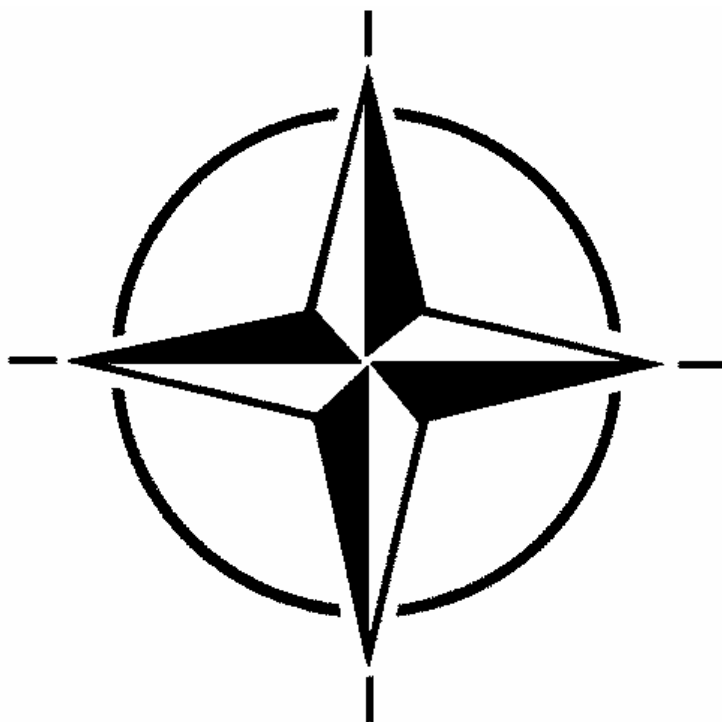AJP-3.3.2(A)

ALLIED JOINT DOCTRINE FOR CLOSE AIR SUPPORT AND AIR INTERDICTION

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ALLIED JOINT DOCTRINE FOR
CLOSE AIR SUPPORT AND AIR INTERDICTION
AJP-3.3.2(A)
SEPTEMBER 2009

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NORTH ATLANTIC TREATY ORGANISATION

NATO STANDARDIZATION AGENCY (NSA)

NATO LETTER OF PROMULGATION

11 September 2009

1.   Allied Joint Publication (AJP)-3.3.2(A) - Allied Joint Doctrine for Close Air Support and Air Interdiction is a NATO/PfP UNCLASSIFIED publication. The agreement of nations to use this publication is recorded in Standardisation Agreement (STANAG) 3736.

2.   AJP-3.3.2(A) is effective upon receipt. It supersedes AJP-3.3.2 which shall be destroyed in accordance with the local procedure for the destruction of documents.

Juan A. MORENO
Vice Admiral ESP(N)
Director, NATO Standardization Agency

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RESERVED FOR NATIONAL LETTER OF PROMULGATION

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RECORD OF CHANGES

Identification of Change, Registration Number (if any), and Date	Date Entered	NATO Effective Date	By Whom Entered (Signature, Grade, and Command)

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RECORD OF RESERVATIONS BY NATIONS

CHAPTER	RECORD OF RESERVATIONS BY NATIONS
General	USA
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RECORD OF SPECIFIC RESERVATIONS

NATION	SPECIFIC RESERVATIONS
USA	a. The United States interprets NATO's "forward air controller" (FAC) as being the equivalent of the United States' "joint terminal attack controller" (JTAC). Rationale: This publication fails to address the difference between NATO and the United States when referring to a FAC. NATO's definition of FAC is similar to the United States' definition of "joint terminal attack controller" (JTAC). The United States' definition of FAC is different than NATO's definition. These differences are reflected in the definitions that follow and need to be understood when requesting capabilities from the United States. **forward air controller -** A qualified individual who, from a forward position on the ground or in the air, directs the action of combat aircraft engaged in close air support of land forces (AAP-6) (NATO) **forward air controller -** (DOD) An officer (aviator/pilot) member of the tactical air control party who, from a forward ground or airborne position, controls aircraft in close air support of ground troops. Also called FAC. Source: JP 3 09.1 (USA) **joint terminal attack controller -** (DOD) A qualified (certified) Service member who, from a forward position, directs the action of combat aircraft engaged in close air support and other offensive air operations. A qualified and current joint terminal attack controller will be recognized across the Department of Defense as capable and authorized to perform terminal attack control. Also called JTAC. Source: JP 3-09.3. (USA) b. The United States does not subscribe to the language in paragraph 0110 that states, "CAS [close air support] tends to be an overall less efficient use of air power than AI [air interdiction], due to its localized effects, the tactical disposition of enemy targets and the added restrictions when attacking in close proximity to friendly ground forces." Rationale: The so-called "localized effects of CAS" may prove critical to maintaining offensive ground operations, thus having an operationally significant impact on the overall campaign. The premise in this paragraph (and in paragraph 0111) is that AI is *always* more "efficient" than CAS and will always have operational-level effects, yet CAS may be the most efficient use of air power during counterinsurgency and counterterrorism operations as part of irregular warfare activities.

NATION	SPECIFIC RESERVATIONS
USA	c. The United States does not accept the language in paragraph 0111 that states, "If the enemy ground force is a vulnerable target, the opening phase of the campaign may include a decisive halt operation to stop the enemy advance while simultaneously inflicting crippling damage. The surviving enemy force would continue to be attacked once it is halted, possibly in concert with SA [strategic attack], until the enemy either comes to terms or is overcome by a friendly ground counter-offensive or other following operational phase." Rationale: While the United States joint doctrine supports the use of air power in stopping a traditional enemy's advance in order to seize the initiative, "decisive halt" is an old construct no longer used in Allied joint doctrine. Current joint operational doctrine looks to the synergistic effects of all NATO joint forces to stop any enemy advance. "Decisive halt operations" is not mentioned nor discussed in current Allied or United States joint doctrine and should be removed from this publication. In addition, as part of an overall joint operation, air power would be used to help stop an advancing enemy ground forces even if they were not a vulnerable target, not just when"...the enemy ground force is a vulnerable target....." d. The United States does not subscribe to the lexicon terms and/or definitions for "air interdiction", "fire support coordination measure", "interdiction", "joint force air component commander", "joint force land component commander", and "joint operations area." Rationale: **Air interdiction.** The proposed definition is not in the proper format and is not the new MCTC approved definition (PL 1661-003) (Fall 2008) meeting which should have final OTC approval by 31 Jan 09. Replace the current definition with "Air operations conducted to divert, disrupt, delay, weaken or destroy an enemy's military potential before it can be brought to bear effectively against friendly forces and at such distance from the latter that detailed integration of each air mission with the fire and maneuver of friendly forces is not required. (This entry will be processed for inclusion in the NTDB and AAP-6 in accordance with the procedures defined in C-M(2005)0023-AS 1/25 April 2005, *'Directive on the NATO Terminology'.)"* or use current AAP-6 definition.

NATION	SPECIFIC RESERVATIONS
USA	**Fire support coordination measure.** The United States does not support the proposed definition as written, as the second sentence is not defining fire support coordination measure (FSCM). It is a partial explanation of how a commander employs a FSCM and detracts from the clarity of the definition. The definition should be rewritten to read: "A measure employed by land or amphibious maneuver commanders to facilitate the rapid engagement of targets and simultaneously provide safeguards for friendly forces. ~~Commanders position fire support coordination measures consistent with the operational situation and in coordination with superior, subordinate, supporting, and affected commanders (This term and definition is being staffed within the context of this publication for ratification and will be proposed as new term in AAP-6~~ This entry will be processed for inclusion in the NTDB and AAP-6 in accordance with the procedures defined in C-M(2005)0023-AS 1/25 April 2005, *'Directive on the NATO Terminology'.)*. **Interdiction.** The proposed definition of the term "interdiction" on page Lexicon-12, which reads, "An action to divert, disrupt, degrade, delay or destroy the enemy's military potential before it can be used effectively." and lacks the word "surface" (i.e., "... destroy the enemy's military <u>surface</u> potential before..."). The United States cannot support this definition of interdiction absent this key word as it would inadvertently include actions against enemy aircraft while they are airborne which is referred to as "counter air" in Alliance (and United States) joint doctrine. In addition, this term first should be established in a higher level publication, as it applies across a broad range of Allied joint publications. **Joint force air component commander and joint force land component commander.** These terms are not defined in AJP-01 as indicated and are not defined in AAP-6; therefore, they are not in compliance with AAP-47, *Allied Joint Doctrine Development,* lexicon guidelines and should be removed. **Joint operations area.** The Lexicon does not have the current AAP-6 definition. The definition should be changed to read "<u>A temporary area defined by the Supreme Allied Commander Europe, in which a designated joint commander plans and executes a specific mission at the operational level of war. A joint operations area and its defining parameters, such as time, scope of the mission and geographical area, are contingency-or mission specific and are normally associated with combined joint task force operations. (AAP-6)</u>"

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Allied Joint Doctrine for Close Air Support and Air Interdiction

Contents

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Allied Joint Doctrine for Close Air Support and Air Interdiction

References:

a.   AAP-6, NATO Glossary of Terms and Definitions (English and French)
b.   AAP-15, NATO Glossary of Abbreviations used in NATO Documents and Publications.
c.   AArtyP-5, NATO Field Artillery Tactical Doctrine
d.   AJP-01, Allied Joint Doctrine
e.   AJP-3, Allied Doctrine for Joint Operations
f.   AJP-3.2, Allied Joint Doctrine for Land Operations
g.   AJP-3.3, Allied Joint Doctrine for Air and Space Operations
h.   AJP-3.3.1, Counter Air
i.   AJP-3.3.3, Air–Maritime Coordination
j.   AJP-3.3.5, Doctrine for Joint Airspace Control
k.   AJP-3.6, Allied Joint Electronic Warfare Operations
l.   ATP-3.3.2.1, Tactics, Techniques and Procedures for Close Air Support and Air Interdiction
m.   STANAG 3797, Minimum Qualifications for Forward Air Controllers and Laser Operators in Support of Forward Air Controllers

Preface

0001.   Allied Joint Publication (AJP) 3.3.2(A), "Allied Joint Doctrine for close air support and air interdiction" supersedes AJP-3.3.2 – "Air Interdiction and Close Air Support". The publication provides fundamental principles and doctrine for the effective employment of air power for Close Air Support (CAS) and Air Interdiction (AI).

0002.   The scope of this publication is limited to CAS and AI, and directly related activities as outlined in AJP-3.3(A) including strike coordination and reconnaissance (SCAR).

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CHAPTER 1 – FUNDAMENTALS OF CLOSE AIR SUPPORT AND AIR INTERDICTION

Section I – Introduction

0101.   **CAS and AI operations** primarily focus at the tactical and operational levels of war, targeting the fielded hostile ground forces and the infrastructure that directly supports them, and could indirectly lead to strategic effects by denying the enemy the ability to execute their ground combat strategy. In those situations where the enemy places strategic value on a specific portion of their ground combat force, CAS and AI operations could produce more immediate effects at the strategic level. CAS and AI missions may be flown under an overall posture of offence or defence and are normally coordinated with any ground scheme of manoeuvre for maximum effectiveness.

0102.   CAS and AI operations can either be accomplished in direct or indirect support of ground operations, or can be carried out without friendly ground forces in the area.

0103.   How CAS and AI are conducted is dependent on overall campaign strategy and the specific circumstances of the conflict; such factors include available assets, enemy disposition, phase of the operation, whether ground combat is also occurring, our degree of control of the air and the need to support, or be supported by, surface forces.

0104.   Air power offers the advantage of finding, fixing, tracking, targeting, engaging and assessing enemy surface forces across the full depth of the battlefield generally unconstrained by battlefield boundaries and many of the environmental and geographical limitations imposed on surface forces. However, the synergy of CAS and AI operations and surface forces, operating as an integrated joint force, can often be overwhelming in cases where a single component cannot be decisive by itself.

0105.   **Close Air Support.** CAS is 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. The mission is flown in direct support of ground forces, in offensive and defensive operations, to destroy, disrupt, suppress, fix or delay enemy forces where they are in close proximity to friendly forces. The two key parts of the CAS definition are "close proximity" and "detailed integration."   The term 'close' does not imply a specific distance; rather it is situational. To succeed, detailed integration is required between each air mission and the fire and movement of surface forces to maximize mission effectiveness and minimize the risk of fratricide. Control of CAS is performed by qualified forward air controller (FAC)[1] in support of surface forces.

   a.   **Close proximity** refers to the distance within which some form of terminal attack control is required for targeting direction and fratricide prevention.

   b.   **Detailed integration** refers to the level of coordination required to generate the desired effects without overly restricting CAS attacks, surface firepower or the ground scheme of manoeuvre. It is also necessary to protect aircraft from the unintended effects of friendly surface fire.

0106.   **Air Interdiction**. AI operations are conducted to divert, disrupt, delay, degrade or destroy the enemy's military potential before it can be brought to bear effectively and as such distance that detailed integration of each mission with the fire and manoeuvre of friendly

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[1] Also known as Joint Terminal Attack Controller (JTAC) in some nations.

forces is not required[2]. This reduces but does not negate the requirement for the supporting commander to coordinate such fires, especially when delivered within the land component commander's (LCC) area of operations (AOO). Fires from AI occurring within an LCC's AOO are always required to be de-conflicted with that LCC. All AI occurring within a given joint operations area (JOA) is coordinated through established planning, targeting and operational execution processes. AI has the flexibility to operate either in support of surface operations or as the main effort against the enemy ground force. In some cases AI can provide the sole effort against the enemy ground forces, for example, when a joint operation has no friendly land component involved in combat operations.

a. **Strike Coordination and Reconnaissance**. SCAR utilizes combat aircraft to detect targets for AI missions in a specified geographic zone. The area may be defined by a box or grid where worthwhile potential targets are known or suspected to exist, or where mobile enemy surface units have relocated because of surface fighting. SCAR missions are normally part of the command and control (C2) interface to coordinate multiple flights, detect and interdict targets, neutralize enemy air defences (AD), and provide battle damage assessment (BDA). SCAR aircrew perform a similar function for AI missions that forward air controller (airborne) (FAC (A)) provide for CAS aircraft. **Even though some SCAR responsibilities are similar to that of a FAC (A), SCAR aircrew who are not explicitly qualified as FAC (A) do not have the authority to control CAS.**

b. Typical targets for AI are lines of communication, supply centres, command and control nodes, or fielded forces. AI is either performed as part of an overall JOA-wide AI effort, which typically aims to isolate all or part of the battlefield from its source of support and reinforcement, or as a more local effort in response to the needs of ground combat. Whenever AI is flown in the vicinity of own ground operations, greatest effects can be generated when the efforts are integrated. Not all AI is flown in support of land operations; there are many examples of AI flown against air or sea lines of communication (LOC).

Section II – Close Air Support and Air Interdiction Strategy

0107. CAS and AI are only one of a number of mission types available to the joint force air component commander (JFACC) for conducting air operations. In any conflict with an enemy who possesses significant air power, the first step towards the end state is usually achieving a degree of control of the air environment through counter air operations. This allows friendly air and surface units to proceed with other operations while preventing enemy air and missile attacks. With the rapidly growing use of space to support military activity on the surface, space operations (against space ground based installations, assets or LOC) will also be a consideration.

0108. Air and space superiority enables communications, navigation, and sensor and reconnaissance assets to accomplish the tasks that are vital to friendly military operations and denies that capability to the enemy. Once the way has been cleared to apply air power against the enemy, a variety of options is available to the JFACC. For example, the enemy may possess centres of gravity that can be directly neutralized through strategic attack (SA), thereby disrupting the enemy's overall military strategy. SA operations are designed to affect

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[2] This term and definition is being staffed within the context of this publication for ratification and will be proposed as a modification to the existing term in AAP-6)

the enemy at the national-military or even national political level, without the requirement of first creating operational-level effects. Conversely, CAS and AI operations typically create operational effects as a cumulative result of individual tactical operations, although operational effects such as area isolation or combat force immobility can lead directly to strategic results. Such results depend greatly on the enemy's strategy and the criticality of CAS and AI targets.

0109.   Depending on the specific circumstances of the conflict, air power might be employed in an early phase for SA, then shift to CAS and AI in a later phase. Another option would be to run parallel SA, CAS and AI operations, shifting the priorities back and forth as strategy progresses, and the enemy reacts to it. The use of CAS and AI in the opening phases of a conflict will depend greatly on the initial disposition of enemy ground forces, and how immediate a threat they represent. When ground operations are imminent or ongoing, the priority of CAS and AI operations will increase.

0110.   The apportionment of AI and CAS is dependent on the overall strategy. AI is normally focused on the operational level such as isolating an entire front from access or reinforcement by enemy forces, destroying critical enemy war-fighting capabilities, or facilitating operational manoeuvre of friendly surface forces. CAS is typically used for the direct destruction of local forces, often one gun or tank at a time, rather than aiming to disrupt or neutralize large enemy formations by targeting critical enemy systems or nodes. CAS tends to be an overall less efficient use of air power than AI, due to its localized effects, the tactical disposition of enemy targets and the added restrictions when attacking in close proximity to friendly ground forces. The flexibility of AI allows it to be conducted in support of surface operations or as main effort against the enemy surface force without the presence of any friendly ground forces (or with discrete ground force elements providing target cueing).

0111.   How many CAS missions will be flown and how deep the AI missions will be targeted depends on numerous factors such as: the joint force commander's (JFC) guidance and priorities, available sorties, enemy disposition, phase of the operation, whether ground combat is also occurring and the need to support (or the support provided by) the friendly ground force. If the enemy ground force is a vulnerable target, the opening phase of the campaign may include a decisive halt operation to stop the enemy advance while simultaneously inflicting crippling damage. The surviving enemy force would continue to be attacked once it is halted, possibly in concert with SA, until the enemy either comes to terms or is overcome by a friendly ground counter-offensive or other following operational phase.

SECTION III – Close Air Support and Air Interdiction as Manoeuvre Warfare

0112.   The term "manoeuvre" is typically defined as a combination of movement and fire, or fire potential, to achieve a position of advantage over the enemy. Manoeuvre warfare, in general terms, rests on movement relative to the enemy to create conditions for tactical, operational, and strategic success. Warfare by manoeuvre stems from a desire to circumvent enemy strengths and attack from a position of advantage, rather than meeting the enemy head on, or even to force the enemy into such a disadvantaged position that continued resistance is futile.   Air forces/capabilities, with their inherent speed, range and precision attack capabilities, cannot be defined as anything but manoeuvre forces.

0113.   When integrating CAS and AI operations as part of manoeuvre warfare, planners must be cognisant of the timing of when the effects will be felt and the level of coordination

and/or control needed for success. CAS effects are felt almost immediately, while AI effects can take days or even weeks to be perceived. The risk of fratricide to troops in close contact requires more positive and restrictive control measures, plus some form of targeting guidance/terminal attack control. This generally precludes AI being tasked against targets that are, or will be in close proximity to friendly forces by the time the mission is flown. Operational success in CAS and AI generally requires a sustained and concentrated effort. AI, especially, demands sustained, persistent action to ensure a prolonged effect, while concentration against critical targets is essential due to the generally limited availability of AI and CAS capable assets. Effective intelligence, surveillance and reconnaissance is also essential to provide real or near-real time feedback on both initial actions and the subsequent effect(s) achieved over time, to inform decision making on if/when to attack or re-attack follow-on targets.

0114.   AI and surface force manoeuvre can be mutually supporting. Surface force operations can support AI operations by forcing the enemy to consume supplies at an accelerated rate and to move forces to meet emerging threats. These movements and supply efforts then become targets or objectives for air capabilities/forces. AI can also support surface operations by forcing the enemy to react to friendly attack and, in doing so, expose vulnerabilities to surface manoeuvre forces. Additionally, attacks on enemy C2 systems contribute to activities that interfere with an adversary's ability to mass, manoeuvre, withdraw, supply and reinforce surface forces.

0115.   Since manoeuvre warfare often seeks to neutralize enemy combat effectiveness through shock and disruption, rather than through attrition, air forces/capabilities are tailor-made for the task. Aircraft and missiles can manoeuvre in three dimensions directly to key points in the enemy rear. Destruction of these targets by air attack, whether LOC or vital logistics, actual combat forces or other AI targets achieves much the same effect as if overrun by a friendly ground advance. Air manoeuvre cannot gain and hold territory, but the persistent application of air power against critical targets usually contributes directly to achieving decisive results.

0116.   Air assets have long reach and a wide range of targeting options based on onboard or off board information updates, can fight their way through enemy defences and can orbit over a given area while seeking targets of opportunity. Air power's reach enables the JFC to focus the effects of CAS and AI operations in a small area, if strategy so dictates, or spread them uniformly across the JOA at whatever depth is required.

0117.   In those unusual circumstances in which air forces conduct AI in the absence of friendly surface forces, enemy forces may be able to disperse and seek cover in a way that complicates the problem for the airman. However, airpower can still create effects that contribute to success for the joint force. In most cases joint forces will be required in any successful operation.

Section IV – Land and Maritime Component Considerations

0118.   When discussing CAS and AI operations, it is important to recognize the contribution of the land and maritime components' organic capabilities for CAS and AI. This may include both fixed and rotary wing aircraft, both manned and unmanned, scout and attack helicopters (AH), air and surface launched cruise missiles and artillery. However, regardless of which component or Service the assets come from, CAS and AI operation efforts are usually to be coordinated with the JFACC. These efforts must always directly support the overall joint campaign objectives. Centralized planning and direction, combined with

decentralised execution is a fundamental tenet of air power and must be followed to guarantee the concentration of air power where it is needed most.

0119.   JOA-wide AI is normally carried out by the JFACC, as the supported commander for such operations, and in direct support of the JFC's overall objectives. This is a functional responsibility, which seeks to engage the enemy across the JOA wherever AI targets are found. When AI targets are located within a surface AOO, the JFACC must coordinate such attacks with the designated commander of the AOO. If JFC objectives dictate, AI may operate in support of a particular portion of the JOA where it is more closely integrated with the ground battle. This form of AI may strike targets that are nominated through the joint targeting process by components and often produces results visible to the ground commander more quickly than a JOA-wide AI effort. These results also tend to be smaller in scope and shorter in duration.

0120.   The most detailed integration of air and ground components is found in CAS where the air attack and ground battle are essentially a single cohesive operation. Proper integration of CAS with ground operations is vital to the success of both, and the synergetic effect of integrated operations is often much greater than the sum of individual air and ground operations. This will especially be true if a single, integrated joint operations plan is employed instead of attempting to synchronize individual plans developed by the various components.

Section V – Close Air Support and Air Interdiction Resources

0121.   Air power offers the capability to deliver lethal and non-lethal combat power against the enemy, when and where needed to attain objectives across the range of military activities. Its flexibility, range, speed, lethality, precision and ability to mass effects at a desired time and place contribute significantly to the joint campaign. Predominant weapons systems and forces that air power can contribute to CAS and AI include aircraft with air-launched or air-released munitions, stand-off missiles and rockets, electronic warfare (EW) systems, airborne and space based platforms for detection and navigation.

0122.   Employing munitions near friendly forces requires that CAS assets have certain capabilities to be effective and to preclude fratricide. Moreover, because CAS normally requires final attack clearance through the terminal phase of the attack, reliable and interoperable communications with the supported force are essential. The variety of targets likely to be encountered (day or night and in adverse weather conditions) makes it important to be able to employ a variety of weapons and delivery systems. Reliability and accuracy are both critical in the CAS environment, due to the close proximity of friendly ground forces. Aircrew and FAC must train often to retain mission currency, preferably training with the actual units they would be called on to operate with in combat.

0123.   **Precision-Guided Munitions**. Airpower's ability to employ precision-guided munitions (PGM) against CAS and AI targets offers some significant advantages over other weapon systems. Guided weapons can correct for many ballistic, release and targeting errors in flight, yielding much higher probability of a direct hit compared with unguided ordnance. Explosive loads can also be more accurately tailored to the target, since planners can assume most bombs and missiles will strike in the manner and place expected. The increasing availability of precision, penetrating weapons, combined with accurate and timely intelligence and weather information, gives air forces the ability to strike at high-value, hardened point targets with a high probability of success. The decision to use such precision weapons should balance the need for high accuracy with often-limited munitions availability. The use of such

weapons places high demands on intelligence capabilities to identify key nodes and provide precise target locations. In many situations the employment of "massive firepower" against area targets, using large numbers of accurate but not precision-guided weapons, can ensure more uniform target coverage and maximize physical and morale effects on the enemy. Standoff precision weapons used in CAS will require special considerations for munitions reliability and targeting accuracy and will not likely be recommended for troops-in-contact situations.

0124.   No PGM is guaranteed to hit its target 100 percent of the time, and the non-ballistic nature of many PGM means that miss distances, when they do fail to guide properly, can be many times the expected miss distance of unguided munitions. This increased miss distance may be a consideration in high-risk collateral damage situations or when determining which weapons to employ for CAS, especially in troops-in-contact situations. Against a mechanized enemy force, which places most of its combat power in various types of vehicles, the widespread use of PGM may offer advantages not previously available with unguided weapons. However, precision attack of key infrastructure, transportation and C2 targets can cripple the enemy army's ability to manoeuvre, and is usually a better use of limited PGM assets than attacking the enemy one vehicle at a time. If the number of PGM and aircraft available is high enough, CAS can inflict devastating losses on a mechanized enemy force through the simple expedient of vehicle-by-vehicle destruction. Such a strategy must be considered both in terms of number of weapons required and the possible existence of more lucrative target sets and the time required to destroy enough of the enemy force to be operationally effective.

Section VI - Elements of Effective Close Air Support and Air Interdiction

0125.   Effective CAS and AI depend on the integration of numerous elements, which form the core of any effective air operation. Elements that facilitate the successful conduct of both AI and CAS include seizing the offensive, sustained and concentrated pressure on the enemy, exploitation of the psychological effects of air power, and force structure/weapons capability. The relative importance of each varies with the combat scenario; however, all should be present to allow the operation to achieve its aim.

0126.   CAS and AI operations should be designed to seize the initiative and force the opponent to react. As part of an overall joint strategy, such attacks should be employed in space and time to mass their effects on the enemy. This does not necessarily mean a physical massing of forces, but rather a carefully planned massing of effects against the key nodes or enemy ground forces. CAS is often directed against strong defensive positions, concentrations of enemy troops, suspected ambush sites, and other centres of resistance or if ground forces are surprised by enemy actions and therefore are in urgent need of responsive (air) support. It should therefore be concentrated in sufficient strength to achieve initial objectives and be continued until friendly ground forces are in command of the situation. Massing effects is more efficient than employing assets piecemeal, and physically massing forces to overwhelm enemy defences can minimize overall losses. However, the precision and lethality of air power now affords the ability to mass effects rather than platforms and conduct parallel attacks on entire target systems.

0127.   AI is often directed against replaceable systems (i.e. vehicles; weapons; petroleum, oil, and lubricants (POL); communications systems) and repairable systems such as bridges or railway lines. Therefore, pressure should be sufficient to impede efforts to replace or repair affected targets and cause stress on the entire enemy operation. This requirement applies

particularly to operations of long duration, because time normally allows the enemy to restore losses. Attacks on key repair and replacement assets may be advisable, if such targets represent the weak link in the enemy's support infrastructure.

0128. The psychological effects of CAS and AI operations can play a significant role in achieving the overall campaign objectives. The precision, intensity and persistence of air attack can demoralize governments, populations and military forces. The ability of air power to generate its effects through psychological impact will likely remain limited. However, the synergistic effect of the psychological element, along with the destruction of resources, infrastructure and the impact on enemy forces in the field, combine to give the air component a pivotal role in achieving the overall goals of any joint campaign. The psychological shock of massed air attack can be overwhelming to the enemy's fielded forces, especially when those forces have already been strained by surface combat.

0129. The JFACC's ability to successfully conduct CAS and AI operations depends greatly on the available type and quantity of air assets. Precision weapons delivery, stealth characteristics, and destructive power, combined with the inherent capability of the air component to mass effects against a given target, can provide a substitute for absolute numbers. The principles of mass and economy of force must be followed to ensure that adequate force is available to generate the desired effects. Numbers and types of munitions available, as well as those in the logistics pipeline, need to support the requirements generated by intense air operations. The munitions mix must correspond to the selected targeting strategy, and vice versa. Precision munitions are uniquely valuable in attacking hardened point targets or for minimizing collateral damage, while weapons with a standoff capability may allow delivery platforms to remain outside the most heavily defended areas. In any case weapons loads and fuse settings should always be tailored to the desired level of target destruction, neutralization, or suppression. They should also be weighed against possible adverse effects on other components, such as the employment of time-delayed munitions against an enemy retreating in front of advancing friendly forces. Though many platforms may be employed in the AI and CAS, some are better suited for each mission from both a training and equipment standpoint. Commanders should carefully assess the desired munitions effectiveness in light of the potential for fratricide and unintended effects and/or consequences.

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CHAPTER 2 – COMMAND AND CONTROL OF CLOSE AIR SUPPORT AND AIR INTERDICTION

Section I – Introduction

0201. The intent of centrally prioritising air power is to provide the effectiveness against all relevant targets, consistent with the JFC's strategy. When the number of productive targets exceeds air power's ability to attack them, centralized prioritisation ensures that lower-priority targets are not hit first, regardless of whether they were nominated by an air or surface component. It is important to remember that all components support the JFC's overall strategy, so there should not be great disparities between the various components' priorities for air power as long as the overall task remains in view.

0202. Nomination of AI targets does not end when the planning cycle begins; rather, the process is flexible enough to allow for targeting inputs even beyond the air tasking order (ATO) execution time. Such inputs may come from any supported or supporting component and will be evaluated against JOA AI priorities and asset availability. Post-nomination target changes are normally possible but must be justified in terms of target priority. Once the ATO has entered final production, proposed changes are normally passed to the combined air operations centre's (CAOC) current operations division for incorporation into tactical planning or mission execution.

0203. The JFACC is normally the supporting commander. Priorities and intentions for both CAS and surface manoeuvre operations come from the JFC. Surface commanders request pre-planned CAS in advance of operations as part of their overall concept of operations (CONOPS) and distribute the CAS apportionment to fill requests from those ground forces who most require air support. This distribution process is best accomplished by the air component's liaison function that accompanies ground units onto the battlefield. Direct control of CAS missions is conducted through the Air Command and Control System (ACCS). CAS and AI operations are controlled through an overarching air C2 and communication and information systems (CIS) structure centred on the CAOC and known collectively as the ACCS. The air-to-ground portion of the ACCS is responsible for providing an air component liaison to the various echelons of ground command and terminal targeting and control that helps to ensure aerial manoeuvre is integrated with the ground scheme of manoeuvre. The air liaison function should also guide the ground commander in the optimum distribution of CAS among his various units, keeping in mind that air power is most effective when concentrated at the decisive points.

Section II – Air Command and Control System

0204. ACCS includes the structures, personnel, procedures and equipment necessary to plan, direct and control air operations, and to coordinate air operations with other components.

0205. **Combined Air Operations Centre.** A CAOC is the principal centre from which joint air operations are directed, monitored, controlled, executed and coordinated with the other components. It is structured to operate as a fully integrated facility and includes the equipment and personnel necessary to accomplish the planning, directing, controlling and coordinating of JOA wide joint air operations. Actual CAOC organization may vary with specific JOA or national requirements. Below the CAOC are elements of the air C2 chain that provide tactical control (TACON) for forces executing joint air missions.

2-1

0206. **Battlefield Coordination Element.** The battlefield coordination element[3] (BCE) is an integrated part of the CAOC that is functionally subordinate to the Joint Force Land Component Commander (JFLCC).

0207. **Air Operations Coordination Centre.** The air operations coordination centre (AOCC) is an air entity functionally subordinate to the commander of a CAOC collocated with a Land Forces Corps Headquarters (HQ).

0208. **Air Liaison Officer.** An air liaison officer (ALO) is an aeronautically rated officer, aligned with a ground manoeuvre unit, who functions as the primary adviser to the ground commander on the capabilities and limitations of air power. As the ground commander's expert on air operations, the ALO should be given broad, "commander's intent" type of guidance.

0209. **Tactical Air Control Parties.** The tactical air control party (TACP) is the principal air liaison element aligned with land force manoeuvre units from battalion through corps. The primary mission of corps through brigade-level TACP is to advise their respective ground commanders on the capabilities and limitations of air power and assist the ground commander in planning, requesting, and coordinating CAS and commonly known as TACP air liaison officer (TACP (ALO)). Below this level the TACP's primary task is to support the FAC during terminal attack control of CAS in support of ground forces and commonly known as TACP(FAC). Only FAC are authorized to perform terminal attack control.

0210. **Forward Air Controller (Airborne).** Operating from a suitable aircraft, the forward air controller (airborne) (FAC(A)) coordinates air strikes between the TACP and CAS aircraft. He provides terminal control, relays CAS briefings, provides immediate target and threat reconnaissance, and marks targets for the attacking aircraft. Threats and weather permitting, the FAC(A) can see well beyond the normal visual range of ground-based terminal controllers. He can perform tactical battle management by cycling the CAS flights through the target area, while prioritising the targets in coordination with the friendly ground force.

0211. **Strike Coordination and Reconnaissance Aircrew.** While not a formal part of the ACCS, SCAR performs a similar function for AI missions that FAC(A) provide for CAS aircraft. SCAR is a mission performed by some multi-role aircraft and other airborne assets, and involves scouting designated target areas to locate and verify targets for, and provide some control and sequencing for, follow-on AI. Capable of passing very accurate target updates to AI assets, some SCAR assets are able to mark targets if required. SCAR aircrew are also trained in cycling multiple attacking flights through the target area, and providing prioritised targeting guidance to maximize the effectiveness of each sortie. These aircrew are not normally trained to provide CAS terminal control, and unless specifically qualified as FAC(A) should therefore not be used to control attacks inside close proximity to friendly ground forces.

0212. **Air Ground Surveillance.** Air ground surveillance (AGS) systems, such as the Joint Surveillance Target Attack Radar System (JSTARS) and airborne stand-off radar, are integrated land/air theatre/JOA wide battle management and/or C2 aircraft that build ground situational awareness through surveillance to support attack operations and/or targeting. They allow for rapid updates on enemy force disposition, identify opportunities for rapid interdiction and retargeting of surface forces and a limited battle management function. On-board battle managers (where carried) provide direction based on wide area surveillance

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[3] Known as the Battlefield Coordination Detachment (BCD) in some nations.

ground moving target indicator and synthetic aperture radar information that detects and locates stationary ground targets and tracks moving ground targets and rotating antennas. This data is used to build a common tactical picture to provide the JFC and his component commands (CCs) with situation development, targeting, attack planning and limited post attack assessment information. Data is transmitted to airborne and ground elements of the ACCS capable of receiving appropriate data link messages.

Section III – Liaison Requirements

0213. Effective liaison between forces is essential for coordinated operations and is a key factor in the success of CAS and AI operations. Liaison officers (LOs) serve as their parent commanders' eyes and ears, and their representative on matters of capabilities and limitations. Components have ready access to the JFACC, the JFACC's staff and the other components through their liaison personnel; however, where a JFACC is sea-based, space and communication equipment limitations may restrict the size and capability of any liaison elements.

0214. **Liaison with Component Commands.** Component liaisons serve as conduits for direct coordination between their respective CC and have the responsibility of presenting component perspectives and considerations regarding planning and executing joint air operations. They should possess the authority to represent their CC on time-sensitive and critical issues, and must be equipped and authorized to communicate directly with their respective CC. Component LO must be familiar with the details of all component air, surface and subsurface missions, to coordinate their impact on joint air operations, and its impact upon them. Senior component liaisons represent their CC on time sensitive and critical issues and help integrate their component's participation in joint operations, whilst experienced specialists provide component planning and tasking expertise, and coordinate and de-conflict component direct support air operations with joint air operations and host nation diplomatic clearance requirements.

    a.   **Air Liaison Element**. The air liaison element[4] (ALE) is an organisation under the command of the JFACC, located with the JFLCC, responsible for operational level inter-component coordination and liaison. Additionally, the JFACC may also elect to position an ALE with the JFC to assist the JFC staff in planning air component supporting and supported requirements. The ALE provides the means for effective component-to-joint and component-to-component liaison and is the conduit for information flow between the joint and component level functions. The ALE focuses on the planning cycle of the JFC and JFACC as well as those of the JFLCC. The ALE assists in planning air component supporting and supported requirements and is normally organised with expertise in plans, operations, intelligence, airspace management and air transport. Its interface includes exchanging current intelligence and operational data, support requirements, coordinating the integration of JFACC requirements for airspace control means (ACM), fire support coordination measures (FSCM) and CAS.

    b.   **Land Liaison Element**. The land liaison element staff is functionally subordinate to the JFLCC and acts as his representative within the JFACC HQ. If required, the LO may be detached from various land sub-commanders to support the maritime liaison element staff.

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[4] Known as the Air Component Coordination Element (ACCE) in some nations.

c.   **Other Liaison Elements.** The other liaison elements, depicted in Figure 4.1 are outside the scope of this publication and covered in AJP-3.3.
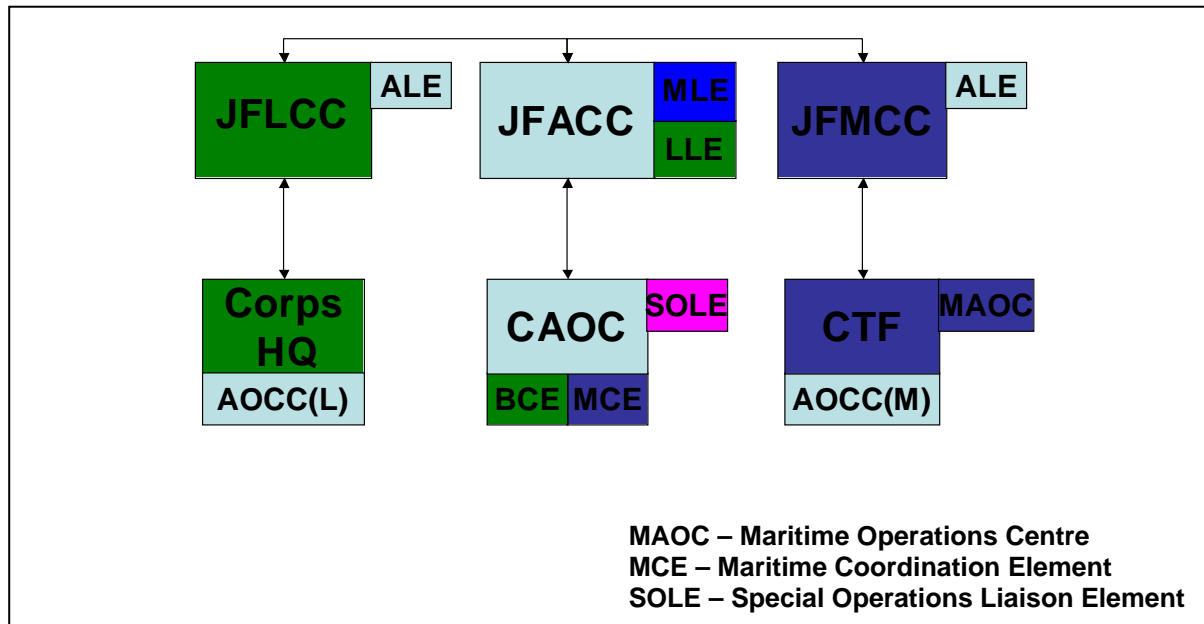

Fig 2.1 - Liaison with Component and Subordinate Commands

0215.   **Liaison with Subordinate Commands:**

a.   **Air Operations Coordination Centre (Land/Maritime).** The air operations coordination centre (land/maritime) provides an air entity, functionally subordinate to the CAOC as part of the NCS, collocated with and an integral part of an army corps or maritime task force. The AOCC provides air expertise and integrates the liaison and coordination functions relating to air operations, including, but not limited to; AI; CAS; coordination of AD assets such as mobile integrated AD units, Army organic air defence (AOAD); coordinated air/sea procedures (CASPs); and airspace control. In peacetime, the AOCC will provide a nucleus of people to coordinate with the hosting HQ as they plan, refine, and execute operations. The AOCC will also provide a "socket" for the ALE team from the JFACC. For exercises/operations, the AOCC (with augmentation as required) will provide execution-level coordination of air operations in support of the appropriate CC as an extension of a designated CAOC for the exercise/operation

b.   **Battlefield Coordination Element.** The BCE is an integrated part of the CAOC that is functionally subordinate to the JFLCC. It provides coordination between the CAOC and (various) army HQ at the tactical level and provides expertise and liaison on army matters relevant to tactical air planning, tasking and execution. The BCE monitors and evaluates the land situation; advises on planning and execution of air operations in support of land operations and units; identifies and communicates the results, effectiveness and status of friendly and enemy ground operations and provides analysis of ground operations in support of current and future CAOC operations and planning.

Section IV – Air – Ground Connectivity

0216. Due to the nature of CAS and AI, interconnectivity between the ACCS and other component's C2 networks is critical, especially when providing CAS. When supporting surface forces, the ACCS must interface with appropriate component C2 systems.

a. **CAS Connectivity.** CAS requires an integrated, flexible, and responsive C2 structure to process CAS requirements and a dependable, interoperable, and (ideally) secure communications architecture to exercise control. At the TACP level, CAS coordination occurs between the TACP and the surface commanders fire support element (FSE), G-3 operations staff and G-2 intelligence staff. TACP are aligned with the FSE to ensure the proper integration of air support into the ground scheme of manoeuvre and to work closely with them through the execution of the battle plan. This includes requesting artillery-delivered suppression of enemy air defences (SEAD), airspace de-confliction, target marking and other tasks. The actual execution of CAS depends greatly on the proximity of the target to the FAC, his ability to observe the attacking aircraft and the use of reliable communications links between all players.

b. **AI Connectivity:** The liaison elements require appropriate CIS means to fulfil their function. An increasingly important part of AI connectivity is real-time sensor-to-shooter information flow. Whether the data comes via voice or data link, from an unmanned aerial vehicle, a reconnaissance team on the ground, or from an AGS such as JSTARS, the ability to receive real-time targeting updates is a key element in effectively targeting mobile ground forces. Robust communications between sensors, shooters and the battle managers are critical to the immediate targeting process. Decisions, such as how much battle management authority to delegate to the AGS, must be a balance between the commander's intent, communications connectivity, timeliness required to strike the target and create the desired effect, as well as access to the overall air and ground picture. As with all C2, a clear line of which C2 elements have various levels of decision-making authority must be clearly stated by the commander to avoid confusion. Another key factor in proper time-sensitive execution is to provide the right kind of information to the shooter without overwhelming him with data or choking the data pipeline.

Section V – Fire Support and Control Measures

0217. Various measures are used for both airspace control and fire support coordination in both planning and executing CAS and AI within an AOO. The measures help to integrate air and ground manoeuvre, ensure de-confliction, and identify which parts of the battlefield require specific control procedures. Traditional FSCM have been based on a linear battlefield and with minor modifications are effective for more fluid operations in the non-linear battlespace. JOA-specific procedures may be developed to suit the situation and to ensure the right mix of FSCM. Ground warfare on the non-linear battlefield will require special considerations. Under such circumstances, the classic linear concepts may need to be adjusted. For more detail refer to ATP-3.3.5.1 and AArtyP-5.

0218. The control measures used for AI missions may vary depending on the type of target attacked. Last minute updates to AI target nominations are normally passed through the surface component's CAOC liaison, unless circumstances dictate that passing the request through the TACP/AOCC channel is more expeditious. AI retargeting for missions short of

the fire support coordination line (FSCL) can often be handled directly by the AOCC when the update comes too late to re-plan the mission (such as target changes after takeoff), with the AOCC ensuring all required coordination with JFLCC for that AOO have been accomplished. Unless specifically delegated, the AOCC cannot make AI retargeting decisions without direction from the CAOC. Establishing cut-off times for when the requested target change will be passed through one channel or the other helps to avoid confusion and leads to increased combat effectiveness. Missions will check-in with a C2 agency and monitor a designated strike frequency to and from the target area for threat information and other updates.

0219. For missions conducted within the land AOO, the airspace control plan, as implemented in the airspace control order (ACO), will require contact with the AOCC(L) for ground situation updates. The plan may also require clearance into specified target areas using procedural control to de-conflict with ground manoeuvre. The ACCS will also provide any available updates to targeting information, which provides flexibility against mobile targets right up to the actual time on target (TOT).

0220. **Surface kill box.** One airspace control measure that has been used successfully in the execution of AI (SCAR) missions is the surface kill box. The surface kill box is defined as a generic term for airspace control measures used by the ACCS for controlling air-to-ground operations. Surface kill boxes are complementary to, and do not preclude or conflict with, other fire support control measures, and may be employed on either side of the FSCL. They are often employed through pre-identified map grids that are common to both air and ground components, and can be easily activated and deactivated without confusion. Surface kill boxes provide one way to target in near-real-time against mobile ground forces that defy long range preplanning. The aircrew is normally given a prioritised list of target sets that reflects the desired effects of the mission and may also be provided more detailed target locations if they are available. Surface kill boxes may be combined with time-sensitive targeting (TST) data, if available. See ATP-3.3.2.1 for greater details on surface kill boxes."

CHAPTER 3 – CLOSE AIR SUPPORT

Section I – Introduction

0301. CAS is 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. CAS is an element of joint fire support that whilst simple in concept, requires detailed planning, coordination and training for effective and safe execution. CAS provides fires in offensive and defensive operations to harass, delay, fix, disrupt, suppress, neutralize or destroy enemy forces. Each service/component organizes trains and equips to employ CAS within its roles as part of the joint force. As a result, a variety of aircraft are capable of performing CAS. The JFC and his staff must be capable of integrating all CAS capabilities into the operation plan.

0302. The firepower and mobility of aircraft can make an immediate and direct contribution to the land battle, especially against targets that are either inaccessible or invulnerable to available surface weapons. CAS may be used to mass the effects of combat power when and where required, in order to exploit opportunities in the offence and defence. CAS has the ability to concentrate firepower rapidly in time and space, and at decisive points, to achieve local combat superiority or to allow a commander to take advantage of battlefield opportunities.

0303. CAS can be conducted at any place and time friendly forces are in close proximity to enemy forces. As pointed out before, the word "close" does not imply a specific distance; rather, it is situational. The requirement for detailed integration because of proximity, fires or movement is the determining factor and the supported commander will determine when detailed integration is needed.

0304. Synchronizing CAS in time, space and purpose with supported manoeuvre forces increases the effectiveness of the joint force. CAS assists land, maritime, amphibious and special operations forces (SOF) to move, manoeuvre and control territory, populations and key waters. The supported commander establishes the priority, timing and effects of CAS fires within the boundaries of the land and maritime AOO and in support of SOF or amphibious activities. SOF may also need CAS and other joint fire support at locations well beyond land, maritime and amphibious operations force commanders' AOO.

0305. Although CAS is conducted at the tactical level, it is linked to the operational level through the air apportionment and allocation process. CAS is planned and executed to accomplish military objectives assigned to tactical units or joint task forces; as such CAS planning focuses on the ordered arrangement and manoeuvre of combat elements in relation to each other and to the enemy in order to achieve combat objectives.

Section II – Use of Close Air Support

0306. Commanders employ CAS to augment supporting fires to attack the enemy in a variety of weather conditions, day or night. The supported commanders are the ultimate authority for the use of all supporting fires in their respective AOO and decide the priority, effects and timing of CAS within their AOO. Ground commanders at the lowest level are responsible for employment of CAS assets unless specifically retained by a higher-level commander in the ground force chain of command.

0307. **Battlefield Utility.** CAS provides commanders with flexible and responsive fire support. Using CAS, commanders can take full advantage of battlefield opportunities by massing firepower to maintain the momentum of an offensive action or reduce operational and tactical risk. The mobility and speed of aircraft provides commanders with a means to strike the enemy swiftly and unexpectedly.

0308. **Usage Criteria**. Commanders consider the following criteria in planning for CAS:

    a. Mission and CONOPS.

    b. Enemy disposition and composition.

    c. Enemy AD and the joint force's ability to counter them.

    d. Requirements necessary to integrate CAS with the fire and manoeuvre schemes, to include appropriately qualified controllers.

    e. Capabilities and limitations of available or allocated CAS assets and available ordnance.

    f. Compliance with the law of armed conflict.

0309. **Targeting**. At the tactical level, targeting is the process of selecting and prioritising individual targets and matching the appropriate response to them, taking account of operational requirements and capabilities. While conducting CAS, this may equate to the FAC selecting a particular target in a target array. When targeting, the FAC must consider items like target type, mission, enemy, AD, terrain and weather, available armament and response time. Other considerations include controller-to-target aspect, aircraft-to-target aspect, weapon-to-target aspect, designation or mark type, proximity of friendly forces, proximity of non-combatants and other joint fires. Additionally, controllers and aircrew must expeditiously obtain and pass BDA information. Commanders, controllers, and aircrew use BDA to determine if objectives have been met, or whether re-attack is necessary.

0310. **Close Air Support Integration**. CAS integration starts at the operational level during the air apportionment process. Whether conducting offensive or defensive operations, commanders plan for CAS at key points throughout the depth of the battlefield. The JFC prioritises joint air operations for CAS to support his CONOPS. Commensurate with other mission requirements, the JFACC postures air assets to optimise support to requesting units. The air operations directive, ATO, ACO and Special Instructions provide the framework for integrating CAS into the JFC's CONOPS.

0311. **Fratricide**. Fratricide or casualties to friendly forces caused by friendly fire, is an unwanted consequence of warfare. AJP-3.3.2 and the associated tactics, techniques, and procedures (TTP) (ATP-3.3.2.1) are key to reducing the risk and potential of fratricide, and in turn increasing the safety and effectiveness of CAS.

    a. **Causes.** Although occasionally the result of malfunctioning weapons, fratricide has usually been the result of confusion on the battlefield. Causes include misidentification of targets, inaccurate target locations or descriptions, target location error, target locations incorrectly transmitted or received, incorrect use of procedures and loss of situational awareness by FAC, CAS aircrew, requestors, battle staff or commanders. Items such as detailed mission planning, standardized procedures for friendly force tracking and supporting immediate air requests, realistic training/mission rehearsal, use of friendly tagging or tracking devices, and effective staff, FAC and ALO coordination, and adherence to sound clearance of fires procedures can significantly reduce the likelihood of fratricide.

b. **Responsibility.** All participants in the CAS employment process are responsible for the effective and safe planning and execution of CAS. Each participant must make every effort possible to correctly identify friendly units and enemy forces prior to targeting, clearing fires and weapons release. Combat identification (CID) is the process of attaining an accurate characterization of detected objects to the extent that high confidence and timely application of military options and weapon resources can occur. Depending on the situation and the operational decisions that must be made, this characterization may be limited to, "friend," "enemy" or "neutral." In other situations, other characterizations may be required including, but not limited to, class, type, nationality and mission configuration. CID characterizations, when applied with rules of engagement, enable engagement decisions and the subsequent use, or prohibition of use, of lethal and non-lethal weaponry to accomplish military objectives. CID is used for force posturing, C2, situational awareness as well as weapons employment decisions.

0312. **Training**. JFC, components and units must conduct joint training and rehearsals, on a regular basis that routinely exercises ATP-3.3.2.1 scenarios and simulate situations that will be found in the battlespace in order to develop the skill-sets and familiarity required for success.

Section III – Close Air Support Assets

0313. The organizational structure, primary missions and the capabilities of CAS-capable aircraft determine CAS employment methods. In a joint force, the integration of CAS-capable aircraft allows commanders to take advantage of the distinctly different, but complementary, capabilities of each platform. Fixed and rotary wing aircraft, both manned and unmanned, can conduct CAS; however, planning and employment considerations may differ and may vary among the services and Nations.

0314. These assets have capabilities that are complementary, especially when employed in combined attacks. Fixed wing aircraft have a wide variety of CAS munitions and excellent capability to conduct CAS in diverse terrain. Helicopters offer the advantage of an increased loiter time on station. Both helicopters and fixed-wing aircraft offer improved response times but may have decreased flexibility when operating from forward locations. Unmanned systems may offer persistence and less risk to aircrew, but may not be as adaptable to changing situations or circumstances as manned aircraft.

0315. Commanders and planners typically measure fixed-wing aircraft employment in sorties. A sortie is an operational flight by one aircraft. Normally, CAS aircraft fly in groups of two to four aircraft. Special operations AC-130 "Gunship" typically operate single-ship sorties during hours of darkness and under low-threat conditions. Survivability for aircraft is usually higher at night.

0316. Organic Close Air Support Assets:

a. Army aviation units are organic to corps, divisions and brigades and perform missions as part of a combined arms team. Army helicopter units normally receive mission-type orders and execute as an integral unit/manoeuvre element. Special situations may arise where attack helicopters are employed in smaller units. Land forces normally do not consider AH a CAS system, although they can conduct attacks employing CAS TTP when operating in support of other forces. The preferred employment method is as an integral unit, operating under the control of a manoeuvre commander executing mission-type orders.

b.　　　US Marine Corps AH are organized in squadrons and typically operate in sections and divisions. These units are assigned to and are integral to the Marine air-ground task force.

c.　　　The combined joint force special operations component commander may maintain a small fleet of special operations aircraft, both fixed and rotary wing. These aircraft are normally used to support and conduct special operations, and some can perform CAS.

0317. **Joint Air Attack Team**. Joint air attack team (JAAT) is a combination of attack and/or reconnaissance rotary-wing aircraft and fixed wing CAS aircraft operating together to locate and attack high-priority targets and other targets of opportunity. JAAT normally operates as a coordinated effort supported by fire support, AD artillery, naval surface fire support, intelligence, surveillance and reconnaissance systems, EW systems and ground manoeuvre forces in support of the ground scheme of manoeuvre. JAAT planning considerations and employment methods are discussed in the ATP-49.

Section IV- Conditions for Effective Close Air Support

0318. The conditions for effective CAS are: thoroughly trained personnel with well developed skills, effective planning and integration, effective C2 systems, air superiority (especially SEAD), target marking and/or acquisition, streamlined and flexible procedures and appropriate ordnance. Although not a requirement for CAS employment, favourable weather improves CAS effectiveness.

0319. **Effective Training and Proficiency**. This training should integrate the entire manoeuvre and fire support elements involved in executing CAS. Maintaining proficiency allows aircrew and FAC to adapt to rapidly changing battlespace conditions.

0320. **Planning and Integration**. Effective CAS relies on thorough, coherent planning and detailed integration of air support into ground operations. The ability to mass joint fire support at a decisive point and to provide the supporting fires needed to achieve the commander's objectives is made possible through detailed integration with ground forces. From a planner's perspective the preferred use of a CAS asset is to have it pre-planned and pre-briefed. Rehearsals provide participants an opportunity to walk through the operation, to achieve familiarity with terrain, airspace restrictions and procedures, and to identify shortfalls.

0321. **Command, Control, and Communications**. CAS requires an integrated, flexible C3 structure to identify requirements, request support, prioritise competing requirements, task units, move CAS forces to the target area, provide threat warning updates, enhance CID procedures, etc. Accordingly, C2 requires dependable and interoperable communications between aircrew, air control agencies, FAC, ground forces, requesting commanders and fire support agencies. Any ACM and FSCM should allow for timely employment of CAS without adversely affecting other fire support assets.

0322. **Air Superiority**. Air superiority permits CAS to function without prohibitive interference by the adversary. Air superiority may range from local or temporary air superiority to control of the air over the entire operational area. CAS assets may be exposed to hostile layered air defence systems that are frequently deployed in the forward combat area. SEAD is an integral part of achieving air superiority and may be required during CAS attacks.

0323. **Target Marking and Acquisition**. The commander employing CAS can improve its effectiveness by providing timely and accurate target marks. Target marking builds

situational awareness, identifies specific targets in an array, reduces the possibility of fratricide, and facilitates terminal attack control. When the commander employing CAS foresees a shortfall in ability to mark for CAS, the commander should request that capability during the planning phase.

0324. **Streamlined and Flexible Procedures**. Responsive fire support allows a commander to exploit fleeting battlefield opportunities. Because the modern battlefield can be extremely dynamic, the CAS system must also be flexible enough to rapidly change targets, tactics or weapons. The requestor is usually in the best position to determine fire support requirements, and like all fire support, CAS must be responsive to be effective. Techniques for improving responsiveness include:

a.   Using forward operating/support bases or forward operating locations near the AOO.

b.   Placing aircrew in a designated ground or airborne alert status.

c.   Delegating launch and divert authority to subordinate units.

d.   Placing FAC and ALO to facilitate continuous coordination with ground units, communication with aircraft and observation of enemy locations.

0325. **Appropriate Ordnance.** To achieve the commander's intent for CAS, planners, FAC and aircrew must tailor the weapons and fuse settings. For example, general-purpose munitions are effective against area targets such as troops and vehicles in the open, but not against hardened targets, and are not advisable for targets where friendly troops may be affected by the immediate strike or by unexploded ordnance. In all cases, the supported commander needs to know the type of ordnance expended and its possible impact on the unit's current or subsequent mission.

0326. **Favourable Weather**. Favourable weather improves aircrew effectiveness regardless of aircraft or weapon capability. Before CAS missions are executed minimum weather conditions must be considered. Targets located solely by radar or geographic coordinates may not offer the aircrew or FAC precise enough information to ensure positive target identification and assure avoidance of fratricide.

Section V - Close Air Support Employment Methods

0327. **Pre-planned CAS** is conducted in 3 categories, "scheduled", "on-call" and "push"; aircraft flying the missions are scheduled for a particular time or time period, which normally coincides with the anticipated time when CAS will be needed by the supported component.

0328. **Scheduled CAS** puts the CAS assets over the area of the battlefield where they are needed most at a pre-planned TOT and where a need for CAS has been established in advance. Scheduled missions are more likely to have good intelligence on the expected type of target resulting in a better weapons-to-target match.

0329. **On Call CAS** involves putting aircraft on ground/deck or airborne alert during a period when the need for CAS is foreseen. This is a less efficient use of CAS resources because assets involved may or may not actually be employed unless a back up target is nominated. To ensure a prompt response, the available assets for tasking could be in the following readiness states:

a.   **Airborne Alert** is the highest level of operational readiness, where combat aircraft are airborne and ready for immediate action. Airborne alert should enable

aircraft to reach targets quickly as a threat or an opportunity develops. While airborne alert has the advantage of providing air support in minimum time, it can also be very costly in terms of manpower and equipment. For airborne alert, tasking can be delegated to the AOCC of the respective surface force commander. Airborne alert aircraft are configured with appropriate ordnance for anticipated targets (e.g. anti-armour) and maintain alert status for a designated period of time.

b. **Ground/Deck Alert** is the status in which aircraft on the ground/deck are fully serviced and armed, ready to take off within a specified period of time after receiving a mission order. This requires fewer resources than airborne alert. For ground/deck alert, tasking can be delegated to an AOCC.

0330. **Push CAS** is a form of pre-planned CAS that provides massed on-call CAS when needed. When a significant number of CAS assets are available and the tactical situation dictates, a continuous flow system providing a constant stream of CAS missions to the contact points may be employed.

0331. **Immediate CAS** usually results from unanticipated needs on the battlefield, often of an emergency nature, that require diverting or rescheduling aircraft from other missions. When appropriate, and when tasking authority has been delegated, aircraft already airborne on a CAS mission could be diverted by the AOCC collocated with the supported CC to higher priority targets demanding immediate CAS. In some situations, airborne aircraft with appropriate ordnance on another mission may also be diverted to CAS. The decision rests with the JFACC and is usually delegated to the CAOC. During the planning cycle lower prioritised sorties may be identified for potential re-tasking to immediate CAS missions if required. These aircraft can be on airborne or ground/deck CAS alert before executing their primary mission. Planning to meet re-tasking requirements can be included in the allocation plan. Warning of the possibility of re-tasking should be included in the ATO.

0332. **Control.** The supported CC determines the aircraft attack clearance requirements for CAS missions. Unless exceptional circumstances dictate otherwise, i.e. Emergency CAS, CAS missions are conducted under the control of a qualified FAC (ground or airborne).There are various types of terminal attack control that follow their own set of procedures. The commander considers the situation and issues guidance to the FAC based on recommendations from his staff and associated risks identified in the tactical risk assessment. The intent is to offer the lowest level supported commander, within the constraints established during risk assessment, the latitude to determine which type of terminal attack control best accomplishes the mission. The types of control are not ordnance specific. For detailed procedures refer to ATP-3.3.2.1.

Section VI – Planning and Request Considerations

0333. CC will assess the capability and availability of organic assets, including AH, and if necessary, request air support from the JFACC to augment their capabilities. The JFACC will consider these requests in his apportionment recommendation. Tasking aircraft for CAS in joint operations is accomplished via the apportionment process and is scheduled through the ATO. AH are usually tasked and employed by surface force commanders as integral manoeuvre units in the combined arms battle and are normally not part of the apportionment process but should, where possible, appear on the ATO.

0334. Following allocation, a CAS mission begins with a request at any level within the supported force. As the requesting commander plans and conducts operations, he identifies

situations where CAS can be employed. He then submits a request for either pre-planned CAS or immediate CAS.

Figure 3-1 - Pre-planned CAS Requests

0335. **Pre-planned requests.**   Those CAS requirements foreseen early enough to be included in the ATO are submitted as pre-planned requests. CAS planners at each echelon of supported command prepare and submit pre-planned requests to the next higher echelon. There, the supported commander and staff consolidate all requests and approve or disapprove them. Approved requests are prioritised and forwarded to the CAOC for inclusion into the ATO planning cycle. The CAOC fills those requests with sorties in the ATO. The process is depicted in Figure 3-1.
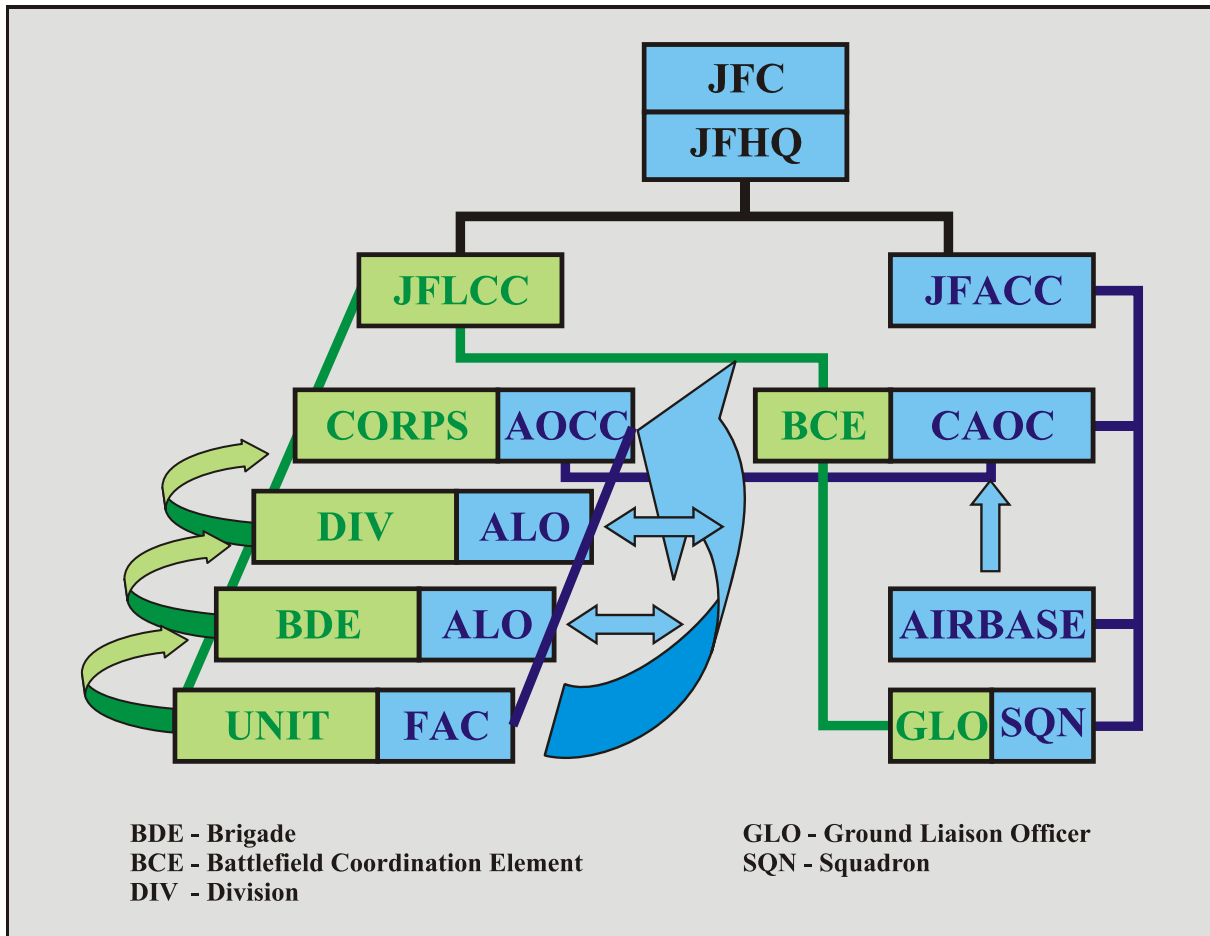
Figure 3-2 - Immediate CAS Requests

0336. **Immediate CAS requests.** The TACP broadcasts immediate requests via the air request net directly to the AOCC. The ALO/FSE at each intermediate echelon of command monitors the flow of requests. Based on the commander's intent, and after considering whether organic assets are available to fulfil the request, they approve or deny the request. Silence by intermediate levels of command implies consent to the request. If accepted, the AOCC at the highest land force echelon has two choices - divert pre-planned CAS missions (coordinating with the CAOC) or forward the request to the CAOC. If required, the JFACC may need to redirect other air missions to cover the higher priority CAS needs. If the JFACC and other CC are unable to re-task or generate additional CAS sorties, the immediate requests will be refused by the AOCC. This process is depicted in Figure 3-2.

0337. It is critical that all CAS participants ensure friendly units, non-combatants, targets and enemy forces are correctly identified prior to engagement. For specific details on CAS TTP refer to AJP-3.3.2.1.

CHAPTER 4 –AIR INTERDICTION

Section I – Introduction

0401.   Interdiction operations can be conducted by all components of the joint force, by both lethal and non-lethal means.   In accordance with the JFC's CONOPS, components may support, or be supported by, another component commander to achieve JOA-wide interdiction objectives; they may also conduct interdiction operations as part of their mission.   Interdiction is a powerful tool for the JFC of which AI is a major element.   Interdiction-capable forces that can conduct, or be employed in, interdiction operations include land and sea based forces employing such weapons as missiles, bombs, rockets, guns, PGM, naval surface fire support, sea mines, EW systems and sensors from airborne platforms.

0402.   Aircraft have attributes which allow them to be employed in diverse and multiple combat air tasks throughout the JOA. The flexibility, range, speed, lethality, precision and ability to mass at a desired time and place contribute significantly to the overall joint interdiction effort.   Air assets offer the versatility and capability to deliver combat power against the enemy when and where needed to attain objectives across the range of military operations.

0403.   AI is differentiated from other air operations by the objective.   For instance, a strike with Tomahawk land-attack missiles on an airfield in order to deny the enemy a staging area for supplies would be an air interdiction operation, while a strike against the same airfield with manned aircraft, targeted on recently deployed forward based fighters, would be classified as an offensive counter air operation.

0404.   The JFACC is normally the supported commander for the JFC's overall AI effort.   The authority and command relationships of the JFACC are established by the JFC.   These typically include exercising operational control (OPCON) over assigned and attached forces and TACON over other military capabilities and/or forces made available for tasking.   However, the JFC may decide that direct support (DS) is a more appropriate command authority for certain capabilities and/or forces.   DS is a mission requiring a force to support another specific force and authorizing it to answer directly to the supported force's request.   Unless limited by the establishing directive, the supported commander will have the authority to exercise general direction of the supporting effort.   General direction includes the designation and prioritisation of targets or objectives, timing and duration of the supporting action, and other instructions necessary for coordination and efficiency. The supporting commander determines the forces, tactics, methods, procedures and communications to be employed in providing this support.

Section II – Air Interdiction Objectives

0405.   The purpose of AI is to attack the enemy's ability to fight primarily by targeting their tactical and operational infrastructure. Appropriate AI targets may include but are not limited to surface forces; command, control systems; installations and facilities; transportation and supply systems; LOC; and other vital resources and infrastructure. The desired effects of AI are the diversion, disruption, delay, degradation, and destruction of enemy surface military potential by either lethal or non-lethal means.

   a.   **Diversion**.   AI can divert enemy forces from areas where the enemy has critical operational requirements.   It may divert enemy ground forces to a location

more favourable to the JFC and can also divert enemy naval, engineering and personnel resources to the tasks of repairing and recovering damaged equipment and facilities as well as keeping LOC open. These diversions detract enemy ground forces and their backup support resources from being employed for their intended purpose. Diversions can also cause more circuitous routing along LOC, resulting in additional delays for the enemy.

b. **Disruption**. AI can disrupt the enemy's C2 systems, intelligence collection capability, transportation systems, supply lines and industrial base. Interdiction thus disrupts the movement and routing of the enemy's information, materiel and forces. The enemy's combat operations may be disrupted with attacks on their C2 nodes or key commercial infrastructure components (such as electrical power and transportation), which support and sustain military operations. Such attacks may force the enemy to use less capable, less secure backup communication systems that can be more easily exploited by friendly forces. Regimes that possess a rigid, top-down C2 structure can be particularly vulnerable to the disruptive effects of interdiction on C2 systems. AI can disrupt enemy LOC, forcing them to use less capable transportation modes. These disruptive effects can severely affect the tempo of enemy operations. Enemy forces, which must disperse to avoid damage or destruction, have a reduced ability to mass, to initiate, or sustain effective offensive operations. AI attacks can also produce a psychological impact, which could significantly reduce enemy capabilities and morale. Uncertainty as to the arrival of forces, materiel or supplies can directly affect enemy commanders, their staffs, and forces.

c. **Delay**. AI can delay enemy forces and supplies and affect the enemy's decision cycle. When AI delays the enemy, friendly forces gain time. What JFC do to improve their situation in the time gained is critical to any assessment of AI's contribution. However, an AI plan that focuses on delay and is effectively executed does not guarantee a major impact on combat operations. In order for delay to have a major impact, either the enemy must face urgent movement requirements in support of its own operations or to counter friendly manoeuvre, or the delay must enhance the effect of planned friendly manoeuvre. It is advantageous for friendly forces to pressure their opponent to attempt time-urgent movement. Ideally, if the joint force maintains the initiative in air, ground, sea and space, the opponent is forced to make unplanned time-urgent movements, at times and places that maximize their exposure to AI. Delay is critical in achieving additional AI payoffs. For example, it can lengthen the time during which enemy land or naval forces are at risk of attack. When vehicles amass behind a damaged route segment, or ships are trapped in a harbour because of mines, a more concentrated set of targets and a longer period of exposure results. This makes the enemy more vulnerable to attack or renders them potentially ineffective.

d. **Destruction**. The destruction of enemy forces, support elements and supplies is the most direct of the five AI actions in achieving the goals of the AI operation and objectives of the campaign or major operation. Destroying transportation systems is usually not an end in itself, but contributes to the delay, diversion and disruption of enemy forces and materiel. Destruction may also inhibit friendly freedom of action. For example, destruction of key enemy transportation infrastructure in and around land and maritime areas of operations could hinder subsequent friendly surface operations. Appropriate coordination of AI helps to preserve friendly freedom of action.

e.   **Degradation.** AI can degrade the enemy's effectiveness on the battlefield whenever total destruction is not wanted or possible. The demonstrated or perceived ability to destroy may, by itself, achieve substantial delay and diversion of enemy resources. It may cause the enemy to move only at night or to mass air defence assets (which may be useful elsewhere) around critical transportation nodes. The enemy may have to divert engineering resources from other tasks to prepare alternate routes in anticipation of possible attacks. This may be true even when transportation systems remain largely undamaged.

0406. Effective AI can typically create the following desired effects: it may channel the enemy's movements, constrict the enemy's logistic system, and force time urgent movement upon the enemy.

a.   Channelling Enemy Movements. AI can channel the enemy's movements when conditions force the enemy to manoeuvre through or along predictable avenues. This generally results from the lack of transportation routes, manmade and natural obstacles and other geographic constraints. The fewer the routes to handle enemy supplies and reinforcements, the greater the loss or delay caused by severing those routes. Attacks on enemy lateral LOC can channel movement, impair reinforcement, reduce operational cohesion, and create conditions for defeating the enemy in detail. Geography may restrict or channel surface movement, creating chokepoints and concentrated targets. Geography influences the rate of enemy movement, the size of the force to be moved, where it can move, and the means required to move the force.

b.   Constriction of the Enemy's Logistic System. Degrading the mobility of the enemy's distribution system hinders its ability to redistribute assets to effectively counter friendly operations. When attacking the enemy's logistic systems, it is normally prudent to concentrate efforts on a small number of limiting factors such as concentrations of supplies; POL; storage and re-supply systems; or soft vehicles. However, there may not be enough AI assets to attack all of an enemy's logistic systems, even sequentially over time.

c.   Forcing Time-Urgent Movement upon the Enemy. Time-urgent movement may occur for several reasons: an enemy attempt to achieve surprise, the need to attack before reinforcements or supplies arrive, the requirement for rapid reinforcement of threatened defensive positions, the attempt to exploit offensive operations or when driven to urgent movement by AI effects. Under these conditions, the enemy has a strong incentive to attain specific objectives within time constraints. Rapid movement of enemy forces and supplies may make them more vulnerable to AI. They generally become more concentrated while traversing more exposed and predictable avenues, foregoing time-consuming camouflage and concealment efforts. However, time-urgent movements are temporary due to a desire to limit exposure. For friendly forces to capitalize on such opportunities, they must deny the enemy mobility when they need it most. Close coordination is required among all forces to take full advantage of the situation. Additionally, commanders require access to C4I systems able to process real-time and near-real-time intelligence in order to exploit fully the capabilities of AI and opportunities which AI operations create; otherwise the enemy can negate their effects.

Section III – The Advantages of Air Interdiction

0407. The desired effects of AI are to divert, disrupt, degrade, delay or destroy enemy surface forces. It is not necessary for an AI operation to focus solely on a single objective; in fact, AI typically inflicts multiple effects on the enemy. The enemy army that is travelling to the front while under air attack will suffer some level of destruction, and the remaining force will almost certainly be delayed in getting to its destination and will suffer some level of physical and psychological disruption. Destruction of the enemy surface force is the most direct of the effects of AI. Direct attack of enemy fielded forces has traditionally been more limited than the other effects, mainly due to the difficulty of finding and targeting individual guns or vehicles. Modern sensor and weapons technology is changing this picture and direct destruction of enemy forces is becoming a more viable option for AI. As available assets will likely remain limited, the fact that direct attack is possible does not mean that direct attack is always the most efficient approach. The number and vulnerability of enemy fielded force components, along with the enemy's ability to replace their losses, must be weighed against the expected results of targeting the supporting infrastructure. Direct destruction of enemy forces has an immediate impact on enemy combat power, which is an advantage over infrastructure attack that may produce delayed results, but direct attack usually requires more assets due to the larger number of individual targets. Modern surface weapons, particularly those used by mechanized forces, are very sophisticated and expensive. The enemy may not be able to rapidly replace their losses; and under such circumstances, destroying tanks and artillery may be more lucrative than destroying repairable targets, such as bridges.

Section IV- Types of Air Interdiction

0408. Depending upon the amount of target information available, AI may fall into one of three general categories: pre-planned, armed reconnaissance or on call. Attacks are best pre-planned to allow for proper weapon to target matching, target area tactics, threat avoidance, weather study and consideration of all the other variables that maximise the possibility of target destruction with minimal losses. Attacking mobile or short notice targets may provide a more flexible response on the battlefield, but the chances of each specific attack being successful are reduced and higher friendly losses are possible. Emerging technology such as real time data link and digital imagery in the cockpit may reduce but not eliminate this factor.

    a. **Pre-Planned AI** is the normal method of operation and is used to attack specific fixed or mobile targets where detailed intelligence information is available to support planning.

    b. **Armed Reconnaissance** is a form of AI planned against a specific area rather than a specific target, where lucrative targets are known or suspected to exist, or where mobile enemy surface units have moved as a result of ground fighting. The area may be defined as a box or grid, or may be a line feature such as a road, rail line or river. In cases where a specific area for attack cannot be pre-determined, missions may be flown in airborne alert or on call status.

    c. **Airborne Alert/On Call AI** is used for those circumstances where a lucrative target has been identified and assets located against it, but complete pre-mission targeting data is not available. These on-call missions rely on real or near real-time targeting guidance from other sources, which can be an inefficient use of assets unless you have an overwhelming number of assets or

an insufficient number of lucrative pre-planned AI targets available. Time sensitive targets can include AI targets as identified on the JFC approved TST matrix developed by the joint coordination board (JCB) as part of the joint prioritised target list.

Section V - Employment of Air Interdiction Assets

0409. Experience has shown that certain key conditions tend to produce favourable AI results; a degree of control of the air; the existence of target sets critical to the enemy and vulnerable to attack; sustained pressure from ground combat, continued air attack or both; logistical constriction (due to both reduced supply and high consumption); and concentration of effort. The key to providing proper control for AI lies in assessing how much flexibility will be required and which C2 assets will be in the best position to provide targeting updates in a timely manner.

0410. **Ground Assisted Air Interdiction (GAAI).** SOF elements can search for, identify, and precisely report the location of targets using systems like global positioning system, laser designators, etc. or combinations of the above. GAAI is different from terminal attack control in that it provides real time target updates on AI targets (and may include terminal guidance to weapons or aircraft) in order to facilitate their engagement. Ground SOF may also be able to provide precise BDA on targets that otherwise may be obscured or hidden. **GAAI does not include authority to clear aircraft to release ordnance and should not be confused with attack clearance as given by a FAC.**

Section VI – Command and Control of Air Interdiction Operations

0411. The JFACC directs, coordinates and de-conflicts operations through a CAOC, which is structured to operate as a fully integrated facility. CAOC operations rely on expertise from other component liaisons to coordinate requests or requirements and maintain an up-to-date status of the other component operations. The structure of a CAOC is discussed in AJP-3.3 "Joint Air and Space Operations". The JFACC recommends JOA-wide targeting priorities in coordination with other component commanders' AI priorities and forwards the air apportionment recommendation to the JFC. The JFC provides target priorities and air apportionment guidance to the JFACC and other component commanders. The JFACC, using priorities established in the JFC's air apportionment decision, then plans and executes the JOA-wide AI effort. Other components may simultaneously conduct AI efforts with other organic or assigned capabilities.

0412. Capabilities and forces made available for planning and tasking are determined by the JFC in consultation with component commanders. They are based on JFC-assigned objectives and the CONOPS. These capabilities and forces are tasked directly by the JFC or by the JFACC based on the JFC's air apportionment decision. The JFACC's AI employment guidance, based on the air apportionment decision, is used by the CAOC to develop the ATO. All air missions (organic and others) tasked by a CC within his AOO, should also appear in the ATO for coordination purposes. These may be redirected only with the approval of the JFC or the affected CC. The JFACC synchronizes, plans, and executes the overall JOA-wide AI effort through the ATO process.

0413. The JFC is the only individual who has the authority to change the air apportionment decision. However, the JFACC may divert, cancel or change apportioned AI target assignments to adapt to a changing situation, consistent with the JFC's intent. Such changes

are not considered "changing the air apportionment"; however, the JFACC coordinates changes with affected commanders whenever possible to minimize impact on other joint force operations. The JFC may give the JFACC the authority to redirect joint air operations. The JFC, or affected CC, must approve all requests for redirection of direct support air assets. Affected component commanders will be notified by the JFACC upon redirection of missions previously allocated in the ATO for support of component operations.

0414. Proper coordination facilitates a coherent AI effort involving diverse forces using different employment procedures and reduces the potential for fratricide. Interdiction coordination procedures must not inhibit timely application of firepower in the conduct of other operations. Commanders should consider component capabilities for speed, range, manoeuvre, weapon system characteristics, information operations (Info Ops), intelligence gathering and the ability to receive and distribute information available from space-based assets. Commanders at all levels must ensure AI operations are synchronized with other ongoing operations in support of the campaign or major operational objectives.

0415. Component commanders develop AI priorities to enhance mission accomplishment. Within their AOO, supported commanders attempt to strike AI targets with organic assets first, whenever practical and feasible. Pre-planned targets scheduled for attack by land or naval forces' direct support air capabilities and forces should be included in the ATO, when appropriate, for de-confliction and coordination. AI targets that the land or naval force commander is unable to strike, due to lack of organic assets or for which joint force AI assets are better suited, are passed to the JFACC via liaison elements. These targets are passed as individual targets, categories of targets or in terms of desired effects. However, forwarding desired effects rather than strict target nominations gives those responsible for conducting joint AI maximum flexibility to exploit their capabilities. These joint AI target recommendations are prioritised in accordance with JFC directives.

Section VII- Air Interdiction Planning and Requesting Considerations

0416. Well defended or difficult to attack targets carry a high risk of friendly losses. Communications assets, route infrastructure, key capabilities and logistics may offer benefits for a lower expenditure of resources. However, many targets are mobile, and this could result in difficulties in target location and weaponeering, as well as a risk of collateral damage. Some AI targets, such as bridges, may only be tactically relevant for very short periods. All these factors create problems in selecting and engaging AI targets.

0417. Targets of opportunity may be attacked by AI capable forces under a dynamic targeting process when they have been identified too late, or not selected for action in time to be included in the deliberate targeting cycle. A surface force commander may request attacks on these targets not addressed in the ATO. Although not identified on a TST matrix, valid/approved dynamic targets can be engaged using the Find/Fix/Track/Target/Engage/Assess process used for TST. Requests should flow from the requesting surface force commander to the JFACC via the CAOC. If feasible, the JFACC will re-task other mission-assigned aircraft or task available aircraft to attack the target. The targeting process is much less flexible due to the detailed planning required to execute such missions successfully; consequently the rescheduling of missions for these unplanned AI requests may not always be possible.

0418. Collateral damage and fratricide are undesirable aspects of warfare. Causes include, but are not limited to, misidentification of targets, target location errors, weapons technical failures, and loss of situational awareness during planning or execution. It is critical for all

commanders to ensure that adequate procedures are in place to avoid fratricide or collateral damage.

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ORIGINAL

LEXICON

Part I – Acronyms and Abbreviations

The Lexicon contains abbreviations relevant to AJP-3.3.2(A) and is not meant to be exhaustive. The definitive and more comprehensive list of abbreviations is in AAP-15, abbreviations introduced in AJP-3.3.2(A) are annotated.

ACCS	Air Command And Control System
ACM	airspace control means
ACO	airspace control order
AD	air defence
AGS	air ground surveillance
AH	attack helicopter
AI	air interdiction
AJP	Allied Joint Publication
ALE	air liaison element
ALO	air liaison officer
AOAD	Army organic air defence
AOCC	air operations coordination centre
AOCC (L)	air operations coordination centre (land)
AOCC (M)	air operations coordination centre (maritime)
AOO	area of operations
ATO	air tasking order
BCE	battlefield coordination element
BDA	battle damage assessment
C2	command and control
CAOC	combined air operations centre
CAS	close air support
CASP	coordinated air/sea procedures
CC	component command
CID	combat identification
CIS	communication and information systems
CONOPS	concept of operations
DS	direct support
EW	electronic warfare
FAC	forward air controller
FAC (A)	forward air controller (airborne)
FSCL	fire support coordination line
FSCM	fire support coordination measure

FSE	fire support element
GAAI	ground assisted air interdiction
HQ	headquarters
JAAT	joint air attack team
JFACC	joint force air component command
JFC	joint force commander
JFLCC	joint force land component command
JOA	joint operations area
JSTARS	Joint Surveillance and Target Attack Radar System
LCC	land component command
LO	liaison officer
LOC	lines of communication
OPCON	operational control
PGM	precision guided munition
POL	petroleum, oil, and lubricants
SA	strategic attack
SCAR	strike coordination and reconnaissance
SEAD	suppression of enemy air defences
SOF	special operations force
STANAG	Standardisation Agreement
TACON	tactical control
TACP	tactical air control party
TOT	time on target
TST	time sensitive target
TTP	tactics, techniques, and procedures

Part II – Terms and Definitions

air interdiction
AI operations are conducted to divert, disrupt, delay, degrade or destroy the enemy's military potential before it can be brought to bear effectively and as such distance that detailed integration of each mission with the fire and manoeuvre of friendly forces is not required. (This term and definition is being staffed within the context of this publication for ratification and will be proposed as a modification to the existing term in AAP-6)

air liaison officer
A tactical air force or naval aviation officer attached to a ground or naval unit or formation as the advisor on tactical air operation matters (AAP-6).

air reconnaissance
The collection of information of intelligence interest either by visual observation from the air or through the use of airborne sensors (AAP-6).

airspace control
The implementation and coordination of the procedures governing airspace planning and organization in order to minimize risk and allow for the efficient and flexible use of airspace. (AAP-6)

airspace control means
Operational means that when established, segregate control, and/or reserve airspace for Allied operations. (AJP-3.3.5)

air support
All forms of support given by air forces on land or sea (AAP-6).

allocation

1. In nuclear warfare planning, the specific numbers and types of nuclear weapons allocated to a commander for a stated time period as a planning factor only.

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

area of operations
An operational area defined by a joint commander for land or maritime forces to conduct military activities. Normally, an area of operations does not encompass the entire joint operations area of the joint commander, but is sufficient in size for the joint force component commander to accomplish missions and protect forces (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).

control
That authority exercised by a commander over part of the activities of subordinate organizations, or other organizations not normally under his command, which encompasses the responsibility for implementing orders or directives. All or part of this authority may be transferred or delegated (AAP-6).

direct support
1.   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.
2.   In maritime usage, operations related to the protection of a specific force by other units, normally under the tactical control of that force (AAP-6).

electronic warfare
Military action to exploit the electromagnetic spectrum encompassing: the search for, interception and identification of electromagnetic emissions, the employment of electromagnetic energy, including directed energy, to reduce or prevent hostile use of the electromagnetic spectrum, and actions to ensure its effective use by friendly forces (AAP-6).

fire support coordination line
Within an assigned area of operations, a line established by a land or amphibious force commander to denote coordination requirements for fires by other force elements which may affect the commander's current and planned operations. The fire support coordination 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 coordination line must be coordinated with the appropriate commanders and supporting elements. Attacks against surface or ground targets short of the fire support coordination 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 coordination line must coordinate 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).

fire support coordination measure
A measure employed by land or amphibious manoeuvre commanders to facilitate the rapid engagement of targets and simultaneously provide safeguards for friendly forces. Commanders position fire support coordination measures consistent with the operational situation and in coordination with superior, subordinate, supporting, and affected commanders (This term and definition is being staffed within the context of this publication for ratification and will be proposed as new term in AAP-6).

forward air controller
A qualified individual who, from a forward position on the ground or in the air, directs the action of combat aircraft engaged in close air support of land forces (AAP-6).

ground liaison officer
An officer especially trained in air reconnaissance and/or offensive air support activities. These officers are normally organised into teams under the control of the appropriate ground force commander to provide liaison to air force and navy units engaged in training and combat operations (AAP-6).

interdiction
An action to divert, disrupt, degrade, delay or destroy the enemy's military potential before it can be used effectively. (This term and definition is being staffed within the context of this publication for ratification and will be proposed as a new term in AAP-6)

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

joint air attack team
A combination of attack and/or reconnaissance rotary-wing aircraft and fixed-wing close air support aircraft, operating together to locate and attack high-priority targets and targets of opportunity. Joint air attack team operations are coordinated and conducted to support the ground commander's scheme of manoeuvre. Note: the joint air attack team normally operates as a coordinated effort supported by fire support, air defence artillery, naval surface fire support, intelligence, surveillance, and reconnaissance systems, electronic warfare systems, and ground manoeuvre forces (AAP-6).

joint force commander
A general term applied to a commander authorised to exercise command authority or operational control over a joint force (AJP-01).

joint force air component commander
A commander, designated by the joint force commander or higher authority, who would be responsible for making recommendations to the joint force commander on the employment of air forces and assets, planning and coordinating air operations and accomplishing such operational missions as may be assigned to him. The joint force air component commander is given the authority necessary to accomplish missions and tasks assigned by the designating commander (AJP-01).

joint force land component commander
A commander, designated by the joint force commander or higher authority, who would be responsible for making recommendations to the joint force commander on the employment of land forces and assets, planning and coordinating land operations and accomplishing such operational missions as may be assigned to him. The joint force land component commander is given the authority necessary to accomplish missions and tasks assigned by the designating commander (AJP-01).

joint operations area
A temporary area defined by a NATO strategic or regional commander, in which a designated joint commander plans and executes a specific mission at the operational level of war (AAP-6).

liaison
That contact or intercommunication maintained between elements of military forces to ensure mutual understanding and unity of purpose and action (AAP-6).

manoeuvre
1.   A movement to place ships or aircraft in a position of advantage over the enemy.
2.   A tactical exercise carried out at sea, in the air, on the ground, or on a map in imitation of war.
3.   The operation of a ship, aircraft, or vehicle, to cause it to perform desired movements.
4.   Employment of forces on the battlefield through movement in combination with fire, or fire potential, to achieve a position of advantage in respect to the enemy in order to accomplish the mission (AAP-6).

mission
1.   A clear, concise statement of the task of the command and its purpose.
2.   One or more aircraft ordered to accomplish one particular task (AAP-6).

objective
A clearly defined and attainable goal for a military operation, for example seizing a terrain feature, neutralizing an adversary's force or capability or achieving some other desired outcome that is essential to a commander's plan and towards which the operation is directed (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 command
The authority granted to a commander to assign missions or tasks to subordinate commanders, to deploy units, to reassign forces, and to retain or delegate operational and/or tactical control as the commander deems necessary. Note: it does not include responsibility for administration (AAP-6).

operational control
The authority delegated to a commander to direct forces assigned so that the commander may accomplish specific missions or tasks which are usually limited by function, time, or location; to deploy units concerned, and to retain or assign tactical control of those units. It does not include authority to assign separate employment of components of the units concerned. Neither does it, of itself, include administrative or logistic control (AAP-6).

rules of engagement
Directives issued by competent military authority which specify the circumstances and limitations under which forces will initiate and/or continue combat engagement with other forces encountered (AAP-6).

sortie
In air operations, an operational flight by one aircraft (AAP-6).

special operations
Military activities conducted by specially designated, organized, trained and equipped forces using operational techniques and modes of employment not standard to conventional forces. These activities are conducted across the full range of military operations independently or in coordination with operations of conventional forces to achieve political, military, psychological and economic objectives. Politico-military considerations may require clandestine, covert or discreet techniques and the acceptance of a degree of physical and political risk not associated with conventional operations (AAP-6).

support
The action of a force, or portions thereof, which aids, protects, complements or sustains any other force (AAP-6).

supported commander
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 other support and/or who develops a supporting plan (AAP-6).

suppression of enemy air defences
That activity which neutralizes, temporarily degrades or destroys enemy AD by a destructive and/or disruptive means (AAP-6).

tactical air control party
A subordinate operational component of a tactical air control system designed to provide air liaison to land forces and for the control of aircraft (AAP-6).

tactical air operation
The employment of air power in coordination with ground or naval forces to:
1. attain and maintain air superiority;
2. prevent movement of enemy forces into and within the combat zone and to seek out and destroy these forces and their supporting installations; and
3. assist ground or naval forces in achieving their objectives by combined and/or joint operations (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).

targeting
The process of selecting targets and matching the appropriate response to them taking account of operational requirements and capabilities (AAP-6).

target list
A tabulation of confirmed or suspected targets maintained by any echelon for information and fire support planning purposes (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 (AAP-6).

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