration. This scenario is often used for tasking of MPA, Tanker or AD fighters in support of a maritime commander, however it also has utility for tasking of other types of combat or combat support air assets in support situations to other components.

323. **Air-Land Co-ordination**. Air-Land co-ordination and liaison is achieved through the established ICCL organisation. Such co-ordination and liaison is essential if the conduct and resultant effects of component air operations are to be synchronised. For land operations this is achieved through the Battlefield Co-ordination Detachment (Air) (BCD(A)) and Air Operations Co-ordination Centre (Land) (AOCC(L)); for Special Forces operations the equivalent functions are fulfilled by the Special Forces Liaison Element (SFLE) and AOCC (SF). The BCD(A) represents the Joint Force Land Component Commander (JFLCC) within the JFACHQ, whilst the AOCC(L) correspondingly represents the JFACC within the JFLCHQ, therefore these elements must carry the authority of their parent CCs. Each ICCL element is functionally subordinate to its JAOC Director, and responsive to its host CC. However, these ICCL elements are not decision-making bodies. They represent their parent CC and decisions are passed back to parent HQs where necessary. Although the roles of these elements are similar they each have a specific role to play and as such cannot substitute for each other, however, rapport and dialogue between the two is essential. In the stress of and the rapid exchanges of information between HQs on operations, the teams must not take on each other's roles or short-circuit the command chain. Their relationship to each other and their respective HQs must be clearly understood, and they should have matched readiness states, CIS facilities and SOPs with the HQ to which they are assigned, and with each other.

324. **Battlefield Co-ordination Detachment (Air)**. The principal role of the BCD(A) is to ensure that the JFLCC's intent is fully represented to the JFACC. Within the planning cycle, the BCD(A) will input to the Strategy and GAT processes the JFLCC's concept of operations, plans, scheme of manoeuvre, intentions, target lists and requirements for air support. The BCD(A) will assist with integrating the JFLCC's participation in joint air operations and will co-ordinate/deconflict Direct and Associated Support air operations with the Divisional Air Support Cell. The BCD(A)'s primary functions are:

a. Advise on the capabilities and limitations of JFLC forces and how they could assist the JFAC.

b. Co-ordinate information for joint operations to ensure optimum use of resources, to minimise friction and avoid fratricide.

c. Ensure all airspace requests for JFLCC-intended use of airspace are included in the ATO/ACO (i.e. helicopters, Multiple-launch Rocket Systems, UAVs, etc.). In many cases these inputs to the ATO will simply form a place-holder to ensure subsequent allocation of assets or confirmation of details.

d. Facilitate continuous two-way liaison between the JFLC G3 staff and the JFACHQ Strategy Division and JAOC staffs (co-location of the A5 Strategy Cell and JAOC staffs within the JFACHQ is highly desirable but

where this is not possible, dependent on the operational scenario, consideration may need to be given to 'splitting' BCD(A) personnel between these 2 staff locations).

325. **Air Operations Co-ordination Centre (Land)**. The AOCC(L) integrates the liaison and co-ordination functions related to air-land operations within the JFLCHQ. The AOCC(L)'s primary roles are to:

a. Advise on the capabilities and limitations of JFACC air assets to assist in the execution of the JFLCC's operations.

b. Facilitate JFACC requests for JFLCC support when the JFACC is the supported commander.

c. Co-ordinate JFACC airspace requests for joint air/land operations with the JFLCC's G3 staff when the JFLCC is the supported commander.

d. Action requests for Immediate CAS and managing Pre-planned CAS.

e. Co-ordinate JFLC AD operations with any Integrated Air Defence System (IADS) when the JFACC is nominated as the ADC.

f. Pass JFLC Airspace Control Messages to/from the JACC, as required.

g. Facilitate continuous two-way liaison between the JAOC and the JFLC staffs.

326. **Battlefield Co-ordination Detachment (Air) and Air Operations Co-ordination Centre (Land) Tasks**. Particular aspects of the complementary tasks fulfilled by the BCD(A) and AOCC(L) are highlighted below:

a. **Joint Force Land Component Commander Air CONOPS**. The BCD(A) acts as the JFLCC's conduit to the JFACC, ensuring an essential role for air power in his scheme of manoeuvre. This is a continuing and dynamic task, from the earliest stages of operational planning, through the cyclic development of the Air Strategy, AOD and Master Air Plan (MAP), to the eventual execution of each ATO. The AOCC(L) undertakes an equivalent function in the JFLC HQ.

b. **Apportionment and Targeting**. The AOCC(L) will advise the JFLCC on optimum use of air power to support his operations. This will particularly include best use of Air Interdiction to fix or strike the enemy, and the translation of this into target nominations. Whatever the targeting requirement, the BCD(A) must be fully aware of the significance and detail of the requested air effort so as to be in a position to influence apportionment decisions and

provide on-call or time sensitive targeting information when required. The BCD(A) must also ensure that the AOD and ATO continue to reflect the JFLC's needs.

c. **Close Air Support**. The AOCC(L) will advise on availability and best use of CAS assets and Combat Air Patrols, and will co-ordinate the use of Forward Air Controllers through the Air Liaison Officers (ALOs). The BCD(A) must be aware of needs, advise the JFAC HQ staff during the apportionment process and provide co-ordinating detail on JFLC force deployment and movements. A high degree of situational awareness of the land battle between the BCD(A) and AOCC(L) is a prerequisite for dynamic committal or flexing of CAS assets.[26]

d. **Air Defence and Air Co-ordination**. When the JFACC has been nominated as the ADC the BCD(A) will need to provide details on the requirements and capabilities of the JFLC's Ground Based Air Defence (GBAD) assets. This will include integrating GBAD into the joint AD plan and ensuring that the JFLCC's AD priorities continue to be met. Hitherto, the JFLC has received friendly and enemy air information, Weapon Restrictions and air raid warnings only via the AOCC(L). However, land forces now have a deployable, vehicle-borne Link 16 capability at their disposal provided by the Recognised Air Picture (RAP) Troops within 7 AD and 16 Air Assault Brigades, which enables the AD Cells within a Divisional or Brigade HQ to transmit and receive real-time tactical information and participate more proactively in the AD battle and in Air Co-ordination. The AD element of the BCD(A) will be intimately involved in this process.

e. **Air Transport Co-ordination**. When airborne or airmobile operations are planned, the BCD(A) will provide planning and co-ordinating information to the AT and Support Helicopter Force (SHF) Cells within the JAOC.

f. **Air Manoeuvre Co-ordination**. An Air Manoeuvre (AM) element is established within the BCD(A) to support Airborne, Airmobile, Air Assault[27] and Air Mechanised[28] operations. Through the AM element, the BCD(A) must be able to offer authoritative advice on the use and capabilities of AH. The relative roles of the AOCC(L) and BCD(A) for AM operations will be

[26] Maintenance of a Recognised Land Picture (RLP) will be a significant aspect of land component digitisation. In a similar vein to the existing definition of the Recognised **Maritime** Picture (RMP), a proposed definition for the Recognised **Land** Picture (RLP) is *The fullest achievable level of identification and tracking of all land surface contacts in the area of interest. The LRP is normally associated with the Recognised Air Picture (RAP) of the same area.*
[27] UK proposed definition is *An operation in which integrated helicopter, ground, CS and CSS forces manoeuvre and fight in and from the air and on and from the ground*. Air Assault Operations are discussed further in Chapter 4.
[28] UK proposed definition is *An operation in which an aviation force, heavy in armed/attack helicopters, conducts independent combat in and from the air.* Air Mechanised Operations are also discussed further in Chapter 4.

developed as experience of Air Assault and Air Mechanised operations is gained.

327. **Special Forces Liaison Element**. If the JTFC's campaign objectives are to be met, the closest integration and co-ordination of SF air operations will be essential. SF personnel from the Joint Force SF Component (JFSFC) are therefore embedded in the JAOC as the SF Liaison Element (SFLE). The SFLE chief, serving as the JFSFCC's representative to the JFACHQ, will place SF Liaison Officers throughout the JAOC as necessary. The SFLE chief will be in possession of his Terms of Reference issued by the JFSFCC, and be familiar with SF air platform capabilities and SOPs and have access to appropriate SF planning documents and handbooks. The SFLE will co-ordinate and deconflict all SF air and surface activities within the ATO and ACO, acknowledging the disparity between the planning cycles of the JFSFC HQ and JFAC HQ (typically the JFSFC HQ will operate a 96-hour planning cycle versus the 72-hour, or less, cycle of the JFAC HQ).

328. **Air Operations Co-ordination Centre (Special Forces)**. The size and shape of the JFSFC HQ will be tailored for each particular operation and does not comply with a rigid template. Due to the relatively small scale of SF operations, there is usually no requirement for a large, discrete AOCC(SF) within the JFSFC HQ. However, there will be an individual – usually with an SF background – who will fulfil the AOCC(SF) function.

329. **Air-Maritime Co-ordination**. Air-maritime co-ordination through established ICCL elements is equally essential if inter-component air operations are to be synchronised. Such liaison is achieved through the Maritime Co-ordination Element (Air) (MCE(A) and Air Operations Co-ordination Centre (Maritime) (AOCC(M)). The function of these liaison elements equates to and mirrors that of the BCD (A) and AOCC (L); rapport, dialogue and coherent SOPs between the two are essential. The MCE(A) represents the JFMCC within the JFAC HQ whilst the AOCC(M) represents the JFACC within the JFMC HQ. The AOCC(M) is functionally subordinate to its JAOC Director.

330. **Maritime Co-ordination Element (Air)**. The function of the MCE(A) is to serve as a conduit for direct co-ordination between the JFMCC and the JFACC. The JFMCC may have a sizeable carrier-based air capability, and the MCE(A) has the responsibility for presenting maritime component perspectives and considerations regarding the planning and execution of joint air operations. The MCE(A) will assist with integrating the JFMCC's participation in joint air operations and will co-ordinate/deconflict Direct and Associated Support air operations with the Maritime Air Operations Centre (MAOC). The principal functions of the MCE(A) are to:

a. Provide definitive guidance to the JFAC staffs on the JFMCC's intentions, order of battle, force operations, surveillance assets and weapon coverage, as well as amphibious planning and operations.

b. Monitor development of the recommended air apportionment to the JTFC to ensure it takes full account of the JFMCC's targeting requirements.

c. Facilitate and co-ordinate JFMCC requests for JFACC air support when the JFMCC is the supported commander.

d. Assist the JFAC staff with the management and tasking of maritime air assets apportioned to the JFACC, in particular MPA and organic AEW aircraft.

e. Co-ordinate JFMCC air task information for inclusion in the ATO for deconfliction and to minimise the risk of fratricide. (TLAM will be co-ordinated through the JTFHQ's Tomahawk Strike Co-ordinator). For amphibious operations this will include support and attack helicopters tasked in support of the Commander Amphibious Task Group/Commander Landing Force (COMATG/CLF).

f. Co-ordinate JFMCC airspace control requests for joint air/maritime operations with the JAOC staff when the JFACC is the supported commander.

g. Co-ordinate C2 resource configuration with JFMC assets and facilitate the management of real time Tactical Data Link planning and operations.

h. Facilitate AD/AAW integration and that of GBAD units, closely liaising with FAAWC and the Launch Area Co-ordinator (LAC) for TLAM strikes.

i. Facilitate continuous two-way liaison between the JFMC staffs and the JFACHQ Strategy Division and JAOC staffs (where these elements are not co-located, consideration may need to be given to 'splitting' MCE(A) personnel between these 2 staff locations).

331. **Air Operations Co-ordination Centre (Maritime)**. The AOCC(M) integrates the liaison and co-ordination functions related to theatre air/maritime operations. The principal roles of the AOCC(M) are to:

a. Advise the JFMCC on the capabilities and optimum employment of JFAC air assets, and assisting with the integration of air operations into the maritime component's scheme of manoeuvre.

b. Co-ordinate JFACC airspace requests for joint air/maritime operations with the JFMCC's N3/MAOC staff when the JFMCC is the supported commander.

c. Facilitate JFACC requests for JFMCC support when the JFACC is the supported commander.

d. Co-ordinate JFMC AD/AAW operations with any Integrated Air Defence System (IADS) when the JFACC is nominated as the ADC.

e. Pass JFMC Airspace Control Messages to/from the JACC via the MAOC, as required.

f. Facilitate continuous two-way liaison between the JAOC and the JFMC staffs.

332. **Air Operations Co-ordination Centre (Maritime) Tasks**. The following aspects of the tasks fulfilled by the AOCC(M) are highlighted:

a. **Air Support to Maritime Operations**. The AOCC(M) is the cell within the JFMCC HQ through which all immediate requests for JFAC air support to maritime operations are made. Hitherto, the procedures for requesting MPA and maritime attack support differed from other types as these missions were tasked separately by the relevant Maritime Headquarters (MHQ) controlling agency using the Maritime Tactical Messaging System (MTMS). However, these procedures are being unified within NATO to enable all types of maritime air support to be covered by the ATO. Requests for AD fighter support should also be co-ordinated through the AOCC(M), although authority to scramble allocated assets may be delegated as necessary by the ADC.

b. **Tactical Air Transport**. For maritime operations, the AOCC(M) will co-ordinate the planning and execution of non-organic fixed and rotary wing AT support for the JFMCC. SHF assets may be apportioned in support of 3rd Commando Brigade (3 Cdo Bde) or a Commando Group, and the SH C2 element would then almost certainly be collocated with the CLF, initially afloat and then subsequently ashore. Notwithstanding the consequent split location of the AOCC(M) and SH C2 cell, the AOCC(M) will still be required to co-ordinate SH operations that are supporting the JFMC with those of all other JTF assets.

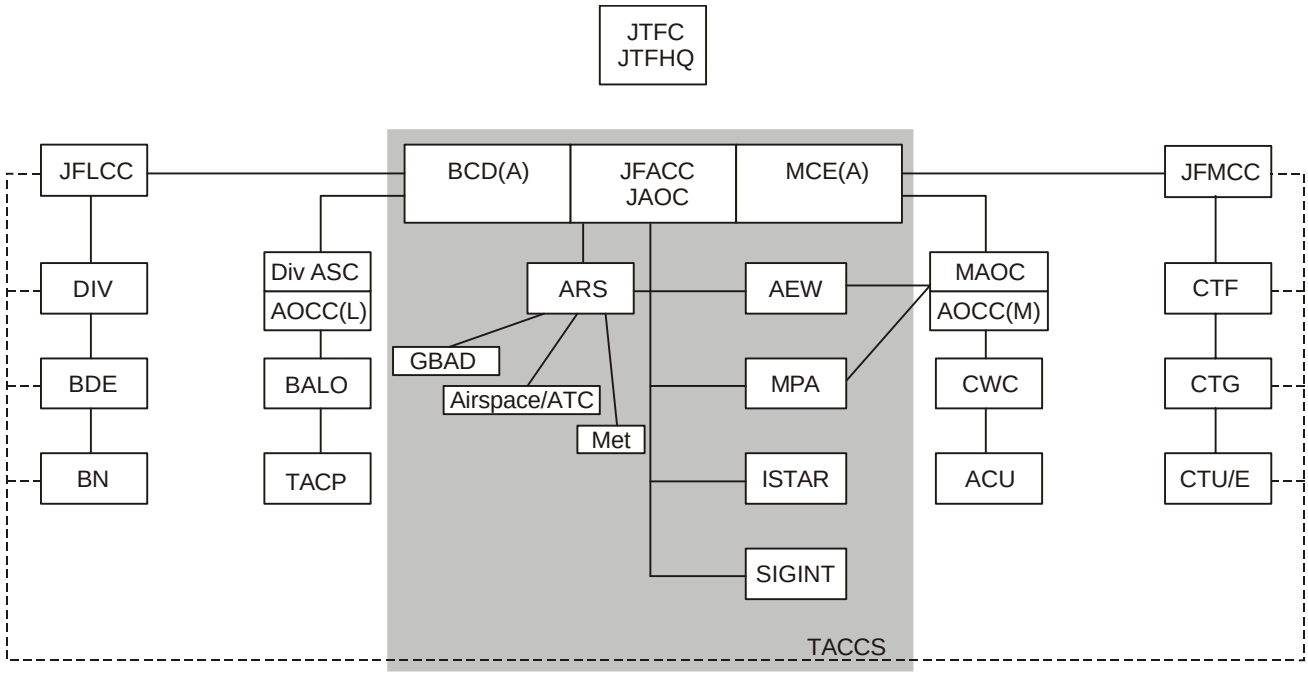


Figure 3.2 - Theatre Air Command and Control System

SECTION VII – THEATRE AIR COMMAND AND CONTROL SYSTEM

333. The UK Theatre Air Command and Control System (TACCS) is being established. It combines C2 and Intelligence, Surveillance, Target Acquisition and Reconnaissance (ISTAR) elements to create a multi-functional Air C2 deployed capability which can react with rapid, tailored action to assorted threats in varied environments. The TACCS is the JFACHQ's air C2 and CIS structure, centred on the JAOC, enabling the JFACC to exercise centralised C2 with decentralised execution for any form of operation. The elements making up the TACCS, and their relationship with the equivalent maritime and land structures, are illustrated at Figure 3.2.

334. **Aircraft Control Centre, Recognised Air Picture Production Centre and Sensor Fusion Post**. The **A**ircraft Control Centre, **R**ecognised Air Picture Production Centre and **S**ensor Fusion Post (ARS)[29] supports the tactical picture compilation and weapons employment tasks required to support the execution of air missions. The UK ARS capability is provided by the Tactical Air Control Centre (TACC) and the Pilot Deployable ARS (P-DARS) and its facilities are maintained and manned by No 1 ACC. Close liaison between the TACC and JAOC will be required and elements of the TACC staff are likely to deploy within the JFACHQ during operations. The ARS is also likely to act as the focus within the JAOC for the management and practical execution of tactical data link operations, and for tactical data link co-ordination with

[29] The ARS carries out similar functions to a CRC in the existing fixed NATO structure, however the Aircraft Control Centre element also provides a service to offensive aircraft (and can sustain alternative JAOC activities for short periods). ARS/DARS will be incorporated in the future NATO ACCS structure.

the equivalent maritime ARS elements, including Autonomous Link 11 (ALES) within 3 Cdo Bde, and the joint RAP Troop.[30]

335. **Combat Support Air Elements**. Combat Support air assets can provide both C2 and ISTAR capabilities for rapid deployment/employment of air assets close to an operations area and their integration with ground TACCS elements. Whether available for direct assignment, or acting in a supporting capacity, airborne elements such as the E-3D AWACS (including an ACE) and Sea King ASaCS Mk7, ASTOR and Nimrod R in addition to Nimrod MRA4 and UAVs can all provide an important input to the TACCS.

336. **Air Support Organisation**. The Air Support Organisation (ASO)[31] provides a C2 and co-ordinating function between the AOCC(L) and the TACCS for the direct and associated air support of land forces (particularly Close Air Support). When deployed, the ASO comprises a network of Ground Liaison Officers (GLOs) serving with RAF Squadrons, and of Air Liaison Officers (ALOs) serving with Army/RM formation HQs. GLOs and ALOs, though remaining responsible to their host formation/unit commander, are responsive to the BCD(A) and AOCC(L) respectively. ALOs manage the delivery of direct and associated air support to their host formation and, if employed in the JFLC HQ, are integrated into the AOCC(L). GLOs are responsive to the BCD(A) and, in addition to their other duties, ensure that the JFLCC's intent, scheme of manoeuvre and current situation are understood by JFAC elements that may provide support.

337. **Ground Defence and Ground Based Air Defence**. The complete co-ordination of Ground Defence and Ground Based Air Defence (GBAD) with the TACCS is essential to the safety and effectiveness of all air operations. The existing RM ALES equipment and introduction of the army's RAP Troop capability provide a real-time Link 11/16 connectivity for the first time between GBAD forces and the TACCS.

338. **Airspace Management**. In order to achieve the desired level of dynamic, real-time airspace management the TACCS must provide the Airspace Control Authority (likely to be vested in the JFACC) with timely and accurate information on the requirements and intentions of all airspace users.

[30] A vehicle-mounted, Link 16 transmit and receive capability has been fielded by the army to address the need for an integrated C4ISR architecture for GBAD forces. This capability is provided by the RAP Troop, part of 7 AD and 16 Air Assault Bdes. Within a brigade structure, SOPs have yet to be agreed regarding the location and delegated functions of the RAP Tp compared to the equivalent maritime and air C2 elements.

[31] The ASO also contributes to the development of wider air-land doctrine and policy by providing a 'user/expert' interface between HQ STC and HQ Land. It is also responsible for the training and standardisation of all UK Forward Air Controllers (FACs). Policy is being developed to fold AOCC(L) and BCD (A) into the ASO organisation.

339. **Tactical Air Traffic Control**. Tactical Air Traffic Control (ATC) must be an integrated component of the TACCS in order to facilitate the provision of the full range of ATC capabilities from local to theatre-wide operations.

340. **Mobile Meteorological Services**. A Mobile Meteorological Unit, usually positioned within the JAOC, will provide TACCS with on-site meteorological information and forecasting which may impact significantly on operations.

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CHAPTER 4 – JOINT AIR OPERATIONS

401. The UK generally endorses the categories of air power derived from AJP-3.3 '*Joint Air and Space Operations*', with the following differences in interpretation for the conduct of joint air operations.

SECTION I – STRATEGIC AIR OPERATIONS

402. **Air Operations for Strategic Effect**. Air operations for strategic effect can be either offensive or defensive in nature. It is the desired effect with regard to the strategic objective that determines the strategic nature of such operations and not the range, type of platform or weapon used. Strategic offensive air operations exploit the ability of air power to strike directly and with precision at the opponent's Centre of Gravity (CoG) and related Decisive Points (DPs) wherever they might be. These targets for strategic effect may include his leadership, command structure, organic essentials (such as main electrical power, gas and oil facilities), infrastructure and key nodes, or vital research and production facilities, and essential military capabilities. Such air operations are designed to have an overwhelming effect on the adversary directly to neutralize his war waging capability, or to achieve strategic paralysis. Strategic air operations can be used for political signalling purposes, to punish small-scale aggressions, or as an integrated element of a theatre campaign. Unfocused attacks are unlikely to yield decisive results; the targets must be carefully chosen to ensure that they have the required effect on the political or strategic CoG and hence achievement of the political objectives of the campaign. Strategic air operations - far more than Counter-air or Anti-Surface Force Air Operations - are likely to be shaped by political constraints and considerations. Consequently, precise selection of targets is fundamental to the success of a strategic air offensive.

403. **Strategic Attack**. Strategic attack will be a significant contributory factor to multiple lines of operation in the campaign. The achievement of strategic and operational objectives, DPs and the overcoming of CoGs are likely to be independent, but integrated, lines of operation in a joint campaign plan. Strategic attack by air would make a significant contribution to these objectives, along with other joint force capabilities, e.g. Information Operations and Special Forces (SF). Control of the air is needed if strategic attack operations are to be sustained, unless sufficient long-range stand-off attack weapons are available. However, it may be possible in certain circumstances to achieve a sufficiently favourable air situation, through use of 'stealth' technology or deception, though these may achieve only limited duration effects.

a. **Control and Co-ordination**. Normally, the Joint Force Air Component Commander (JFACC) is designated the supported commander for achieving objectives where strategic attack operations are the primary contributor. Recognising that the battlefield may be non-linear, the appropriate maritime or

land commander will, when required, positively control attacks conducted short of the Fire Support Co-ordination Line (FSCL). Attacks beyond the FSCL are co-ordinated with all affected commanders. All strategic offensive air operations will be co-ordinated by the JFACC and executed in accordance with the Air Tasking Order (ATO); this includes missile attacks.

b. **Weapon Systems**. Strategic offensive air attacks can be carried out by manned aircraft, by surface-to-surface or subsurface-to-surface missiles (cruise or ballistic) or by Unmanned Aerial Vehicles (UAVs). Essentially, these are complementary systems.

c. **Targeting**. The targets for strategic offensive air operations will be selected in direct support of the political strategic objectives. Typically, they will be related to Weapons of Mass Destruction (WMD), C3 or military-industrial infrastructure. A detailed analysis of target systems, to identify the critical nodes, is always required. Identification of these nodes and the employment of accurate weapon systems against them can allow the required effects to be achieved with the minimum effort and a subsequent reduction in the risk of collateral damage. The aim of strategic offensive air operations in a major conflict usually will be to attack sufficient targets simultaneously to achieve strategic paralysis overall. In a small-scale conflict the aim usually will be to select discrete targets for their political significance or coercive effect, though proportionality will be a particularly important consideration in such conflicts. However, it should be recognised that targets selected for their tactical or operational effects may also have unplanned strategic effects unless a rigorous target analysis is carried out.

404. **Strategic Defensive Air Operations**. Strategic defensive air operations are based on the strategic objective of deterring and defeating aggression against friendly territory and ensuring the survival of multinational forces and civilian populations. This defence[1] is against threats from advanced technology WMD and their means of delivery, Theatre Ballistic Missiles (TBM), Tactical Aerodynamic Missiles (TAM), manned aircraft and UAVs. The operational architecture comprises 4 pillars:

a. **Battle Management/Command, Control, Communications, Computers and Intelligence**. The Battle Management/Command, Control, Communications, Computers and Intelligence **(**BMC4I) system supports all strategic defence operations. It provides for timely situation awareness, early warning of forces and civil defences (to include rapid dissemination of threat-type and impact point prediction), mission planning, timely and measured engagement, massive as well as selective response and redeployment of forces.

[1] Referred to as '*Extended Air Defence*' (EAD) within NATO. Refer to JWP 3-63 '*Joint Air Defence*' (Chapter 3) for greater detail.

b. **Active Defence**. Active defence embraces air, land or sea-based defence in depth against all classes of TBM and TAM. When destruction of the missile prior to launch is not possible or successful, TBMs/TAMs should be engaged by all possible means available throughout their entire flight profile. Active defence also includes those actions that mitigate the effectiveness of targeting and delivery systems through EW against remote or onboard guidance systems.

c. **Passive Defence**. The principal measures used to accomplish passive defence are: tactical warning, deceiving target systems, reducing vulnerability, redundancy of systems design and force structure, quick recovery capabilities and a concept for the reconstitution of forces and functions.

d. **Conventional Counter-Force**. The principal objective of Conventional Counter-Force (CCF) (analogous to Offensive Counter-air operations) is to prevent an aggressor from launching his TBMs/TAMs through instantaneous direct attack on identified launching, control and supporting sites. Joint assets used to carry out CCF operations may include rotary and fixed-wing aircraft in air-to-surface attacks, maritime land attack missiles, SF, offensive EW systems and ground manoeuvre forces.

SECTION II – ANTI-SURFACE FORCE AIR OPERATIONS

405. Anti-Surface Force Air Operations (ASFAO) are an essential core capability of air power, embracing Air Interdiction (AI) and Close Air Support (CAS) in the land environment and related air support to maritime operations.[2] The ability to prosecute ASFAO effectively will depend heavily on the success of Counter-air operations. At the same time, progress with ASFAO can have important implications for maintaining control of the air; thus, Counter-air and ASFAO may be closely integrated. Moreover, like all types of air operations, ASFAO may depend on the full range of Combat Support Air Operations for its success, in particular air refuelling, surveillance, reconnaissance and electronic warfare.

406. **Air Interdiction**. Interdiction is conducted to effect the destruction, neutralisation or delay the opponent's military potential before it can be brought to bear effectively against friendly forces. The nature of AI is such that detailed integration of each air mission with the fire and movement of friendly forces is not required. Interdiction is normally carried out through co-ordinated joint operations. AI operations can have strategic, operational and tactical effects. However, the time delay between AI and the discernible results at the location of intended effect means

[2] Hitherto termed TASMO, which did not include MPA operations as these were tasked separately through a Maritime Air Operations Centre (MAOC); however, TASMO is no longer applicable as ASFAO now covers all related aspects of air support to maritime operations. Refer to AJP-3.3.3 '*Air/Maritime Co-ordination*' for details.

that most AI is planned to achieve operational rather than tactical level objectives. AI and manoeuvre are complementary operations that should normally be synchronised. Responding to the combination of AI and manoeuvre produces agonising dilemmas for the enemy: if he attempts to counter the manoeuvre, his forces may be exposed to unacceptable losses from AI; if he employs measures to reduce losses from AI, his forces may be unable to counter the manoeuvre. The synergy thus achieved produces significant advantages, especially at the operational level. Although AI operations may be flown in support of land and maritime surface force objectives, it must be viewed from a Joint Operations Area (JOA)-wide perspective. AI assets are used to attack targets throughout the JOA in support of JTFC objectives as well as those targets designated in a land or amphibious force commanders' Area of Operations (AOO).[3]

a. **Control and Co-ordination**. The JFACC is normally the Supported Commander for the JTFC's AI effort. However, a land or amphibious force commander may be the Supported Commander for AI within his AOO. AI missions flown short of the FSCL are controlled (i.e. positive control or procedural clearance) by the land or amphibious force commander. Forces attacking targets beyond the FSCL must co-ordinate with all affected commanders in sufficient time to allow necessary reaction to avoid fratricide and to harmonise joint objectives.

b. **Weapon Systems**. Numerous types of air assets are used for AI. These include aircraft (fixed-wing, UAV or Attack Helicopter (AH)) and surface-to-surface and subsurface-to-surface missile systems. Aircraft usually carry out the majority of AI missions. Aircraft systems are flexible; they may be more suitable than missiles for AI because they may be recalled or redirected, and they can carry a variety of weapons and payloads. Stealth technology and precision weaponry enhance the effectiveness of such aircraft systems. Missile systems may be the preferred delivery method when attacking heavily defended targets, during adverse weather conditions, or when necessary supporting air assets, e.g. Suppression of Enemy Air Defences (SEAD) or Air-to-Air Refuelling, are unavailable or too vulnerable.

c. **Targeting Procedures**. Theatre responsibility for all targeting rests with the JTFC. CCs nominating targets inside their AOOs will designate target priority, effects, and timing. They may also nominate targets outside their AOOs, indicating target priority, effects, and timing. All these priorities are considered along with the JTFC's interdiction priorities and are reflected in his apportionment decisions. The JFACC will then use these priorities to plan and execute the AI effort within the JOA.

[3] Area of Operations is sometimes abbreviated AO.

407. **Close Air Support**. CAS is defined as air action against 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.[4] The firepower and mobility of aircraft can make an immediate and direct contribution to the land and littoral battle, especially against targets that are either inaccessible or invulnerable to available surface weapons. CAS has the ability to concentrate firepower in time and space when and where required to effect the destruction of opposing forces during an engagement. It can have a decisive effect on a battle. However, as there are inherent problems with target acquisition and inevitable complications and limitations co-ordinating air attacks with the fire and movement of surface forces, CAS can be difficult to execute effectively. Moreover, CAS could suffer high attrition if the opposing troops are protected by an effective, layered air defence system.

a. **Control and Co-ordination**. The Joint Force Land Component Commander (JFLCC) as the Supported Commander states his requirements for CAS as part of the apportionment process. In so doing, he should also consider any contingency requirements that might arise during the 72-hour ATO planning timeframe. Allocated CAS missions are normally requested for pre-planned or immediate execution via the Air Liaison Officers (ALO) and the Air Operations Co-ordination Centre (AOCC) attached to the Supported Commander's organic C2 architecture. Although it may be executed anywhere throughout a JOA, CAS is normally conducted short of the FSCL. Regardless of the location, CAS is normally flown under positive control but may, in extremis, be conducted procedurally. Requirements identified early enough are forwarded as pre-planned air requests. Immediate requests arise from situations that develop once the battle is joined and are those that cannot be identified early enough to allow detailed co-ordination and planning. Satisfying these immediate requests may impact on the availability of air assets for other planned operations.

b. **Close Air Support Assets**. A wide variety of aircraft and weapon types can be employed on CAS, but not all are optimised for this role. The JAOC will consider the availability, missions and characteristics of CAS-capable aircraft (such as 24-hour and marked target-seeker capabilities) to determine how CAS is best employed. A critical resource will often be the timely availability of ground Forward Air Controller (FAC) teams, airborne FACs in fixed-wing aircraft (FAC-A) or airborne FACs in helicopters (ABFAC) to direct CAS missions.

[4] In this context CAS is usually taken to mean action against land targets in support of land forces. However, the same principles are employed for Anti-Surface Warfare (ASUW) operations in a maritime context (e.g. use of AH to counter a Fast Inshore Attack Craft (FIAC) threat in the littoral, or for other types of attack support to a maritime force).

408. **Maritime Surface Attack Operations**. Anti-Surface Warfare (ASUW) attack operations in the maritime environment may cover a wide variety of surface targets and may be requested in a similar manner to CAS as either pre-planned or immediate missions. Some targets are likely to be at a distance from friendly maritime forces (analogous to AI operations), however there may be occasions when air action is required against maritime surface targets in close proximity to friendly naval forces (analogous to CAS). As well as air-to-surface weapon capabilities, Attack Support provided by surface search or airborne electronic warfare assets may be required to enable an attack to be successfully conducted.

SECTION III – AIR OPERATIONS IN THE LAND AND AMPHIBIOUS ENVIRONMENTS

409. **Air-Land/Amphibious Integration**. Fundamental to the JFLCC's and JFMCC's schemes of manoeuvre within their respective AOOs will be their exploitation of the capabilities of air power. Its reach, speed, flexibility and concentration of force give them opportunities to achieve surprise, shock, simultaneous action and tempo. They may use air-delivered combat power, integrating their organic air capabilities with those of the JFACC, to shape their battlespace in depth, by marginalising or destroying adversary forces, seizing targets of opportunity or by providing intimate support to ground manoeuvre with aerial firepower. The type of mission employed and degree of aircraft control used will be based on the proximity of hostile targets to friendly forces. Within a land AOO or Amphibious Objective Area (AOA), the JFLCC/JFMCC will normally be the supported commander and will designate the target priorities, required effects and timing. The JFACC, or other CCs, may need to conduct air operations within the land AOO or AOA (e.g. to support Counter-air or strategic objectives), but these must be co-ordinated with the relevant CC to ensure that the proposed attacks are integrated with his planned operations or scheme of manoeuvre. Joint planning and co-ordination utilising the BCD(A) and AOCC(L), through the Joint Airspace Control Cell (JACC) and J3 Battlespace Management Group, is therefore essential. With the increasing use of digitisation in the land environment involving air-to-ground surveillance and attack assets with manoeuvre forces, the building and maintenance of a Recognised Land Picture (RLP) is an important aspect of ASFAO.

410. **Air Manoeuvre**. Air Manoeuvre (AM) is more than the employment of Attack Aviation within the JFLCC's scheme of manoeuvre; it combines rotary and fixed-wing aircraft, with land combined arms groupings made up of combat, combat support and combat service support elements. Operations range from AH raids to the seizure and holding, by an AM formation, of an area deep into an adversary's territory. This may be supported by Composite Air Operations (COMAO) tasked by the JFACC as a Supporting Commander. An AM operation may involve a number of weapons and support systems, for example AH, CAS aircraft and artillery. Whenever and wherever

required, these are supported by EW, AD and SEAD. It also provides for the use of Attack Aviation or Support Helicopter (SH) assets in support of amphibious operations, and for Attack Aviation support to the JFACC for his own COMAO operations. The JFLCC is normally the Supported Commander for AM operations conducted as part of the land scheme of manoeuvre, with the JFMCC likely to be the supported commander for amphibious operations. The range of employment includes:

a. **Airborne Operations**. An Airborne Operation is *an operation involving the movement of combat forces into an objective area by air*.[5] The means employed may be any combination of joint airborne-capable units, the type of air transport (AT) used depending upon the mission and scenario. Airborne Operations are discussed further in Section V under Combat Support Air Operations.

b. **Airmobile Operations**. An Airmobile Operation is *an operation in which combat forces and their equipment manoeuvre about the battlefield by aircraft to engage in ground combat*.[6] Airmobile operations involve the use of joint air assets, predominantly helicopters, in task groupings to deploy ground combat forces and their equipment to where they may be committed directly in battle. Land and amphibious forces view Light Utility, SH and AH as an integral part of their CC's scheme of manoeuvre. They are seen as an irreplaceable element of their design for battle, and will be required to fully integrate with the ground scheme of manoeuvre, however paucity of AT and helicopter assets and/or higher priority tasking may restrict their allotment for these purposes. Helicopters, when operating in the same battlespace as ground units, must be responsive to changing tactical environments and ground formation battle plans. In particular, AH operate best by stalking their targets, remaining on station for long periods while manoeuvring for advantage. Helicopters can be given manoeuvre missions, and will execute these by moving tactically within the ground environment, employing fieldcraft, fire and manoeuvre; their operations should appear on the ATO in as much detail as possible for deconfliction and ID purposes.

c. **Air Assault Operations**. An Air Assault formation uses its joint 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 an Air Assault formation will vary, but its complete range of capabilities provide the strength and flexibility to undertake a wide range of missions.

[5] AAP-6.
[6] AAP-6. Refer to ATP-49(C) (Correct to Change 1) '*Use of Helicopters in Land Operations*' for details of Airmobile, Air Assault and Air Mechanised Operations.

d. **Air Mechanised Operations**. Air mechanisation aims to achieve greater combat capability within an independent aviation force by increasing the proportion of organic AH to transport helicopters. These operations differ from Air Assault to the extent that they involve independent combat in and from the air without the involvement of a ground manoeuvre element.

411. **Amphibious Operations**. Air support for amphibious operations can be provided by both land and sea-based air assets depending upon the location of the AOA. Air support will normally include the AI and CAS roles, but may also include Counter-air, littoral Anti-Submarine Warfare (ASW) and ASUW, and Combat Support Air Operations. Co-ordination of air support will rest with the Commander Amphibious Task Force or Commander Landing Force (depending upon the phase of the amphibious operation), as Supported Commander within the AOA. The limited shore-based fire support assets and lightly armed nature of amphibious forces makes them particularly dependent on air-delivered support. The joint use of air assets must therefore be carefully co-ordinated to ensure that maximum use is made of the firepower available, and airspace control provided in the area of operations. The Maritime Co-ordination Element, located with the JFACHQ, will monitor the landing force situation ashore and facilitate co-ordination and deconfliction between air assets and the landing force.

SECTION IV – AIR OPERATIONS IN THE MARITIME ENVIRONMENT

412. **Anti Surface Force Air Operations**. The aim of ASFAO in the maritime environment is to detect, monitor, neutralise or destroy the opponent, achieve defence in depth, build and maintain a Recognised Maritime Picture (RMP), and to seize and retain the initiative in support of required objectives or achievement of the necessary level of sea control. ASFAO in the maritime environment comprises:

a. **Anti-Surface Warfare**.[7] The aim of ASUW through offensive or defensive actions is to prevent an enemy from effectively employing his surface forces. It covers a wide range of operations involving reconnaissance and surveillance missions that may culminate in the targeting and attack of an opponent.

b. **Anti-Submarine Warfare**.[8] The aim of ASW through offensive or defensive actions is to deny the adversary effective use of submarines.

[7] May also be referred to as Surface Warfare (SW).
[8] May also be referred to as Undersea and/or Underwater Warfare (UW).

Countering the submarine threat may involve the use of fixed-wing Maritime Patrol Aircraft (MPA),[9] ASW helicopters or other aircraft.

413. **Employment of Shipborne and Shore-Based Aircraft**. Depending upon the area of operations a choice may exist between employing shipborne or shore-based aircraft. The advantages and limitations of each should be evaluated before selecting the optimum force mix. The nature and location of the threat to the maritime force is likely to be the major influence in this decision. The threat may be beyond the range of the naval surface force organic sensors or aircraft requiring the JFMCC to initiate co-ordinated land-based air operations at some distance. Shipborne aircraft can react more quickly to threats emanating close to the force, however joint air request and tasking procedures[10] are well-established for the use of assigned land-based aircraft to support the JFMCC when required. For ASUW or ASW tasking, the JFMCC may be given direct tasking authority over MPA allotted to him.

SECTION V – COMBAT SUPPORT AIR OPERATIONS

414. Combat Support Air Operations equate to Supporting Air Operations in NATO, whereby combat support aircraft may be employed to support other aircraft or forces undertaking combat roles, or to assist operations of all types and in all environments. Details on the different elements of Combat Support Air Operations are given in AJP-3.3, however guidance is provided in the following areas.

415. **Air Transport**. AT provides a military commander with the capability to deploy, employ and re-deploy forces and equipment quickly and over considerable distances, sustain those forces and support effective application of their military effort. The inherent speed, range and flexibility of AT make it ideally suitable for Crisis Response Operations, including those of a humanitarian nature.

a. **Air Transport Categories**.

(1) **Strategic Air Transport**. Strategic AT involves the inter-theatre movement of personnel and equipment. It may be augmented by the use of civil charter aircraft, particularly for the carriage of passengers and outsized cargo.

(2) **Tactical Air Transport**. Tactical AT, both fixed and rotary-wing, provides the intra-theatre movement and delivery of personnel and equipment.

[9] MPA aircraft may also carry air-to-surface missiles and be able to conduct ASUW missions. Similarly MPA, such as NIMROD MRA4, are being fitted with highly capable ISTAR equipment, which may be of significant use for ASFAO in the littoral/land environment.
[10] For air/maritime joint tasking procedures refer to AJP-3.3.3 '*Air/Maritime Co-ordination*'.

(3) **Types of Air Transport Operations**. Within these categories, AT aircraft can perform the following types of operations:

(a) **Air Logistic Operations**. Air Logistic Operations include those tasks, other than SF and airborne missions, conducted to deploy, distribute and recover personnel, equipment, supplies and the extraction of non-combatants.

(b) **Aeromedical Evacuation**. Forward Aeromedical Evacuation (FAME) is the movement of patients to and between medical treatment facilities by AT under medical supervision.

(c) **Airborne Operations**. See paragraph 416.

(d) **Airmobile Operations**.

(e) **Special Air Operations**. See paragraph 417.

b. **Control and Co-ordination**.

(1) **Strategic Air Transport**. AT is a national responsibility. Agencies within the owner nation will provide C2 throughout the mission duration to assure accomplishment of the assigned mission and to provide in-transit visibility for the JTFC. The JTFHQ J4 Joint Force Movements Staff (JFMS) co-ordinates strategic movements with J4 Movs (PJHQ). The Air Transport (AT) Cell within A3 JAOC co-ordinates the flow of strategic AT aircraft arriving and departing the JOA. An Aeromedical Evacuation Co-ordination Centre (AECC) will work closely with the JFMS to co-ordinate strategic AE support with national command centres.

(2) **Tactical Air Transport**. TACOM/TACON of specified AT aircraft may be transferred to the JTFC. If required, an intra-theatre AT pool will be established to support the JTFC's requirements. The JFLogC Force Movement Control Centre (FMCC) plans and co-ordinates theatre air logistic movements for the JTFC and will be allotted AT aircraft according to JFMS priorities and apportionment guidance. The AT Cell in the JAOC will control and co-ordinate the execution of tactical AT operations throughout the JOA.

416. **Airborne Operations**. Air-delivered combat power can be used to seize vital ground or installations by delivering assault forces directly onto the objective. This may be achieved by airdrop or advance force insertion by air-landing delivery (Tactical Air-Land Operations) (TALO) or Rapid Air-Landing (RAL)). Ports of entry, airfields and key installations or structures all offer potential objectives for airborne

operations. Airborne operations should not be confused with air logistic operations. The significance of airborne operations may be operational or strategic within the campaign plan. They pose high risks, but the potential gains make them a valuable element of the air power inventory.

a. **Assets for Airborne Operations**. AT aircraft that conduct airborne operations are intrinsically vulnerable. Surprise, COMAO protection and objective preparation by fixed or rotary wing aircraft may well be needed to protect the delivery force. Air-delivered forces are lightly equipped, may require pre-cursor air attack operations and, once on the ground, will usually continue to depend on air-delivered fire support and logistic resupply until linked up with ground formations, or extracted. The bill for such support can be heavy and the ability to conduct a rapid link-up or air extraction using TALO or RAL techniques is essential.

b. **Planning**. Joint planning of an airborne operation at all levels is essential to ensure that both the land and air elements fully complement each other's capabilities. It is necessary for the JFACC and the JFLCC (or their senior representatives) to have full consultation once the intention to mount an airborne assault is proposed. This will allow the apportionment of air assets to be planned and the impact on joint operations to be assessed in order that JTFC can be fully briefed and critical joint decision points defined.

c. **Command and Control**. The JTFC may appoint a Commander of the Airborne Task Force to oversee all aspects of the mounting, insertion and conduct of an airborne operation. He will usually charge the JFACC with command of the insertion phase of the operation until a viable ground force has built up. The JFACC may elect to exercise aspects of his responsibility through an Airborne Command Element.

417. **Special Air Operations**. AT and SH support is a critical enabler for SF operations. Air projection provides the necessary speed and reach and is not constrained by physical barriers, but can be vulnerable to surveillance and detection and may be constrained by routing restrictions. Greater detail on Special Air Operations (SAO) is available in JWP 3-40 '*Special Forces Operations*' (RESTRICTED UK EYES ONLY), however the following points are emphasised:

a. **Control and Co-ordination**. In joint operations, a Joint Force Special Forces Component Commander (JFSFCC) will normally have TACOM over SF. In the JTFHQ, SAO is co-ordinated through the J3(SF) Operations Cell. SAO may be co-ordinated further through the Special Forces Liaison Element in the JAOC. SAO missions will normally be reflected in the ATO, though details may be withheld to conserve mission security.

b. **Assets**. Fixed wing and rotary wing assets may be used for SAO. Most aircraft conducting SAO are of a specific design or modification standard to meet the demands of a special force operation. The aircrew for these aircraft types are also likely to require special-to-task training. Such scarce SAO assets are therefore unlikely to be available for more general AT or SH tasking.

The Joint Personnel Recovery Spectrum[11]

418. **Joint Personnel Recovery**. Joint Personnel Recovery (JPR) is the aggregation of military, civil and political efforts to obtain the release or recovery of personnel from uncertain or hostile environments and denied areas whether they are captured, missing or isolated. JPR will invariably involve air assets to a greater or lesser extent, and includes: Search and Rescue (SAR); Deployed Search & Rescue (DSAR); Combat Recovery (CR); Combat Search and Rescue (CSAR); Unconventional Assisted Recovery (such as recovery of personnel from a high threat environment) and associated Survival, Evasion, Resistance and Escape (SERE) training and Care After Recovery (CAR).

419. **Search and Rescue Operations**. Search and Rescue Operations is a generic term for operations to recover isolated personnel in distress, where no threat is posed by hostile interference, including SAR and DSAR.

420. **Search and Rescue**. SAR is the recovery of isolated personnel in distress, where no threat is posed by hostile interference. *This term relates primarily to non-military situations in the UK and overseas territories including home and territorial waters.* According to the provisions of the International Civil Aviation Organisation (ICAO) and the International Maritime Organisation (IMO), SAR is a national responsibility that is often delegated to its Armed Forces for peacetime operations. The boundaries of SAR responsibility are normally defined by the appropriate internationally-agreed Search and Rescue Regions (SRR), and control and co-ordination of SAR operations in peacetime is normally the responsibility of the national Rescue Co-ordination Centres (RCC). Military SAR assets may be made available to assist host nation civil authorities when the task does not interfere with military requirements. However, during deployed operations the JTFC may need to organise a SAR capability in his JOA. In this case, the JTFC must ensure that international agreements, host nation laws, regulations and policies, as well as host nation SAR capabilities are taken into account when establishing procedures within his JOA. If such facilities do not exist, a national Deployed SAR capability may need to be considered.

421. **Deployed Search and Rescue**. DSAR is the recovery of isolated personnel in distress and/or equipment from a benign-threat environment in support of deployed

[11] See JWP 3-66 '*Joint Personnel Recovery*'.

operations and exercises. *This term relates primarily to non-hostile situations when deployed overseas but could include deployment within the UK to cover a catastrophe or disaster.*

422. **Combat Recovery Operations**. CR Operations is a generic term for the recovery of isolated personnel in distress and/or equipment from a threat environment in which a threat is posed by hostile interference, and includes CR, CSAR and certain SF recovery options.

423. **Combat Recovery**. CR is the recovery of isolated personnel in distress and/or equipment from hostile territory, who are not trained and/or equipped to receive CSAR. CR is intended for the majority of UK forces that are likely to be involved in the full spectrum of operations but who are not trained in CSAR techniques. CR may also be required to rescue UK civilians from hostile or potentially hostile situations.

424. **Combat Search and Rescue**. The recovery of isolated personnel in distress, from hostile territory, who are trained and equipped for CSAR.

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CHAPTER 5 – PLANNING AND EXECUTION OF AIR OPERATIONS

SECTION I – OVERVIEW

501. **The Campaign Plan**. The Joint Task Force Commander's (JTFC's) campaign plan is executed by the Component Commanders (CC) who conduct operations at the tactical level of war. However, in this context, the planning of joint air operations in accordance with the JTFC's direction is an operational-level activity, involving inputs from all components, but under the overall responsibility of the Joint Force Air Component Commander (JFACC). Such air planning concerns the utilisation of air assets at the tactical level to achieve the operational objectives defined in the campaign plan. The air objectives derived from this planning process are likely, but not exclusively, to be Decisive Points (DPs) that can be achieved, thus providing the key to defeating the enemy by unlocking his Centre of Gravity (CoG).

502. **Battle Rhythm**. The air operations planning process will need to take account of the JTFC's priorities and phasing incorporated into the campaign plan. From the JFACC's Air Estimate is derived the Joint Air Operations Plan (JAOP) from which in turn daily Air Operations Directives (AODs) are developed; short-term achievement will be measured against these to ensure that the overall air plan remains in step. Once execution of the plan commences in accordance with the Air Tasking Order (ATO) process, momentum is maintained through the decision-action cycle that is the basis of the JFACC's 'Battle Rhythm'. The JFACC must ensure that his battle rhythm is synchronised with the other CC's and that of the JTFC, which drives the complete joint air tasking cycle.

503. **Strategy-to-Task**. Although not unique to the air component, it is most probable that air power will have utility over the entire Joint Operations Area (JOA) and may be tasked to conduct both independent and joint operations for strategic effect. With this in mind, the JFACC and his supporting staff must be prepared to plan to achieve effects at all levels of operations simultaneously. It is vital that planners resist the temptation to concentrate on any one level and remain aware of the effect that air operations may have on the JTFC's and other CCs' plans and objectives. Political direction initiates military campaign planning. However, wider political turbulence and uncertainty may often render it unreasonable to expect a finite political statement of intent at the beginning of every crisis. Nevertheless, it is from Grand Strategy in the context of an effects based approach that a Strategy-to-Task methodology ensures coherency in the planning, execution and analysis of air operations, whilst providing a transparent audit trail to verify subsequent actions.

SECTION II – AIR BATTLE MANAGEMENT

504. The JFACC has four essential air battle management tasks:

a. To determine where and when (priorities, effects and timings) to apply air power in concert with other components.

b. To create the conditions to give the air assets the best chance of success.

c. To adjust the air operation according to mission results and the revised intentions of the JTFC.

d. To exploit opportunities arising from combat.

505. The successful accomplishment of these tasks requires the JFACC to adopt a disciplined decision cycle and a rigorous application of the air operations planning process. This process is dependent upon positive and agile interaction between the JFACHQ, J3/J5 elements of the Joint Task Force Headquarters (JTFHQ) and other component's G3/5 and N3/5 cells, to ensure that the JFACC can make the correct air apportionment recommendations to the JTFC. They are also inextricably linked to the joint air operations cycle, and to the joint targeting cycle, for which the JFACC may be delegated specific responsibilities.

SECTION III – SYNCHRONISATION AND SEQUENCING

506. **Synchronisation of Effects**. Inevitably, the joint campaign objectives will require varying combinations and levels of participation by air, land and maritime forces, which will be reflected in each component's scheme of manoeuvre. It will normally be necessary for objectives to be prioritised and operations phased, in order to ensure the synchronisation and order of desired effects and the required mix of symmetrical and asymmetrical actions. In addition to ordering objectives, synchronising kinetic and non-kinetic effects is key to the success of the operational outcome – this synchronisation can only be achieved by close co-ordination between the JTFHQ and components during planning stages. The JFACC's targeting responsibilities include all effects applied within the airspace of the JOA by air or surface assets. This encompasses the great majority of likely effects, however targeting of effects applied in other environments, particularly non-kinetic effects as part of Information Operations, clearly need to be taken into consideration in the JFACC's Joint Guidance, Apportionment and Targeting (JGAT) process. Similarly, the translation of the joint targeting process into mission execution is achieved through the ATO, however in practice this only encompasses the air environment. The need for a 'Joint Tasking Order' to aid synchronisation of these wider effects has been raised, however until this is achieved, close co-ordination between the JFACHQ, Components

and the JTFHQ Targeting Cells is necessary to ensure targeting priorities, and consequent mission execution, for all types of effect are clear.

507. **Priorities**. Just as the JTFC will prioritise theatre objectives, a JFACC will do the same for his tactical objectives. The setting of priorities by the JTFC may drive the phasing of the component operations; for the JFACC it may dictate a specific mission flow based on both strategic and operational considerations. This should translate into a priority listing for target sets and individual targets, or a summary of desired effects. Effects may be achieved and supporting operations conducted in *series* or in *parallel*. Effects in series generally indicate tasking against target sets sequentially in priority order, or may involve tasking against target sets based upon geographical considerations. Effects in parallel refer to tasking against targets across geographically dispersed target sets concurrently, as well as near-simultaneous effects on target sets of different levels (i.e. strategic, operational or tactical), or of target type. The potential for air power to carry out both *series* and *parallel* effects provides the JTFC with the freedom to change the emphasis of his theatre campaign according to changes in priority.

508. **Phasing**. The phasing of a campaign provides an orderly schedule of military activities and can indicate step changes in priorities and intent. The phasing in the campaign plan will determine the basic phasing used within the JAOP to achieve the desired level of synchronisation. Phasing may be dictated by region, objectives, or limitations imposed by the composition of the force. Phases must always have clearly identifiable start and end points, but will often overlap to some extent.

SECTION IV – THE AIR PLANNING PROCESS

509. **The Planning Process**. The air planning process consists of 2 main elements, the air estimate and the JAOP. The air estimate process is central to production of the JAOP, whose purpose is to direct the employment of units at the tactical level to achieve the campaign objectives determined at the operational level. The overall air operation plan is a complex interaction of decision-action cycles inside and outside the JFACHQ that influence the tempo of the joint campaign.

510. **The Air Estimate**. A form of the air estimate should be used to determine the air strategy and objectives at each level of joint operations. An air estimate should be command-led, although in the absence of a nominated commander the staff may have to initiate the strategic planning process at an early stage, and it should be repeated in whole or in part throughout the campaign. The key to the air estimate process is the application of the relevant campaign planning tools: End-state,[1] CoG and DPs. If the air estimate is to inform the JTFC's estimate effectively, it must be conducted such that

[1] The identification of an End-state will only be appropriate during an independent air operation; during joint operations this will be given by the JTFC.

the air component can dynamically interact with the JTFC's decision-making process. Equally, the air component will fail if the air estimate is carried out in isolation from the other components. Normally, the best any component can strive to achieve is close echelon planning where they work as closely as possible with each other but lag slightly behind the joint plan. A diagrammatic form of the air estimate is at Figure 5.1. It reflects the form and principles of the standard estimate process but is adapted to meet the characteristics of scale and tempo particular to air operation planning at the operational level, as described below. Although presented as a sequential procedure, a number of the processes may be carried out concurrently.

511. **Mission Analysis**. The starting point for the air estimate is a review of the situation where the following points are analysed:

a. Background facts.

b. Political/Military Strategic Directives.

c. JTFC's Directives.

d. JTFC's Mission Statement.

e. Specified tasks.

f. Implied tasks.

g. Constraints.

h. Assumptions.

A thorough analysis of the mission at this stage allows the JFACC to verify the JTFC's Directive and seek clarification if necessary. It is also an opportunity for specialist air staffs to highlight missed opportunities and/or capability gaps. Such clarification and queries may arise from an analysis of the specified tasks given to the JFACC by the JTFC and the implied tasks identified by the specialist air staff during the estimate process. The strategic CoG and DPs for both friendly and opponent forces may be apparent at this stage. The major output of Mission Analysis is the JFACC's early guidance in the form of his Mission Statement, which then enables his staff to conduct further detailed air planning.

512. **Operational Environment Research**. Operational Environmental Research comprises intelligence preparation of the battlespace and attainment of an in-depth knowledge of the operational environment. It is an important element of Mission Analysis, and also feeds Evaluation of Factors. It focuses on gaining information about friendly and adversary capabilities and intentions, doctrine, and the environment in which the operations will take place, the goal being to better understand the theatre

of operations, the adversary, and friendly forces available to accomplish the JTFC's objectives. Processes associated with this phase include collecting, exploiting, fusing, analysing, and disseminating pertinent information about adversary and friendly capabilities and the operational environmental impacts on these capabilities. Complete analysis of friendly/adversary logistics is essential; it will determine the selection of bed-down locations for forces, provide a model for planning the expansion of friendly logistics infrastructure, and highlight the adversary's critical logistic nodes for future targeting.

513. **Review of Mission Analysis**. Like the CoG and DPs, the Mission Statement will be re-visited throughout the estimate process. There is no template for a Mission Statement, however the statement should be robust enough to provide the operational-level rationale for each of the subsequent tasks and plans. An ever-changing Mission Statement is an indication of a poor air estimate or 'Mission Creep'.

514. **Evaluation of Factors**. The next logical stage of the air estimate is an analysis of the geostrategic factors pertaining to, where appropriate, enemy, neutral and friendly forces. Under the headings of 'Factor', 'Deduction', 'Task/Constraint', this stage demands a thorough evaluation of all relevant national and international political, diplomatic, military, economic, cultural, religious, and moral factors that affect air operations. It must consider these factors within national/international law and the Law of Armed Conflict and be sensitive to the needs of other military and non-military Lines of Operation.[2] In addition, a full review of the time available for analysis and tasking, Rules of Engagement and the likely C2 structure is required. Of equal importance is an examination of the physical characteristics of the operational area, including topography, hydrography, climate, weather, transportation and communications. One of the outputs from the Evaluation of Factors is a list of likely tasks and possible target sets.

515. Air tasks are considered under the following headings:

a. Strategic Effect.

b. Counter Air.

c. Anti-Surface Force.

d. Supporting Air Operations.

e. Ground Combat Support.

[2] Lines of Operation are one of the joint campaign planning tools. This tool allows the JTFC to visualise the joint plan as a sequence of events and inter-dependant operations normally broken down into phases. This description of sequencing and phasing is not always appropriate to air power, however, airmen must be aware of the tool and be prepared to use it to ensure that the air CONOPS is tied to the other components in support of the campaign plan.

f. Communications.

g. Combat Service Support Operations.

h. Other Component Support.

i. Joint Operations.

The actual tasks and target sets selected will depend on the selected Courses of Action (CoAs) for both friendly and adversary forces. It is vital that the JFACC's objectives for each of these air tasks are achievable, measurable and clearly articulated to subordinates. Such objectives must be in direct support of the JTFC's objectives. They should state what is required from the air component and by when, but except where absolutely necessary, should be careful to avoid a detailed explanation of how this should be achieved.

516. **Consideration of Courses of Action**. The Evaluation of Factors leads to the development of the friendly CoAs. Each CoA must be practical, acceptable and meet the aim as determined by the Mission Statement. Staff must fully consider all available courses open to the commander and not concentrate on any one option. Each CoA will give rise to a CONOPS and should outline the major military tasks to be accomplished, forces required,[3] logistic requirements, deployment concept, estimates of time-scales and a concept of maintaining force reserves - where appropriate. With the development of each CoA, the need for parallel development of a supporting deception plan should be assessed. The recommended friendly CoA must be tested against 'most dangerous and most-likely' enemy CoA and be based on the merits of the combined CoA and its associated deception plan. However, in most instances it must cater for the 'most dangerous'.[4] Staff must take care to avoid thinking too much as a single unit during this phase of the process and question their deductions. It is important to make sure that the selected CoA meets the Mission Statement, satisfies the Principles of War and, where possible, is Manoeuvrist in concept.

517. **Objective/Task Determination**. It is important that clearly-defined and quantifiable air and space objectives and subordinate tasks are determined that will meet or support the accomplishment of the JTFC's campaign objectives and achievement of the desired end-state. Objectives/tasks must be clear, concise, and attainable and must directly support national and theatre-level objectives. If an air or space objective cannot be linked to either theatre or national objectives, it should be rejected as a waste of resources unless there is an indication that an objective has been overlooked. Some intermediate objectives and subordinate tasks (those necessary to

[3] It is advisable to make a comparison of opposites when determining the required offensive/defensive force balance, i.e. opponent offensive assets versus own defensive assets. This method gives planners a better idea of likely attrition rates for each CoA.
[4] At this stage, it may be helpful to form a small 'opponent cell' to conduct an adversary estimate against own CoG, DPs and possible CoA.

achieve the end goals of a primary objective) may not appear to be directly related to the theatre objectives; however, if they are appropriate air objectives they should be included in the air and space plan. Air power, in conjunction with the exploitation of space-based systems, can impact all three levels of war, therefore joint air objectives at each level must support the objectives of the higher level to ensure unity of effort.

518. **The Joint Force Air Component Commander Decision**. Although in theory the JFACC's decision should be a logical result of the estimate, in reality this should not place restrictions on the JFACC's freedom to be innovative and unpredictable. During joint operations, the JFACC's selected CoA and CONOPS must be synchronised with other component plans. The synchronisation is the responsibility of the JTFC. It leads to a coherent joint air strategy and ultimately the air operation plan. The selected CONOPS should have a number of branches and sequels pre-planned to take advantage of opportunities and to allow for contingencies. The ideal air plan may require modification to ensure correct sequencing with other component plans within the joint plan. Wherever possible, air planners must strive to take full advantage of the ability of air power to directly effect the opponent CoG. Whereas under some circumstances this ability may be independent of the joint plan, it is often an enabler to the success of the joint plan.

519. **The Joint Force Air Component Commander's Air Strategy**. The main products of the air estimate process are the air CONOPS and the associated JFACC's articulation of his strategy for employing the air power at his disposal to achieve objectives in support of the JTFC's campaign plan. The JFACC's strategy is provided to the air planners to demonstrate how he plans to exploit joint air capabilities/forces to support the JTFC's campaign objectives, and it acts as the touchstone for final development of the JAOP and the consequent cyclic execution of air operations which is covered in the following section.

520. **Air Operations Plan Development**. Once the JFACC has developed his air strategy, the air plan can be developed. Likely Airspace Control requirements should be afforded adequate attention at this stage to inform subsequent development of the Airspace Control Plan (ACP). The air plan will incorporate the JTFC-approved air CONOPS and will aim to achieve theatre objectives by harmonising air control, force application, and force enhancement roles integrating the efforts of other components and allies that use air power. The product of this process – the JAOP – details how this will be done to support the JTFC's campaign plan. During development of the JAOP, some basic planning philosophies should be applied. The first is that the plan must be developed to address the most dangerous and most likely enemy CoAs. If you cannot, then plan for the most probable case. Second, do not plan on the margin; the fog of war will quickly overwhelm forces that do not have both reserves and options (branch plans). The air operation plan developed during this process should:

a. Integrate the efforts of joint air capabilities/forces in achieving JTFC objectives by developing, validating, and prioritising tasks and targets to support strategy-to-task planning.

b. Identify objectives and targets by priority order describing in what order they should be attacked or dealt with, the desired results, and the weight of effort required to achieve the desired results in support of the JTFC's objectives. (Targets prioritised by significance do not necessarily indicate order to be attacked.)

c. Account for current and potential adversary offensive and defensive threats.

d. Synchronise the phasing of joint air operations to co-ordinate with the JTFC's campaign plan phasing.

e. In the counter-air section of the plan, define all defensive measures designed to destroy attacking adversary aircraft or missiles or to reduce the effectiveness of such attacks. An early phase objective normally will be to attain and maintain Control of the Air in the time and place necessary for the joint force to conduct operations.

f. Allow air apportionment recommendations to be made to the JTFC, and apply his decision to resolve competing requirements for joint air operations.

g. Indicate what capabilities/forces will be required to achieve joint air and space operations objectives.

h. Once the total force posture is known, match force availability, deployment timing, bed-down availability, and sustainment requirements with logistic and planning requirements. Shortfalls will require the JTFC to reprioritise or seek additional resources.

i. Include a comprehensive sustainability assessment.

(1) Normally, sustainment requirements for joint air operations are fulfilled by Service components; however, common, joint, or cross-servicing agreements or directives by the combatant commander may significantly alter responsibilities for key aspects of logistical support.

(2) The plan must clearly delineate any changes to logistical support practices effected by such agreements or directives.

j. Include procedures for allocating, tasking, and exercising Tactical Command and/or Tactical control of available joint air capabilities/forces.

521. **Plan Review**. Throughout the joint campaign the air operation plan should be under constant review. The plan should be revisited as a regular and routine procedure, and whenever there is a change in the operational circumstances or unforeseen events occur. This review process is best accomplished by reworking the Air Estimate. Such review of the air operation plan may require consequential amendment of the ACP.

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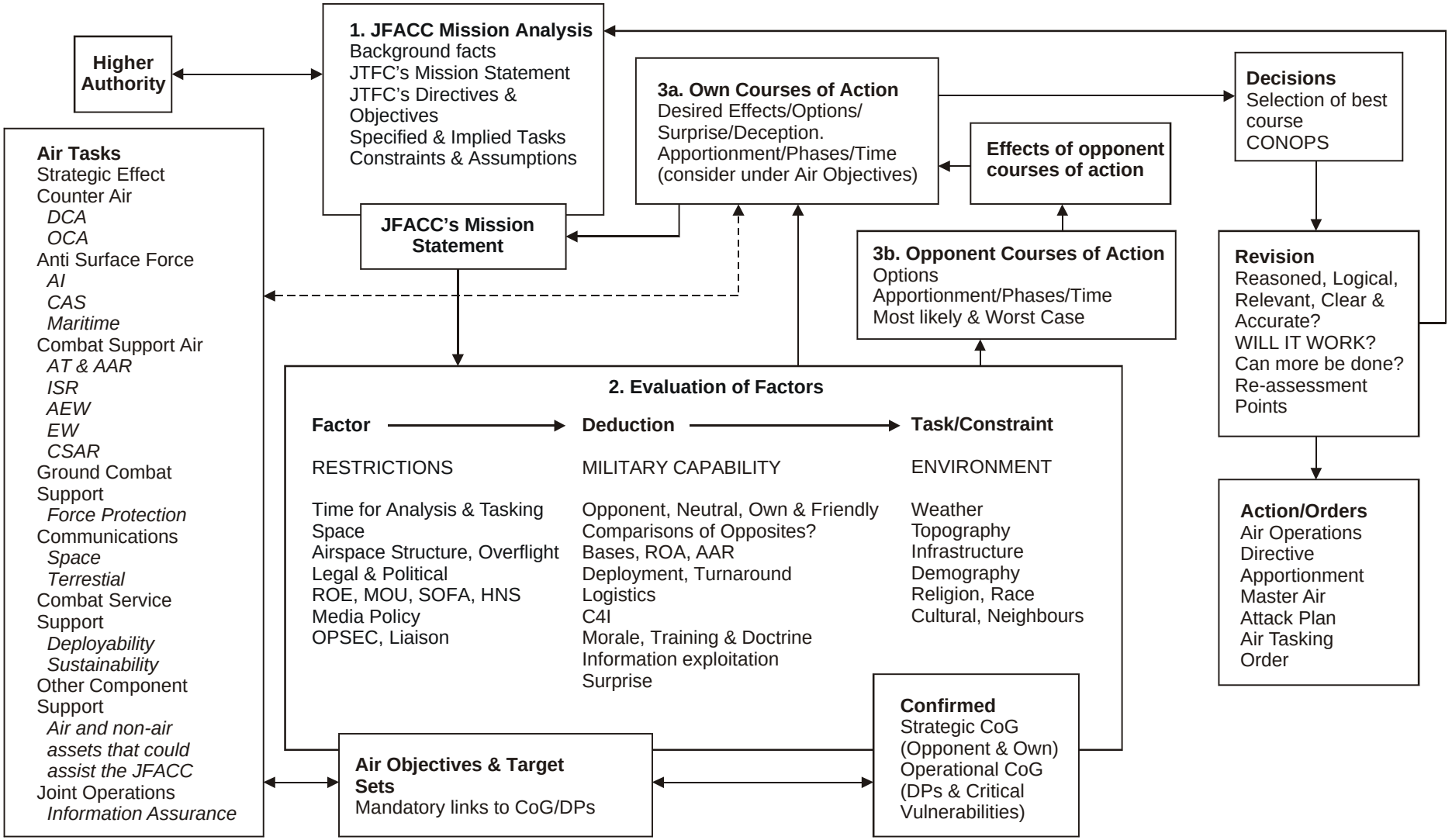

Figure 5.1 – The JFACC Air Estimate

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SECTION V – EXECUTION OF THE AIR OPERATIONS PLAN

522. **The Air Operations Cycle**. In practical terms the air operations cycle is made up of two interlinking phases. The first phase of the cycle is primed by the Strategic Planning process, and continues with regular revisiting of the Estimate leading to revision of the JAOP. The daily operational cycle begins with the JTFC's Joint Co-ordination Board (JCB) meeting following which A5 will develop the JFACC's daily AOD guidance. The second phase focuses on current or near-term air operations and comprises Tasking, Execution and Combat Assessment. The importance of the decision-to-action process in air battle management and mission execution cannot be over-emphasised. To obtain the initiative, the JFACC must complete his decision-action cycle more quickly than his opponent otherwise his plans will be overtaken and he will be restricted to reactive decisions. However, speed must never compromise accuracy. An improper action resulting from an erratic decision will waste valuable assets and may result in losing the advantage. The tempo of air operations is not only regulated by the speed and accuracy of the decision cycle, but is also dependent upon the speed and accuracy of the execution of the plan and the rate at which the type of activity within the plan is changed. Figure 5.2 shows the air operations cycle in broad terms.

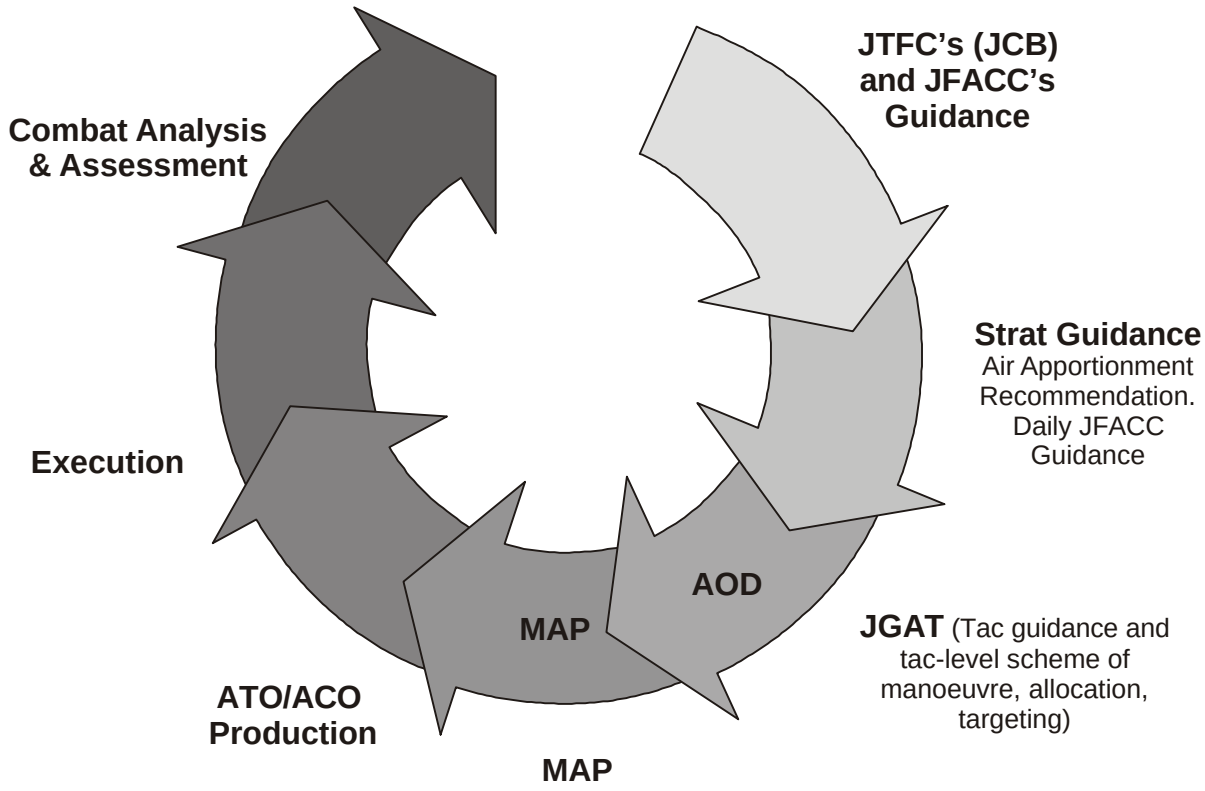

Figure 5.2 - Air Operations Cycle

523. Key stages in the cycle are:

a. **Strategic Guidance**.[3] The primary focus of the JFACHQ Strategy Division is to develop, produce and disseminate the JFACC's joint air strategy. The Strategic Plans Cell is responsible for developing long-range air strategy centred on the production of the JAOP, including branch and sequel plans, through the conduct of the Air Estimate. This process is going on in parallel with the daily air operations cycle, and will include allocation planning for future phases of the operation. The daily cycle is initiated by the JTFC's daily JCB meeting and the Strategic Guidance Cell is then responsible for developing the JFACC's daily operational-level guidance, in line with the JTFC's direction, which is articulated in the AOD.

b. **Joint Guidance, Allocation and Targeting**. Once the JFACC has determined the priorities for the air operation, the JGAT process is carried out by the GAT cell in concert with the other CCs and JTFHQ in order to determine the daily allocation of assets and air targeting priorities. JGAT takes the JFACC's operational-level guidance and prioritisation of objectives and the Strategy Cell's initial allocations from the apportioned air effort and then refines these into a joint tactical air scheme of manoeuvre that will meet the JFACC's intent derived from the JTFC's direction. The JGAT process is the critical step in producing the daily AOD, the format of which is shown at Annex 5A. The AOD combines the JFACC's guidance with the desired targeting priorities to detail how the JFACC wishes the air operation to be conducted for the specified 24-hour period. Provision of dynamic 'feedback' by components through established Co-ordination and Liaison Elements is important at this stage before the AOD is disseminated.

c. **Target Weaponeering**. The AOD details what effects are to be undertaken by air operations and the level of effort by force elements (down to unit number and type if necessary), but not how to execute them. This is determined by initial weapon-to-target matching carried out by A2 before final co-ordination of assets in a coherent manner during the Master Air Plan (MAP)[4] production process. Co-ordination with the JTFHQ and component Liaison Elements is critical at this stage if a comprehensive and coherent air attack plan is then to be drawn up from the AOD.

d. **Master Air Plan**. The MAP determines which assets are to be employed in what time and space during a 24-hour period. It is the primary

[3] In NATO, strategic air guidance centres on development of the ACC's CONOPS. After approving the ACC's CONOPS, the JFC will issue a Mission Statement to the ACC endorsing the air strategy. The CONOPS is then used as the basis for subsequent development of the JAOP.

[4] In UK doctrine, the MAP equates to US/NATO use of a Master Air **Attack** Plan (MAAP), however the scope of the MAP is much broader, reflecting the UK's wider Effects-based Approach to operations.

focus of the Combat Plans division of the JFACHQ. This is the stage where COMAO packages, DCA, ASFAO and Combat Support missions are planned and where general deconfliction of air operations is carried out, including TLAM, JAAT and direct or associated air support to maritime operations.

e. **Air Tasking Order/Airspace Control Order Production**. Tasking of air assets is completed by translating the MAP into a standard daily ATO message format for transmission to relevant units. Each ATO is numbered in alphabetical sequence, and in parallel the Joint Airspace Control Cell will translate the ACP into a similar standard Airspace Control Order message format.

f. **Execution**. Execution of the ATO is co-ordinated and orchestrated within the Combat Operations division such that any deficiencies in asset availability or urgent re-tasking requirements are met.

g. **Combat Assessment**. Combat Assessment (CA) is an important part of Campaign Effectiveness Analysis (CEA),[5] and consists of Battle Damage Assessment (BDA), Weapons Effects Analysis and, if necessary, Re-attack Recommendations. The CA process is the final segment of the targeting cycle, without which any campaign will have trouble progressing; the process hinges on BDA. BDA is considered in 3 phases; First Phase BDA (BDA1) is conducted at the tactical level, and consists of immediate tactical BDA to which local or in-theatre Operational Intelligence is added to enable the JTFC to assess the near-term progress in meeting objectives within his campaign plan. In the longer-term, Second and Third Phase BDA (BDA2 & 3) is directed by PJHQ, enabling all military strategic and operational factors derived from wider CEA activity to be consolidated at the operational level and then used to inform the JTFC's decisions. After each mission the A2/OA staffs conduct initial BDA1 to provide an early determination of mission achievement to A3.[6] This might result in a Re-attack Recommendation that may be tasked within the current ATO cycle. More refined BDA2 & 3 mission data may be requested through J3 to enable the Combat Assessment undertaken by the A5/OA staffs to further inform the continuing CEA process by gauging the progress of the air plan against JTFC's directives.

524. **Concurrent Planning and Tasking of Air Operations**. At any time, up to 3 separate ATOs will be in circulation - one currently undergoing execution (Combat Ops), one in the MAP-ATO phase (Combat Plans) and another undergoing JGAT-AOD preparation (A5 Strategy/Combat Plans). In addition, work on strategy development

[5] Refer to JWP 3-00 '*Joint Operations*' (Original) or JWP 5-00 '*Joint Operations Planning*' (due for publication in April 2004) for greater detail on CEA.

[6] The results of BDA1 missions conducted autonomously within components to enable a Component Commander to assess the progress of his own plan should also be reported by established means to the JTFHQ and JFACHQ.

for future air operations and OA of previously-flown ATOs will be under way within the Strategy Division. It is important to understand which of these ATOs is relevant to each area of the JFACHQ at any one time, as these overlapping processes drive the overall HQ battle rhythm. Components must also bear this sequencing in mind while planning their own activities. An illustration of the overlapping Planning/Tasking process is shown at Figure 5.3. The ATO duration is nominally set at 24 hours but may be more frequent if the situation demands and the rate of air tasking is comparatively low.

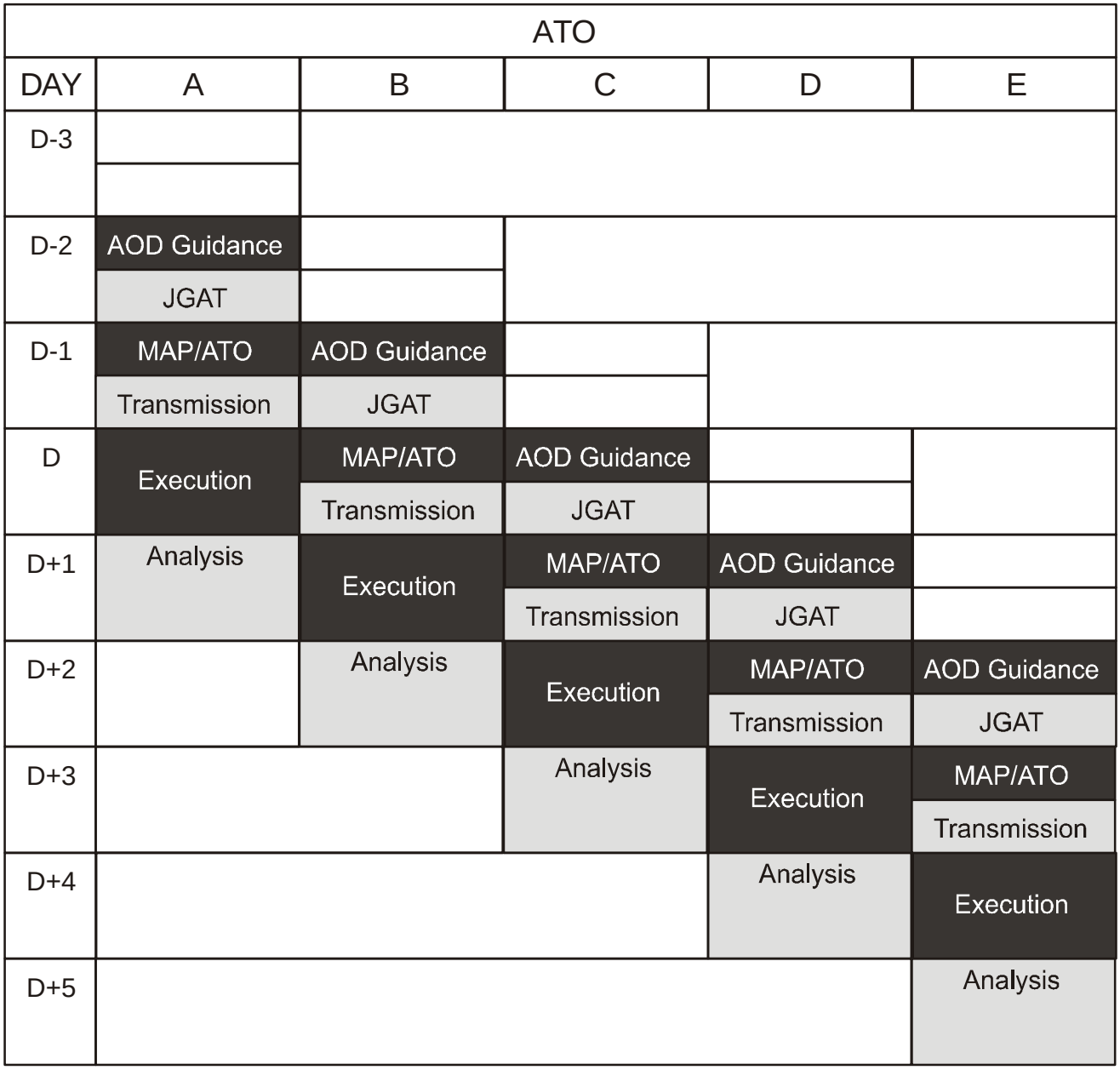

Figure 5.3 – Overlapping ATO Processes within the JFACHQ

SECTION VI - TARGETING

525. Targeting is the process of selecting targets and matching the appropriate response to them taking account of operational requirements and capabilities (AAP-6). The targeting process is driven by the JTFC's guidance articulated during daily JCB meetings, and feeds the JFACC's AOD guidance and JGAT process, one's own capabilities and the threat to friendly forces posed by the adversary. Targeting occurs to a varying extent at all levels of command within a joint force and is performed at all levels by forces capable of attacking targets with both lethal and non-lethal disruptive and destructive means. An effective and coherent system for blending the overall joint target development process with the air tasking cycle is essential for the successful execution of joint air operations. This joint targeting process should integrate the capabilities and efforts of national and multinational joint forces, which may possess varying capabilities and seek different outcomes. The process must be the same for all types of air operations, from conflict to Crisis Response Operations, though the degree of political control may vary.

526. **Targeting Cycle**. All targeting is based in the first instance upon CDS's Targeting Directive, from which the Joint Commander's (JT Comd) Targeting Directive to the JTFC[7] is developed. A Joint Target List (JTL) will be produced by the MOD Target System Analysis Planning Group, through the MOD Targeting Board, to provide an appropriate target list at the commencement of planning, or as strategic considerations change. This will be developed into the Joint Integrated Target List (JITL) by the Jt Comd's and JTFC's targeting staffs by including targets supporting operational objectives. The JITL is 'owned' by the Jt Comd and passed to the JTFC for execution. This execution follows a further cyclical joint targeting process that begins with guidance and priorities issued by the JTFC and which results in development of the Joint Integrated Prioritised Target List (JIPTL). The JIPTL incorporates targets 'fed down' from the JITL and those nominated by components which have been validated and approved by the JCB. Its rolling development takes into account Combat Assessment of the effects so far achieved and continuing JGAT direction from the JTFC on future required effects. JIPTL production is managed by the Joint Effects Meeting (JEM), which forwards the consolidated JIPTL to the JCB for final approval. It should be noted that targets proposed by components will invariably require political and legal clearance unless they already fall within the JTFC's delegated powers of target approval. The assignment of targets listed in the

[7] Refer to '*UKOPSDOC*', JWP 3-00 '*Joint Operations*' and JWP 3-80 '*Information Operations*' for more comprehensive guidance on the wider targeting process. Both '*UKOPSDOC*' and JWP 3-00 will be subsumed into one overarching publication entitled, Joint Doctrine Publication (JDP) 01 '*Joint Operations*'. JDP 01 will contain the most descriptive/enduring elements of mil-strat & operational level doctrine, with the more prescriptive/dynamic elements being consigned to a revised edition of JWP 3-00 under new the title '*Joint Operations Execution*' and JWP 5-00 '*Joint Operations Planning*'. These new/revised publications are due to be published in April 2004.

JIPTL to components or systems is carried out by the JEM, supported by the JFACC's JGAT and target weaponeering process.[8]

527. **Target Nominations**. The Target Nomination List (TNL) is the daily list of targets 'extracted' from the JIPTL, including those recommended by CCs, that are to be prosecuted by the joint force. It is developed within the JFE alongside the JIPTL and approved by the JCB. The great majority of targets are likely to directly involve air operations in some way, however the TNL will contain targets, the desired effects of which may not be applied by air power nor indeed be in the air dimension (for example, Information Operations). Those targets which the JFACC is directly responsible for servicing will be prioritised in the Strategy-to-task process, reflected in the MAP, and then implemented in the ATO; however, other wider targeting priorities, some of which may be serviced by other components, must also be taken into account by all those involved in joint air operations.

SECTION VII - ATTRITION, RESERVES AND COMBAT IDENTIFICATION

528. **Attrition**. Attrition has a great effect on morale and the ability to continue a planned line of operation. This emotive limiting factor cannot be compared in absolute terms across the field of military capability and airmen must take care to express their concerns in terms of the ability of air to enable the joint plan to succeed. The graph in Figure 5.4 shows the effect of cyclic attrition. As an example, planning on a fleet of 36 aircraft flying 3 sorties per aircraft per day, to lose 10 aircraft after 6 days is a cyclic attrition rate of approximately 2%. In daily terms, however, this 2% cyclic attrition equates to over 5% per day reduction in the total fleet. If these aircraft were crucial to the JFACC's scheme of manoeuvre, their loss could prevent the JFACC from achieving the air contribution to the JTFC's campaign objectives. When expressed in terms of campaign success or failure, the JTFC is more likely to appreciate the significance of the losses.

[8] CAS targets are generally not included in the JIPTL, however asset allotment, apportionment or allocation for provision of CAS tasking must be taken into account in the JGAT process.

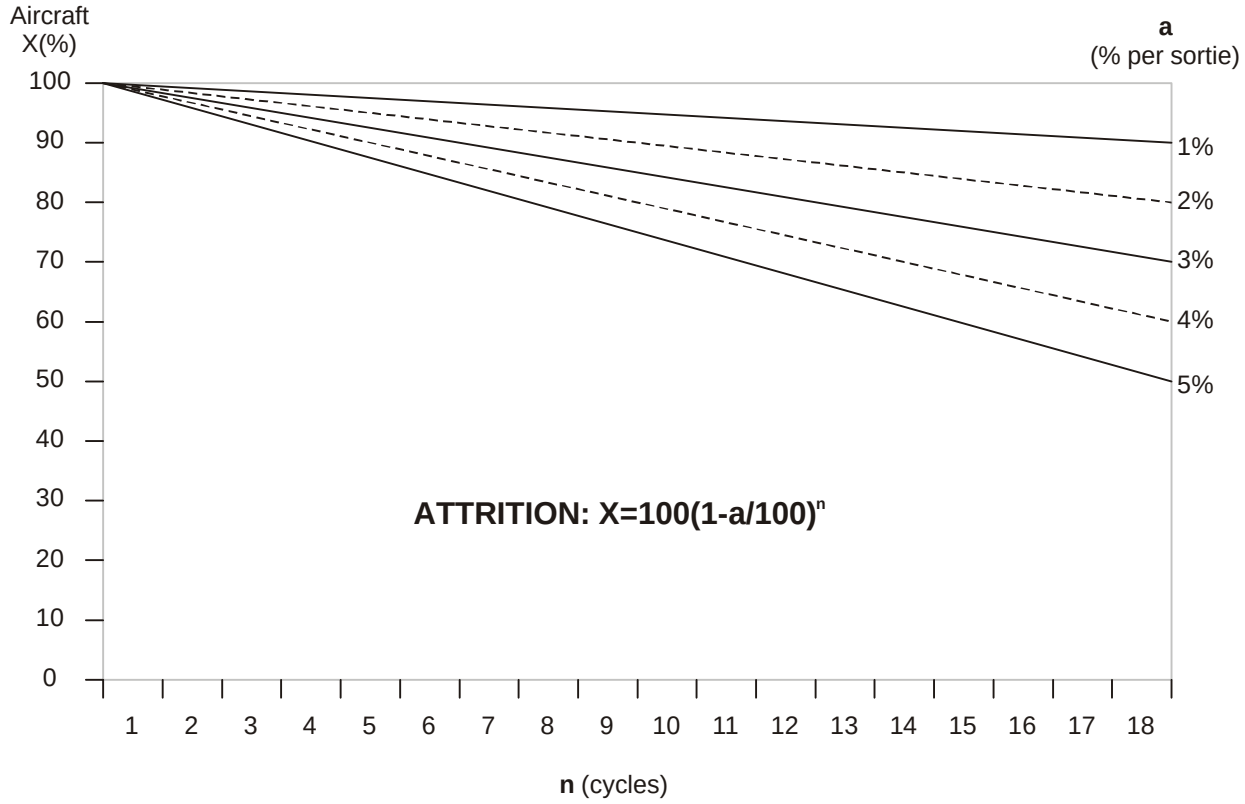

Figure 5.4 - Cyclic Attrition

Example: 36 aircraft, 3 sorties per day, suffering ~2% cyclic attrition, ~5% daily

End of Day 1:	34 aircraft	102 sorties	~5% sortie potential loss
End of Day 6:	26 aircraft	78 sorties	~28% sortie potential loss

As can be seen, the 2% cyclic attrition becomes an effective reduction of ~28% in the ability to mount sorties.

529. Predicted rates of attrition are not found in a table or formula, they depend on numerous factors. Within the JTFC's guidance of acceptable risk, it is the JFACC's responsibility to make a military judgement of the facts and possibilities offered. Air planners may task the Operational Analysis staff to calculate likely attrition but it should be remembered that they can only offer advice on the basis of statistical analysis and experience. Notwithstanding the above daily effect on the fleet, the situation is further complicated by the need to calculate the effect of attrition in terms of sortie potential for operations.

530. **Sortie Rates**. Air reserves can be achieved through the deployment of additional air assets. It is not necessarily true that 'a sortie not flown is a sortie lost'. If the maximum number of sorties is planned to be flown on each day then attrition will ensure that fewer sorties can be generated on each successive day. This may provide the opponent with an indication of the success of his own operations. There may be operational advantage by initially restricting the number of sorties flown and bringing the full weight of attack against the opponent at a more advantageous time, thereby achieving greater impact and possibly causing the opposing air commander to

change his battle plan. The JFACC also has the option of deciding what level of sorties can be maintained during the phase of the air operation that will give him a daily sortie reserve against unforeseen contingencies. As conflict is unpredictable and activity tends to occur in surges, it is to the JFACC's advantage to vary the sortie pattern and have a reserve to exploit lulls in opponent activity.

531. **Combat Identification**. Combat Identification (Combat ID) is a system of systems which aims to provide commanders with rapid, secure and positive identification of platforms, equipment and people in or approaching the Joint Operations Area (JOA).[9] The potential for fratricide in a joint and multinational operational air environment can be reduced by the adoption of a comprehensive Combat ID posture, which includes sound airspace control procedures. Conformance with a Minimum Capability List (MCL) of Combat ID equipment which is widely fitted to relevant platforms is also a significant consideration. The MCL does not represent the minimum equipment essential to participate in operations,[10] but is a level of capability without which the risk of fratricide will be increased. Detailed measures to consider in establishing a Combat ID posture for air operations are at Annex 5B.

[9] UK Policy for Combat ID (D/DJW/183/21 dated 2 Jul 01).
[10] However, in a multinational context, and particularly for air operations, a Lead Nation may often stipulate the mandatory availability of specific Combat ID capabilities within Coalition forces (e.g. US mandated use of IFF Mode 4).

ANNEX 5A – FORMAT FOR AN AIR OPERATIONS DIRECTIVE

OP/EX *NAME*

AIR OPERATIONS DIRECTIVE – AOD

PERIOD: From - To
UPDATE: DTG
STATUS: DRAFT/FINAL/RELEASED

1. **ENEMY FORCES SUMMARY**

(Summary Narrative - A2)

a. **Maritime**. *Narrative*

b. **Air Forces**. *Narrative*

Aircraft Type	Original ORBAT	Assessed Losses to Date

Narrative

System	Initial ORBAT	Remaining ORBAT

c. **Land Forces**. *Narrative*

2. **ASSESSMENT**

a. **Enemy Forces**. *Narrative*

b. **Friendly Forces *(J3/A3)***

3. **AIR ALLOTMENT (Changes in TACOM/TACON) *(J3/A5)***

Change/No Change

Period: DTG valid
Detail: From: Parent HQ / Number / Type / Role / Providing Base / Unit
To: Receiving HQ / Receiving Base / Unit (if req)

4. **JTFC GUIDANCE Phase # *(A5 Strat Guidance) (ATO #+)***

Change/No Change

Narrative of JTFC Guidance for current phase of operations

JTFC Daily guidance - Day #

Change/No Change

Narrative of JTFC Guidance for AOD period

5. **JFACC MISSION: Phase # *(A5 Strat Guidance)***

Change/No Change

JFACC Mission statement for the current phase

6. **JFACC INTENT Phase # *(A5 Strat Guidance)***

Change/No Change

JFACC Intent for current phase (method & end-state)

7. **JTFC AIR APPORTIONMENT DECISION *(A5 Strat Guidance)***

Change/No Change

a. **Task Apportionment (Prioritised Op Objectives & Sub-Objectives)**

(OO) *ID# - Title*

(SO) *ID# - Title*

(SO) *ID# - Title*

(SO) *ID# - Title*

(OO) *ID# - Title*

(SO) *ID# - Title*

(SO) *ID# - Title*

(SO) *ID# - Title*

*N.B. The above prioritisation establishes the relative priorities of associated Tac Objectives.

b. **Task Apportionment with Operational Summary of Effort**

Operational Objective	**JFACC Objective**	**Sortie Allocation**
Total Joint Air Sortie Allocation		

Component	**Role**	**Allocation Requested**	**Sortie Allocation**
Total Component Sortie Allocation			

Non-Op Sorties (incl. FIT, Unit Trg etc)	
Total Planned Sorties	
Additional Sorties Available for Tasking	

Daily Sortie Capability	
Sustained Operations	
Surge Operations	

c. **Asset Apportionment (A5 Strat Guidance)**

Change/No Change

Valid from:
From: Component providing assets /number / type / role / Unit / Base
To: Component receiving assets

8. **JTFC TARGETING DECISION *(A5GAT)***

See attached JIPTL on Excel spreadsheet and soft copy on disc for ATO #

9. **JFACC DAILY GUIDANCE - ATO #**

a. **Operational Level Intent *(A5 Strat Guidance)***

JFACC's operational intent & scheme of manoeuvre for the AOD period.

b. **JFAC Resource Allocation *(A5 Strat Guidance)***

Unit	A/C	Base	Role	A/C	C/R	Allocated Role	Tasking Agency	SAFT *	Sortie Rate	Notes

If either A3(Plans) or A3(Ops) plan or task outside of the above direction, they are to back-brief the A5 Allocation Planner accordingly.
N.B. – This resource allocation is A5 strategy planning assumptions for the period. It is a result of discussions with Combat Plans, Combat Ops and JFAC units to take into consideration planned down days, surges etc. It should include information on all assets TACOM/TACON to the CFACC.
*SAFT - Serviceable Aircraft For Tasking

c. **Tactical Objective Apportionment and Allocation**. **(A5 Strat Guidance)**

Tactical Primary	Tactical Objective	Objective	WofE*	ETC**

AD Sweep/Escort Assets available for additional COMAO Tasking	
SEAD Assets available for additional COMAO Tasking	
TAR Assets available for additional COMAO Tasking	

Notes.
***** All WofE for Tac Obj DOR3.2, DOR3.3 and DOR3.4 are G-INT.
*Weight of Effort (WofE) is intended to describe the approximate number of assets to be applied towards the achievement of particular Tactical Objectives during the period. It may describe sorties, aircraft (ground alert) or other assets.
** Estimated Time of Completion (ETC) (i.e. by end of ATO shown).

d. **Tactical Task Prioritisation and Allocation *(A5 JGAT)***

Tactical Primary	Tactical Task	Task	AOD WofE	ATO WofE*

Note.
*ATO WofE: Following ATO production the ATO WofE column is to be completed by A3 (Plans) and forwarded to A5 GAT.

e. **Tactical Scheme of Manoeuvre (A5 JGAT)**

JFACC's intended tactical SofM

f. **Tactical Role Concept of Operations (A5 GAT)**

Change/No Changes

Tactical CONOPS are as detailed in JAOP; only changes to standing CONOPS and/or specific tactics for the AOD period are detailed below.

Name
Rank
JFACC

(INTENTIONALLY BLANK)

ANNEX 5B – COMBAT IDENTIFICATION CONSIDERATIONS

5B1. **Minimum Capability List**. The Minimum Capability List (a development of the RAF Minimum Equipment List) comprises common and role-specific items, which should be afforded highest priority for those air assets operating within the Combat Zone:

a. **Common Items**.

(1) Accurate navigation and weapon system equipment – sufficient to maintain minimum risk routing and ensure accurate targeting.

(2) Secure and, where necessary, jam-resistant voice communications.

(3) Interoperable, secure data link from aircraft to Command and Control (C2) and other platforms (both air-to-air and air-to-ground).

(4) Mode IV IFF.

b. **Role-Specific Items**.

(1) **Air-to-Air**.

(a) Target Identification System – e.g. Non-Co-operative Target Recognition.

(b) IFF interrogator – at least Mode IV.

(c) AI radar.

(2) **Air-to-Ground**.

(a) Appropriate Battlefield Combat Identification (Combat ID) System for friendly ground units.

(b) Appropriate Precision Guided Munitions.

(3) **Maritime Patrol**.

(a) Profiling Radar.

(b) Appropriate Precision Guided Munitions.

(c) Electro-optical Identification System.

(d) Electronic Warfare Support Measures (ESM) capability.

5B2. **Command and Control**. The destructive power and range of modern weapons, coupled with the high intensity and rapid tempo of modern combat, increase the potential for fratricide. Commanders must be aware of those situations that particularly increase the risk of fratricide and institute appropriate preventative measures. The primary mechanisms for limiting fratricide are clear C2 procedures employing command direction, rehearsals, disciplined operations, Tactical ID, close co-ordination among component elements and enhanced situational awareness. Commanders must seek to minimise the potential for fratricide while not limiting boldness and audacity in combat; in air operations, a fundamental consideration will be Airspace Control.

5B3. **Situational Awareness**. The degree of Situational Awareness achieved is a fundamental consideration for Combat ID. To avoid confusion or ambiguity in generating a real-time, tactical Common Operating Picture (COP), it is important that operators and commanders are aware of, and stringently apply, the recognition and identification criteria that are laid down by the Joint Task Force Commander (JTFC) for operations throughout the Joint Operations Area (JOA). In air operations, the relevant level of Identification Authority needs to be delegated to the commander who is best placed to carry out this function, such that no engagement should take place until the ordered level of confidence in target ID has been achieved. There should also never be any ambiguity about the responsibility of an individual unit or formation for proactively or reactively identifying itself.[1]

5B4. **Airspace Control Measures**. It is likely that airspace control measures covered in the Airspace Control Plan (ACP) will be theatre-specific, and that the ACP will be based on a mixture of procedural and electronic means.

5B5. **Airspace Control in the Combat Zone**. The airspace of the combat zone is a crucial dimension of the battlespace and is likely to be used by all components of the joint force to conduct assigned missions. The goal of combat zone airspace control is to enhance air, land, maritime, and special operations force effectiveness in accomplishing the JTFC's objectives within the guidance of his risk parameters. Airspace control procedures must prevent mutual interference from all users of the airspace, facilitate air defence identification, and safely accommodate and expedite the flow of all types of friendly air traffic in the theatre of operations, including those outwith the Combat Zone or transiting contiguous airspace to the JOA. However, adversary forces will attempt to degrade airspace control capabilities by direct attack and electronic measures directed against control nodes or other specific targets. The

[1] UK Combat ID policy. Even in strict EMCON situations, reactive Combat ID should be undertaken as one of the standard occasions of breaking silence. It follows that Tactical ID (TID) systems, such as IFF and BTID, should be fully considered in unit and force EMCON plans.

airspace control structure needs to be responsive to the evolving threat and changing tactical situations.

5B6. **Airspace Considerations on Transition to Conflict**. Peacetime airspace rules and organisations will change during actual conflict, and the nature of these changes may be different from theatre to theatre and between Combat Zone and contiguous airspace. The Airspace Control Plan needs to provide instructions, and clearly define these differing procedures, to enable transition from peacetime to combat in simple, clear steps. Existing air defence structures may be overwhelmed by massed enemy attacks over small geographic areas.

5B7. **Integration of Airspace Control and Air Defence Operations**. Because airspace control and air defence would conflict and interfere with each other if operating independently, prioritisation and integration of each mission is essential. Airspace control procedures should be used to assist, not hinder, aircraft identification, facilitate engagement of enemy aircraft, and provide safe passage of friendly aircraft.

5B8. **Air Defence Engagements**. It is critical that the Air Defence (AD) and airspace procedures are totally compatible at the Combat Zone interface with contiguous airspace. Weapon engagements must be seamless in order to reduce unco-ordinated simultaneous engagements, unengaged penetrators and fratricide. Combat zone airspace control procedures and area air defence operations are inseparably linked; some of the joint planning and co-ordinating areas that must be considered are:

a. Joint engagement zone operations (if established).

b. Fighter engagement zone operations.

c. Missile engagement zone operations.

d. Co-ordinated AD Areas (if established) with maritime forces.

e. Suppression of Enemy Air Defences (SEAD).

5B9. **Specified Airspace Control Measures**. A Sector Airspace Control Authority who has been assigned a portion of airspace by the Airspace Control Authority (ACA) must co-ordinate with the ACA to ensure unity of effort and minimal interference along adjacent boundaries. Combat Zone airspace control within an Amphibious Objective Area will also need specific measures, as will Non-Article 5 Crisis Response Operations (NA5CRO) and operations involving Unmanned Aerial Vehicles.

5B10. **Close Air Support**. Commanders must appreciate the inherent dangers of fratricide involved in the conduct of Close Air Support (CAS) missions. Major causes of fratricide during the CAS process include misidentification of targets, target location errors, target locations incorrectly transmitted or received, and loss of

situational awareness by controllers, aircrews, and those requesting CAS. It is critical for all participants in the CAS process to realise that they can contribute to unintentional or inadvertent friendly fire incidents. They are responsible for the effective and safe execution of CAS.

GLOSSARY OF TERMS AND DEFINITIONS

The reference for the terms and their definitions used in this Glossary is indicated in parenthesis. Those marked (JWP 3-63) or (IJWP 3-30) are new terms.

Active Defence
The measures necessary to prevent an enemy from successfully attacking a unit; includes the physical defence of a unit against ground and low-level air attack. (JWP 0-01.1)

Air Assault
An operation in which integrated helicopter, ground, CS and CSS forces manoeuvre and fight in and from the air, and on and from the ground. (IJWP 3-30)

Air Interdiction
Air operations conducted to destroy, neutralise, or delay the enemy's military potential before it can be brought to bear effectively against friendly forces at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required. (AAP-6)

Air Manoeuvre
Those operations primarily within the land scheme of manoeuvre, seeking decisive advantage by the exploitation of the third dimension by combined-arms forces centred around rotary-winged aircraft, within a joint framework. (DRAM paper)(IJWP 3-30)

Air Mechanised Operation
An operation in which an aviation force, heavy in armed/attack helicopters, conducts independent combat in and from the air. (IJWP 3-30)

Air Power
Air power is the ability to project military force in the air or space by or from a platform or missile operating above the surface of the earth. Air platforms are defined as any aircraft, helicopter or unmanned vehicle. (AP 3000)

Air Superiority
The degree of dominance in the air battle of one force over another which permits the conduct of operations by the former and its related land, sea and air forces at a given time and place without prohibitive interference by the opposing force. (AAP-6)

Air Support Organisation
The organisation is responsible for developing and sustaining, across UK military service boundaries, a framework of permanent tactical ground and air liaison elements for which it has specific co-ordination and functional control responsibilities. (DCI JS 72/03)

Air Supremacy
That degree of air superiority wherein the opposing air force is incapable of effective interference. (AAP-6)

Airborne Operation
An operation involving the movement of combat forces and their logistic support into an objective area by air. (AAP-6)

Airmobile Operation
An operation in which combat forces and their equipment manoeuvre about the battlefield by aircraft to engage in ground combat. (AAP-6)

Airspace Control
A combination of airspace organisation planning procedures, the resulting control structure and co-ordinating functions to minimise risks and to allow for efficient and flexible use of airspace by all elements involved in air, land and sea operations. (AAP-6)

Airspace Control Area
Airspace which is laterally defined by the boundaries of the area of operations. The airspace control area may be subdivided into airspace control sub-areas. (AAP-6)

Airspace Control Authority
The commander designated to assume overall responsibility for the operation of the airspace control system in his or her assigned area. (AAP-6)

Airspace Control System
An arrangement of those organisations, personnel, policies, procedures and facilities required to perform airspace control functions. (AAP-6)

Allocation
The translation of the apportionment into total numbers of sorties by aircraft type available for each operation or mission. (AAP-6)

Allotment
1. The temporary change of assignment of tactical air forces between subordinate commands. The authority to allot is vested in the commander having operational command. (AAP-6)
2. The temporary change of assignment of forces between subordinate commanders. The authority to allot is vested in the commander having OPCON (i.e. JTFC). (IJWP 3-30) [1]

Amphibious Objective Area
A geographical area, delineated in the initial directive, for purposes of command and control within which is located the objective(s) to be secured by the amphibious task force. This area must be of sufficient size to ensure accomplishment of the amphibious task force's mission and must provide sufficient area for conducting necessary sea, air and land operations. (AAP-6)

Apportionment
The quantification and distribution by percentage of the total expected effort, in relation to the priorities which are to be given to the various air operations in geographic areas for a given period of time. (AAP-6)[2]

Area of Operations
1. At the operational level, the geographical area defined by the operational level commander within his JOA in which a commander designated by him (usually a component commander) is delegated authority to conduct operations. (JWP 0-01.1)
2. At the tactical level, a geographical area defined, by lateral and rear boundaries, which is assigned to a commander by a higher commander. Within these boundaries the commander has authority to conduct operations in order to execute his mission. (JWP 0-01.1)

Assign
To place units or personnel in an organisation where such placement is relatively permanent, and/or where such organisation controls and administers the units or personnel for the primary function, or greater portion of the functions, of the unit or personnel. (AAP-6)

[1] The process of allotment derives from the operational estimate and in UK doctrine is not limited to assignment of air forces; it is used in constructing the balanced force required to achieve the mission stipulated in the Jt Comd's Directive therefore as such it is used to place assets of one component commander in support of another.
[2] In UK doctrine, apportionment applies to all types of effect, not just those applying to air forces. It will be used to prioritise and synchronise those tasks which must be carried out by component assets in order to achieve joint campaign objectives, in the light of predicted availability of resources.

Associated Support
1. In air operations, assistance provided by a force or unit to another force or unit that is under independent tactical control, neither being subordinate to the other. (IJWP 3-30)[3]
2. In naval usage, operations in which a designated unit operates independently of a specified force or group, but is tasked to provide contact information to, receive intelligence from and, if authorised, to co-operate and co-ordinate operations with the supported force. Tactical control of the unit remains with the assigning authority who co-ordinates tasking and movement of the unit in response to the requirements of the supported commander. (AAP-6)

Battle Damage Assessment
The timely and accurate estimate of damage resulting from the application of military force, either lethal or non-lethal, against a predetermined objective. (US Jt Pub 1-02)

Campaign
A set of military operations planned and conducted to achieve a strategic objective within a given time and geographical area, which normally involve maritime, land and air forces. (AAP-6)

Centralised Control
In air defence, the control mode whereby a higher echelon makes direct target assignments to fire units. (AAP-6)

Centre of Gravity
Characteristic(s), capability(ies), or locality(ies) from which a nation, alliance, a military force or other grouping derive its freedom of action, physical strength or will to fight. (AAP-6)

Close Air Support
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)

Combat Assessment
The determination of the overall effectiveness of military employment during a cycle of military operations. It comprises battle damage assessment, weapons effects analysis and a re-attack recommendation. (JWP 3-00)

[3] The AAP-6 definition is '*In **naval** air operations, assistance provided by a force or unit to another force or unit that is under independent tactical control, neither being subordinate to the other*'. In UK doctrine, Associated Support is afforded a wider application in all types of air operations, with the view that it may have utility for specifying degrees of support provided in other environments. See Chapter 3 for details.

Components
Force elements grouped under one or more component commanders subordinate to the operational level commander. (JWP 0-01.1)

Composite Air Operations
Air operations interrelated and/or limited in both timescale and space where units differing in type and/or role are put under a single package commander to achieve a common, specific objective. (AP 3000)

Co-ordinating Authority
The authority granted to a commander or individual assigned responsibility for co-ordinating specific functions or activities involving forces of two or more countries or commands, or two or more services or two or more forces of the same service. He has the authority to require consultation between the agencies involved or their representatives, but does not have the authority to compel agreement. In case of disagreement between the agencies involved, he should attempt to obtain essential agreement by discussion. In the event he is unable to obtain essential agreement he shall refer the matter to the appropriate authority. (AAP-6)

Cyclic Attrition
The loss rate per mission cycle expressed as a percentage. (IJWP 3-30)

Decisive Point
A point from which a hostile or friendly centre of gravity can be threatened. This point may exist in time, space or the information environment. (AAP-6)

Deployment Operating Base[4]
A base, other than a peacetime base, having minimum essential operational and support facilities, to which a unit or part of a unit will deploy to operate from in a time of tension or war. (AAP-6)

Direct Support
The support provided by a unit not attached to or under the command of the supported unit or formation, but required to give priority to the support required by that unit or formation. (AAP-6)[5]

Directive
A military communication in which policy is established or a specific action is ordered. (AAP-6)

[4] Sometimes referred to as **Deployed** Operating Base.
[5] In UK doctrine, for Direct Support the supporting unit or force joins and fully integrates into the supported unit or force, under the supported unit/force's TACOM or TACON. See Chapter 3 for details.

End-state
The political and/or military situation to be attained at the end of an operation, which indicates that the objective has been achieved. (AAP-6)

Establishing Authority
The Establishing Authority is the command authority that defines the support relationship between the Supported and Supporting Commander. The Establishing Authority should issue directives indicating the purpose in terms of the desired effect to be achieved and the scope of the action to be taken; this includes the allocation of forces to a mission and the time, place and duration of the support to be provided. (AJP-01(B) & JWP 3-00)

Favourable Air Situation
A situation in which the extent of air effort applied by enemy air forces is insufficient to prejudice success of friendly sea, land or air operations. (JWP 0-01.1)

Fire Support Co-ordination Line
Within an assigned area of operations, a line established by a land or amphibious force commander to denote co-ordination requirements for fires by other force elements which may affect the commander's current and planned operations. The Fire Support Co-ordination Line applies to fires of air, ground or sea weapons using any type of ammunition against surface or ground targets. The establishment of the Fire Support Co-ordination Line must be co-ordinated with the appropriate commanders and supporting elements. Attacks against surface or ground targets short of the Fire Support Co-ordination Line must be conducted under the positive control or procedural clearance of the associated land or amphibious force commander. Unless in exceptional circumstances, commanders of forces attacking targets beyond the Fire Support Co-ordination Line must co-ordinate with all affected commanders in order to avoid fratricide and to harmonise joint objectives. Note: In the context of this definition the term 'surface targets' applies to those in littoral or inland waters within the designated area of operations. (AAP-6)

Friendly
In identification, the designation given to a track, object or entity belonging to a declared, presumed or recognised friendly nation, faction or group. (JWP 3-63. NATO-agreed term for inclusion in AAP-6 (2004))

Hostile
In identification, the designation given to a track, object or entity whose characteristics, behaviour or origin indicate that it is a threat to friendly forces. Note: designation as Hostile does not necessarily imply clearance to engage. (JWP 3-63. NATO-agreed term for inclusion in AAP-6 (2004))

Joint
Adjective used to describe activities, operations and organisations in which elements of at least two services participate. (AAP-6)

Joint Airspace Control Cell
A joint cell with appropriate representation from the components and, if applicable, host and coalition nations, to provide the Airspace Control Authority with the capability to plan, co-ordinate, integrate and regulate airspace control within the Joint Operations Area. (JWP 3-34.1 & JWP 3-63)

Joint Co-ordination Board
The Joint Co-ordination Board is an operation synchronisation meeting used to promulgate the JTFC's guidance and objectives to component commanders. It is his method of ensuring unity of effort. The Board will review the Joint Integrated Prioritised Target list to ensure that it reflects the JTFC's Campaign Plan and is in line with HMG objectives. (JWP 0-01.1)

Joint Effects Meeting[6]
The Joint Effects Meeting is a staffing board whose role is to ensure the targeting plan takes full account of the JTFC's prioritised objectives within the overall campaign plan. It is also responsible for the co-ordination and deconfliction of JTFC-controlled assets. It will produce the daily TNL from the JIPTL for later approval by the JCB. (IJWP 3-30)

Joint Force
A force composed of significant elements of two or more Services operating under a single commander authorised to exercise operational command or control. (JWP 0-01.1)

Joint Integrated Prioritised Target List
A prioritised list of targets, approved by the Joint Force Commander and maintained by a joint task force, which includes the Component Commanders' requirements. (JWP 0-01.1)

Joint Integrated Target List
A list of strategic and operational targets, co-ordinated by PJHQ, to meet the JTFC objectives. (JWP 0-01.1)

[6] Previously known as Joint Fires Element.

Joint Operations Area
An area of land, sea and airspace, defined by higher authority, in which a designated Joint Task Force Commander plans and conducts military operations to accomplish a specific mission. A Joint Operations Area including its defining parameters, such as time, scope and geographic area, is contingency/mission specific. (JWP 0-01.1)

Joint Target List
A consolidated list of selected but unapproved targets considered to have military significance in the joint operations area. (JWP 0-01.1)

Joint Task Force Commander
The operational commander of a nominated joint force. (JWP 0-01.1)

Joint Task Force Headquarters
A purely national deployable joint headquarters of variable size commanded at the operational level by a Joint Task Force Commander. (JWP 0-01.1)

Master Air Attack Plan
A plan that contains key information that forms the foundation of the joint Air Tasking Order. (AJP-3.3 & US JP 1-02)

Multinational
Adjective used to describe activities, operations and organisations, etc in which forces or agencies of more than one nation participate. (AAP-6)

Neutral
In identification, the designation given to a track, object or entity whose characteristics, behaviour, origin or nationality indicate that it is neither supporting nor opposing friendly forces. (JWP 3-63. NATO-agreed term for inclusion in AAP-6 (2004))

Offensive Counter-air Operation
An operation mounted to destroy, disrupt or limit enemy air power as close to its source as possible. (AAP-6)

Operation
A military action or the carrying out of a strategic, tactical, service, training or administrative military mission; the process of carrying on combat, including movement, supply, attack, defence and manoeuvres needed to gain the objectives of any battle or campaign. (AAP-6)

Operational Level of War
The level of war at which campaigns and major operations are planned, conducted and sustained to accomplish strategic objectives within theatres or areas of operation. (AAP-6)

Passive Defence
The measures necessary to minimise the effects of enemy air and/or ground attack; includes the physical defence and protection of personnel and essential equipment and all NBC defence aspects. (NATO)

Recognised Air Picture
An electronically-produced display from primary and secondary radar, and ESM sources covering a 3-dimensional volume of interest in which all detected air contacts have been evaluated against specific threat parameters and then assigned a recognition category and track number. (JWP 0-01.1)

Recognised Land Picture
The fullest achievable agreed level of identification and tracking of all land surface contacts in the area of interest. The Recognised Land Picture is normally associated with the Recognised Air Picture of the same area. (JWP 3-63 & IJWP 3-30)

Recognised Maritime Picture
The fullest achievable agreed level of identification and tracking of all (maritime) surface and sub-surface contacts in the area of interest. The Recognised Maritime Picture is normally associated with the Recognised Air Picture of the same area. (JWP 0-01.1)

Recognition
The determination of the nature of a detected person, object or phenomenon, and possibly its class or type. This may include the determination of an individual within a particular class or type. (AAP-6)

Supported Commander
1. A commander having primary responsibility for all aspects of a task assigned by higher authority. (JWP 0-01.1)
2. A commander having primary responsibility for all aspects of a task assigned by a higher NATO military authority and who receives forces or other support from one or more supporting commanders. (AAP-6)

Supporting Commander
A commander who provides a supported commander with forces or support and/or who develops a supporting plan. (AAP-6)

Suppression of Enemy Air Defences
That activity which neutralises, temporarily degrades or destroys enemy air defences by a destructive and/or disruptive means. (AAP-6)

Target Nomination List
1. A list of targets, developed at Component HQs, submitted to the JFC for approval by MOD and inclusion in the JITL and JIPTL. (JWP 0-01.1)
2. A daily list of targets extracted from the JIPTL to be attacked by the joint force. (JWP 3-00)

Tactical Battle Management Functions
A method of division of Air Defence Commander functions within NATO Air Defence forces which can then be discretely and flexibly delegated for use, including engagement authority, identification and recognition authority, authority to activate airspace control measures and emission control. Delegation may be restricted in terms of unit, area or time. They should be delegated early enough to that level from which they can be executed most effectively. They may be re-assumed by higher authorities at any time. (JWP 3-63)

Tactical Command
The authority delegated to a commander to assign tasks to forces under his command for the accomplishment of the mission assigned by higher authority. (AAP-6)

Tactical Control
The detailed and, usually, local direction and control of movements or manoeuvres necessary to accomplish missions or tasks assigned. (AAP-6)

Tasking
The process of translating the allocation into orders, and passing these orders to the units involved. Each order normally contains sufficient detailed instructions to enable the executing agency to accomplish the mission successfully. (JWP 0-01.1)

Theatre Missiles
Ballistic, cruise and air-to-surface missiles whose targets are within a given theatre of operations, with a range of a few hundred to several thousand miles. (JWP 3-63)

Unknown
In identification, the designation given to an evaluated track, object or entity that has not been identified. (JWP 3-63. NATO-agreed term for inclusion in AAP-6 (2004))

Unmanned Aerial Vehicle
A powered aerial vehicle that does not carry a human operator, uses aerodynamic forces to provide vehicle lift, can fly autonomously or be piloted remotely, can be expendable or recoverable, and can carry a lethal or non-lethal payload. Ballistic or semi-ballistic vehicles, cruise missiles and artillery projectiles are not considered unmanned aerial vehicles. (JWP 3-63)

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GLOSSARY OF ABBREVIATIONS

AAA	Anti Aircraft Artillery
AAW	Anti-Air Warfare
AAR	Air-to-Air Refuelling
ABCCC	Airborne Battlefield Command and Control Centre
ABFAC	Airborne Forward Air Controller (rotary wing)
ACA	Airspace Control Authority
ACE	Airborne Command Element
ACM	Airspace Control Measures
ACO	Airspace Control Order
ACP	Airspace Control Plan
ACS	Airspace Control System
ACU	Aircraft Control Unit
AD	Air Defence
ADC	Air Defence Commander
ADP	Air Defence Plan
AE	Aeromedical Evacuation
AECC	Aeromedical Evacuation Co-ordination Centre
AH	Attack Helicopter
AI	Air Interdiction
ALO	Air Liaison Officer
AOA	Amphibious Objective Area
AOC	Air Operations Centre
AOCC(L)	Air Operations Co-ordination Centre (Land)
AOCC(M)	Air Operations Co-ordination Centre (Maritime)
AOCC(SF)	Air Operations Co-ordination Centre (Special Forces)
AOD	Air Operations Directive
AOO[1]	Area of Operations
AOR	Area of Responsibility
ARS	Aircraft Control Centre, Recognised Air Picture Production Centre and Sensor Fusion Post
AS	Associated Support
ASC	Airspace Control
ASCC	Air Standardization Co-ordinating Committee
ASFAO	Anti-Surface Force Air Operations
ASMD	Anti-Ship Missile Defence
ASUW	Anti-Surface Warfare
ASW	Anti-Submarine Warfare
AT	Air Transport
ATC	Air Traffic Control

[1] Sometimes abbreviated to AO.

ATO	Air Tasking Order
AWACS	Airborne Warning and Control System
BCD	Battlefield Co-ordination Detachment
BDA	Battle Damage Assessment
BH	Battlefield Helicopter
BMC4I	Battle Management/Command, Control, Communications, Computers and Intelligence
C2	Command and Control
C3I	Command, Control, Communications and Intelligence
C4I	Command, Control, Communications, Computers and Intelligence
CA	Combat Assessment
CADA	Co-ordinated Air Defence Area
CAOC	Combined Air Operations Centre
CAP	Combat Air Patrol
CAS	Close Air Support
CATF	Commander Amphibious/Airborne Task Force
CC	Component Commander
CCF	Conventional Counter Force
CCIR	Commander's Critical Information Requirements
CCIRM	Collection, Co-ordination and Intelligence Requirements Management
CEA	Campaign Effectiveness Analysis
CIMIC	Civil Military Co-operation
CIS	Communication and Information System
CLF	Commander Landing Force
CoA	Course of Action
CoG	Centre of Gravity
COMAO	Composite Air Operations
COMSEC	Communications Security
CONOPS	Concept of Operations
CR	Combat Recovery
CRC	Control and Reporting Centre
CRO	Crisis Response Operations
CSAR	Combat Search and Rescue
CWF	Combat Weather Forces
DCA	Defensive Counter Air
DEW	Directed Energy Weapons
DF	Direction Finding
DMPI	Desired Mean Point of Impact
DOB	Deployment Operating Base

DP	Decisive Point
DS	Direct Support
ECM	Electronic Counter Measures
EEI	Essential Elements of Information
EHF	Extremely High Frequency
ELINT	Electronic Intelligence
EM	Electro-Magnetic
EMCON	Emission Control
EMP	Electro-Magnetic Pulse
EPM	Electronic Protective Measures
ESM	Electronic Warfare Support Measures
EW	Electronic Warfare
EWCC	Electronic Warfare Co-ordination Cell
FAC	Forward Air Controller
FAC-A	Forward Air Controller - Air (fixed wing)
FAOR	Fighter Area of Responsibility
FFA	Free-Fire Areas
FMCC	Force Movement Control Centre
FSCL	Fire Support Co-ordination Line
FSCM	Fire Support Co-ordinating Measure
GAT	Guidance, Apportionment and Targeting
GBAD	Ground Based Air Defence
GPS	Global Positioning System
HPT	High Payoff Target
HUMINT	Human Intelligence
HVAA	High Value Air Asset
HVT	High Value Target
ICAO	International Civil Aviation Organisation
ICCL	Inter-component Co-ordination and Liaison
ID	Identification
IMINT	Imagery Intelligence
IMO	International Maritime Organisation
INFOSEC	Information Systems Security
INFO OPS	Information Operations
IPB	Intelligence Preparation of the Battlefield
IR	Infra-Red
ISO-IEC	International Standardisation Organisation - International Electro-technical Committee

ISTAR	Intelligence, Surveillance, Target Acquisition and Reconnaissance
I&W	Indicators and Warnings
J-1	Joint Administrative Staff
J-2	Joint Intelligence Staff
J-3	Joint Operations Staff
J-4	Joint Logistics Staff
J-5	Joint Plans Staff
J-6	Joint Communications Staff
J-7	(Not allocated)
J-8	Joint Resources and Finance Staff
J-9	Joint Civil Affairs Staff (Civil Military Co-operation)
JAAT	Joint Air Attack Teams
JACC	Joint Airspace Co-ordination Cell
JtAD	Joint Air Defence
JAOC	Joint Air Operations Centre
JCB	Joint Co-ordination Board
JEM	Joint Effects Meeting
JFACC	Joint Force Air Component Commander
JFHQ	Joint Force Headquarters
JFLCC	Joint Force Land Component Commander
JFMCC	Joint Force Maritime Component Commander
JFSFCC	Joint Force Special Forces Component Commander
JGAT	Joint Guidance, Apportionment and Targeting
JIPTL	Joint Integrated Prioritised Target List
JMC	Joint Movement Centre
JOA	Joint Operations Area
JOP	Joint Operations Picture
JRCC	Joint Rescue Co-ordination Centre
JTCB	Joint Targeting Co-ordination Board
JTFC	Joint Task Force Commander
JTL	Joint Target List
JTTP	Joint Techniques, Tactics and Procedures
LH	Light Helicopter
LOAC	Law of Armed Conflict
LPD	Low Probability of Detection
LPI	Low Probability of Intercept
MAAP	Master Air Attack Plan
MANPADS	Man-Portable Air Defence System
MAOC	Maritime Air Operations Centre
MCE	Maritime Co-ordination Element

METOC	Meteorological and Oceanographic
MLRS	Multiple-launch Rocket System
MMU	Mobile Meteorological Unit
MOM	Measures of Merit
MOU	Memorandum of Understanding
MPA	Maritime Patrol Aircraft
MSI	Multi-Spectral Imagery
MTI	Moving Target Indicator
NATO	North Atlantic Treaty Organisation
NAV/POS	Navigation/Positioning
NBC	Nuclear, Biological and Chemical
NCTR	Non-Co-operative Target Recognition
NEO	Non-combatant Evacuation Operations
NGO	Non-Governmental Organisations
NFA	No-Fire Areas
OCA	Offensive Counter-air
OER	Operational Environment Research
OPCOM	Operational Command
OPCON	Operational Control
OPSEC	Operations Security
ORBAT	Order of Battle
OTC	Officer in Tactical Command
PE	Peace Enforcement
PGM	Precision Guided Munitions
PK	Peacekeeping
POL	Petrol, Oil and Lubricants
PSO	Peace Support Operations
PSYOPS	Psychological Operations
RAL	Rapid Air Landed(ing)
RAP	Recognised Air Picture
RCC	Rescue Co-ordination Centre
RF	Radio Frequency
RFA	Restrictive Fire Areas
RLP	Recognised Land Picture
RMP	Recognised Maritime Picture
ROE	Rules of Engagement
RR	Re-attack Recommendation
RSP	Recognised Surface Picture

SACA	Subordinate Airspace Control Authority
SAG	Surface Action Group
SAM	Surface-to-Air Missile
SAO	Special Air Operations
SAR	Search and Rescue
SEAD	Suppression of Enemy Air Defences
SF	Special Forces
SFLE	Special Forces Liaison Element
SHF	Super High Frequency
SOFA	Status of Forces Agreement
SPINS	Special Instructions
SRR	Search and Rescue Region
STO	Survive to Operate
STRAT	Strategy
SUW	Surface Warfare
TACCS	Theatre Air Command and Control System
TACOM	Tactical Command
TACON	Tactical Control
TALCE	Tanker/Airlift Control Elements
TALO	Tactical Air Landed Operation
TASMO	Tactical Air Support for Maritime Operations
TBM	Theatre Ballistic Missile
TM	Tactical Missile
TMD	Theatre Missile Defence
TNL	Target Nomination List
TOT	Time Over Target
TRANSEC	Transmission Security
TT&C	Telemetry, Tracking and Commanding
TTP	Techniques, Tactics and procedures
UAV	Unmanned Aerial Vehicle
UHF	Ultra High Frequency
UN	United Nations
USW	Undersea Warfare
WEA	Weapons Effects Analysis
WMD	Weapons of Mass Destruction
WOC	Wing Operations Centre
WRM	War Reserve Material