REBUILDING THE JOINT AIRBORNE FORWARD AIR CONTROLLER: ANALYZING JOINT AIR TASKING DOCTRINE'S ABILITY TO FACILITATE EFFECTIVE AIR-GROUND INTEGRATION

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by

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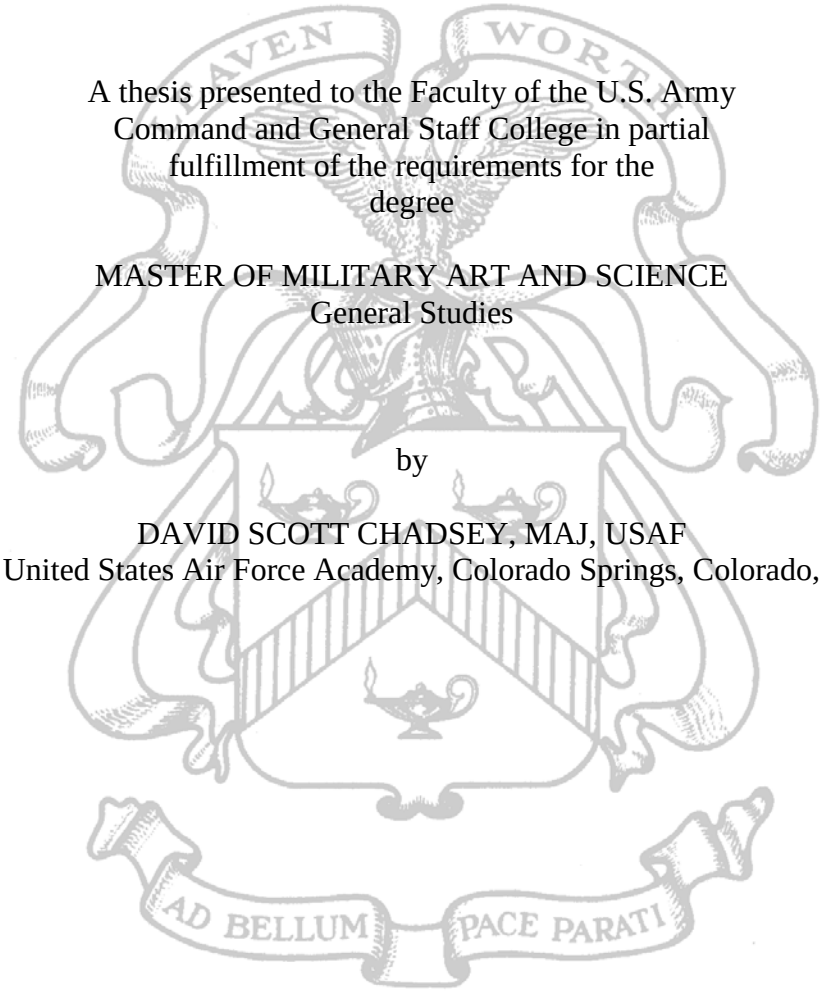

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14. ABSTRACT

Lessons learned from Operation Anaconda point to deficiencies in current joint FAC(A) air-ground integration. The primary purpose of this thesis is to determine if current joint air tasking doctrine allows the FAC(A) to effectively integrate into supported ground operations. This study examines potential modifications to joint air tasking doctrine that will allow FAC(A)s to integrate with their supported ground units more effectively.

Based on this study, there are two primary methods to successfully integrate the FAC(A) into supported ground operations. The first method is through detailed pre-mission coordination, currently called for in joint doctrine. Consequently, this analysis compares the integration opportunities available in current joint air tasking doctrine to the established requirement for effective FAC(A) integration to determine if current joint air tasking doctrine facilitates effective air-ground integration. The second method of successfully integrating the FAC(A) into supported ground operations is through recurrent working relationships established over time. Consequently, the analysis also compares current joint air tasking doctrine to the successful models illustrated in the Vietnam War TASS system and the USMC MAGTF to identify potential avenues for improved FAC(A) integration.

Finally, the study recommends modifications to joint air tasking doctrine to help improve FAC(A) integration.

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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

REBUILDING THE JOINT AIRBORNE FORWARD AIR CONTROLLER: ANALYZING JOINT AIR TASKING DOCTRINE'S ABILITY TO FACILITATE EFFECTIVE AIR-GROUND INTEGRATION, by Major David Scott Chadsey, 132 pages.

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Dino, although I've never actually met you in person, I'll miss you most, Scarecrow. Your digital spears ring true and pointy. In truth, almost every single one of your thesis blowing comments represented a doubt that I had in my own mind but felt that I didn't have the time to ask. Thank you for forcing me to answer the hard questions.

Finally, Allison, Katharine, and Landon, thank you for still being there every time I came home from Kansas throughout this whole crazy process.

TABLE OF CONTENTS

Page

ACRONYMS

AAC	Army Air Corps
AAF	Army Air Force
AAGS	Army Air-Ground System
ACE	Air Combat Element
ACTS	Air Corps Tactical School
ADRP	Army Doctrine Reference Publication
AGOS	Air-Ground Operations System
AIRSUPREQ	Air Support Request
ALO	Air Liaison Officer
AO	Area of Operations or Air Officer
ASOC	Air Support Operations Center
ATO	Air Tasking Order
BALO	Battalion Air Liaison Officer
BDA	Battle Damage Assessment
C2	Command and Control
CAR	Combined Arms Rehearsal
CAS	Close Air Support
CBA	Capabilities Based Assessment
CCMD	Combatant Command
CE	Command Element
COA	Course of Action
COD	Combat Operations Division
CPD	Combat Plans Division

CSSE	Combat Service Support Element
DASC	Direct Air Support Center
DOTmLPF-P	Doctrine, Organization, Training, Material, Leadership and Education, Personnel, Facilities, and Policy
EFS	Expeditionary Fighter Squadron
ETASS	Expeditionary Tactical Air Support Squadron
FAC	Forward Air Controller
FAC(A)	Forward Air Controller (Airborne)
FM	Field Manual
FSCC	Fire Support Coordination Cell
FSCM	Fire Support Coordination Measure
FW	Fixed Wing
G2	Intelligence Staff Officer
GCE	Ground Combat Element
GLO	Ground Liaison Officer
HQ	Headquarters
ISR	Intelligence, Surveillance, Reconnaissance
JAOC	Joint Air Operations Center
JAOP	Joint Air Operations Plan
JATC	Joint Air Tasking Cycle
JCAS	Joint Close Air Support
JFACC	Joint Force Air Component Commander
JFC	Joint Force Commander
JOC	Joint Operations Center
JP	Joint Publication

JTAC	Joint Terminal Attack Controller
JTD	Joint Training Directive
LNO	Liaison Officer
MAAP	Master Air Attack Plan
MACCS	Marine Air Command and Control System
MACV	Military Assistance Command, Vietnam
MAGTF	Marine Air-Ground Task Force
MDMP	Military Decision Making Process
MOA	Memorandum of Agreement
MEB	Marine Expeditionary Brigade
MEF	Marine Expeditionary Force
MEU	Marine Expeditionary Unit
NKPA	North Korean Peoples' Army
OAS	Offensive Air Support
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
OPCON	Operational Control
PAA	Position Area of Artillery
PID	Positive Identification
ROK	Republic of Korea
RTM	Ready Aircrew Program Tasking Memorandum
RW	Rotary Wing
SA	Situational Awareness
SEAD	Suppression of Enemy Air Defenses
SOP	Standard Operating Procedure

SP	Special Purpose
TAC	Tactical Air Coordinator
TAC(A)	Tactical Air Coordinator (Airborne)
TACC	Tactical Air Control Center
TACON	Tactical Control
TACP	Tactical Air Control Party
TACS	Theater Air Control System
TAD	Tactical Air Distribution
TADC	Tactical Air Distribution Center
TAR	Tactical Air Request
TASS	Tactical Air Support Squadron
TCS	Tactical Control Squadron
TF	Task Force
UAS	Unmanned Aerial System
UNC	United Nations Command
U.S.	United States
USAF	United States Air Force
USMC	United States Marine Corps

ILLUSTRATIONS

Page

CHAPTER 1

INTRODUCTION

> The history of close air support since World War I has been marked by tragedy–lives lost, unduly protracted conflict, and victory deferred–because both air and ground officers have too often failed to benefit as they might from history, from experience garnered and recorded by earlier generations of airmen.
>
> — Major General I.B. Holley, Jr.,
> "A Retrospect on Close Air Support"

Airborne Forward Air Controllers (FAC(A)) have a time-honored history supporting friendly ground forces in most of America's significant conflicts over the last seventy years. However, while recent operations in Iraq and Afghanistan placed a heavy emphasis on Close Air Support (CAS), the associated counterinsurgency and stability operations were not conducive to using FAC(A)s. Small groups of enemy engaged in unconventional tactics, operating in and amongst the indigenous populations, combined with the inability to positively identify individuals as hostile are the primary factors that precluded FAC(A) operations throughout the majority of OEF and OIF. The isolated situations during OEF and OIF that did incorporate FAC(A)s illustrate the need to improve joint air-ground integration. According to the *Operation Anaconda Lessons for Joint Operations* published by the National Defense University,

> U.S. joint forces need improvement in conducting integrated air-ground operations in such battles. During Anaconda, improvements were needed in creating a common understanding of force employment concepts, establishing effective information networks and joint communications systems, and ensuring appropriate coordination of air-ground operations . . . Anaconda not only illuminated the need for tight integration of air and ground fires but also showed the complex challenges that can arise . . . Anaconda illustrates the reasons for having a forward air command and control staff, plus airborne command aircraft and FACs, capable of handling responsively the demanding functions of air battle management and coordination with local ground commanders.[1]

However, the persistent stability operations have overshadowed this recent experience indicating the need for improved FAC(A) air-ground integration. Consequently, because of limited application, potential deficiencies in joint FAC(A) integration during major operations have gone largely unnoticed.

FAC(A)s provide a unique battlefield perspective that affords a tremendous capability to improve the effectiveness of CAS. As the airborne extension of the Tactical Air Control Party (TACP), FAC(A)s require a detailed understanding of the friendly maneuver scheme to be truly integrated with the ground operation. FAC(A)s were used extensively during both the Korea and Vietnam Wars to increase CAS effectiveness. Likewise, in future major operations, the FAC(A) will play a vital role in finding mechanized enemy forces and controlling CAS aircraft in target-rich environments. Accordingly, integrated FAC(A)s will increasingly be an essential component of the TACP. However, current joint doctrine assigns FAC(A)s within the daily Air Tasking Order (ATO) cycle in the same manner as all other air assets. The limited planning time associated with the daily ATO cycle does not provide the FAC(A) with an adequate opportunity work within the supported ground commander's mission planning and rehearsal framework to build a legitimate understanding of the ground scheme of maneuver. The resulting lack of detailed integration prevents FAC(A)s from serving as a true extension of the TACP. Consequently, the joint services must modify joint air tasking doctrine to integrate FAC(A)s into supported ground operations more effectively.

The primary purpose of this thesis is to determine if current joint air tasking doctrine allows the FAC(A) to effectively integrate into supported ground operations.

This thesis is structured around one primary research question supported by six subordinate questions:

Does current joint air tasking doctrine allow the FAC(A) to effectively integrate into supported ground operations?

1. What is current joint FAC(A) air tasking doctrine?
2. Why did joint FAC(A) air tasking doctrine evolve to its current form?
3. What is the specified requirement for effective FAC(A) integration?
4. What deficiencies in joint air tasking doctrine and practices prevent effective FAC(A) integration?
5. How do historical examples of joint FAC(A) integration during major operations compare to current doctrine?
6. How does United States Marine Corps (USMC) FAC(A) doctrine compare to current joint doctrine?

To answer these questions, this paper will review current joint FAC(A) air tasking doctrine and identify the associated deficiencies in the joint air tasking cycle that impede effective FAC(A) integration. The study will explore the evolution of CAS air tasking doctrine to determine the underlying rationale for current doctrine, and compare historical examples of joint FAC(A) integration and USMC CAS doctrine to current joint doctrine. Finally, the thesis will compare the various historical and alternative FAC(A) integration models to the current joint air tasking process to determine if current joint air tasking doctrine allows the FAC(A) to effectively integrate into supported ground operations.

JCAS Overview

Before delving into an extensive analysis focused on improving FAC(A) integration with ground operations, it will be useful to review some of the fundamental participants and procedures involved in the current CAS architecture. Department of Defense (DOD) Joint Publication (JP) 3-09.3, *Close Air Support*, defines Close Air Support as: "air action by fixed-wing (FW) and rotary-wing (RW) aircraft against hostile targets that are in close proximity to friendly ground forces, and requires detailed integration of each air mission with the fire and movement of those forces."[2] The principle participants on the CAS team are the supported ground commander and his Fire Support Coordination Cell (FSCC), the TACP, and CAS aircraft. During the Military Decision Making Process (MDMP), the supported ground commander's staff develops the friendly scheme of maneuver and associated fires support plan, which includes any CAS requirements. The TACP links CAS aircraft to the supported commander's integrated fires plan. "The TACP is the principal Air Force Liaison unit collocated with Army maneuver units from battalion through corps."[3] The TACP's composition and specific function vary based on the supported echelon.

At the tactical level, the TACP advises the commander on the effective use of CAS, and coordinates and controls all CAS missions within the commander's area of operations (AO). A battalion TACP usually consists of two to four Joint Terminal Attack Controllers (JTAC) and their tactical support team (figure 1). "The JTAC is the forward Army ground commander's qualified (certified) Service member, who, from a forward position, directs the action of combat aircraft engaged in CAS and other air operations in the ground commander's operational area."[4] Occasionally, battalion commanders embed

JTACs with lower level maneuver echelons to increase CAS's flexibility and responsiveness for subordinate commanders. Ultimately, JTACs are the catalyst for the detailed integration that must occur between CAS aircraft and the supported ground units.

Figure 1. Tactical Air Control Party in Operation Iraqi Freedom

Source: Michael Keehan, "15 EASOS Operation Iraqi Freedom TACP Stories" (Powerpoint Presentation, 15 Expeditionary Air Support Operations Squadron, Ft. Stewart, GA, 2004), 12.

During MDMP, JTACs advise the commander on how to employ and integrate CAS into the fires plan to support the ground operation, and concurrently mission plan via the joint CAS planning model (figure 2). Specifically, the JTAC must have a detailed understanding of the supported unit's mission and key tasks, subordinate unit maneuver

schemes, organic fire support and attack aviation plans, friendly reconnaissance locations, Command and Control (C2) architecture, priority targets and commander's intent for CAS. The JTAC must also coordinate with the supported commander to identify expected types of control based on the commander's risk estimate.

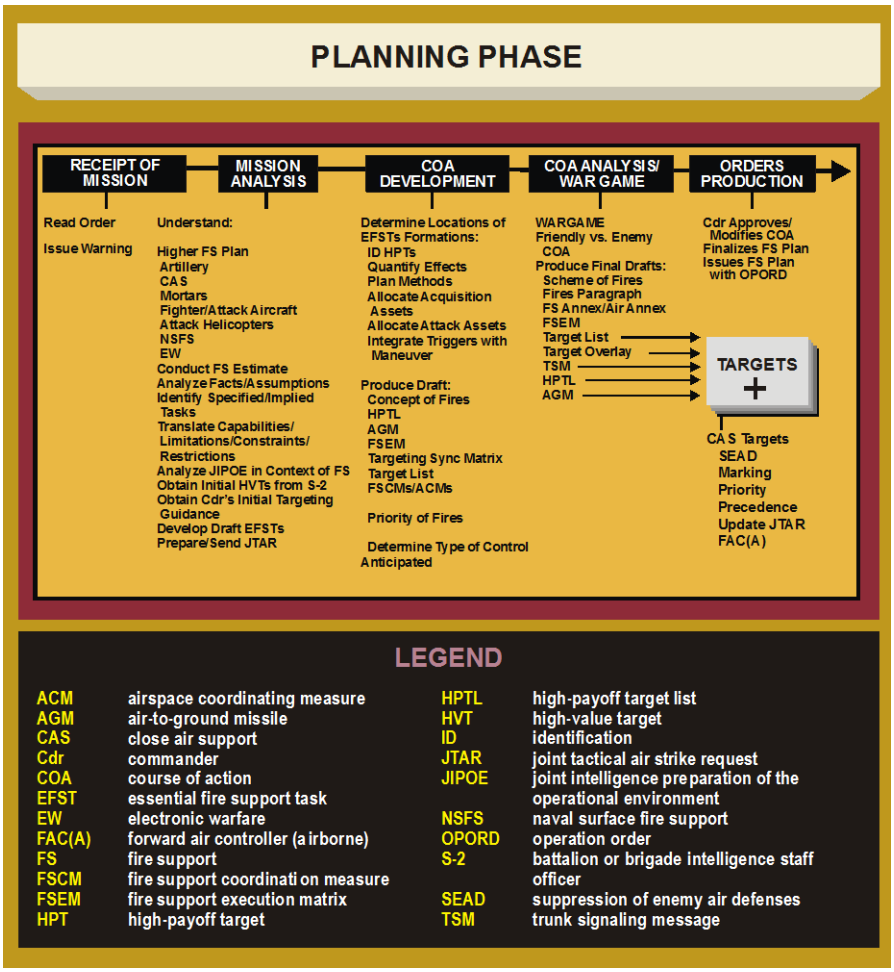

Figure 2. CAS Planning Model

Source: Joint Chiefs of Staff, Joint Publication 3-09.3, *Close Air Support* (Washington, DC: Government Printing Office, 2009), III-3.

During execution, the JTAC coordinates with the supported commander, fire support officer, and forward observers to maintain awareness on the operation. Specifically, the JTAC must maintain continuous awareness on the locations of friendly forces and emerging targets, and prioritize the commander's desired effects for CAS. In turn, the JTAC coordinates with CAS aircraft to provide a current update on the friendly ground operation, which includes the status of fires, air assets, known threats within the AO, friendly force locations, and the commander's intent for CAS aircraft. The JTAC articulates specific targeting information to CAS aircraft through a 9-Line CAS Briefing, which identifies specific target location and description, the relative location of the closest friendly forces any additional friendly forces that could be affected by the attack, and any restrictions for the attacking aircraft (figure 3).

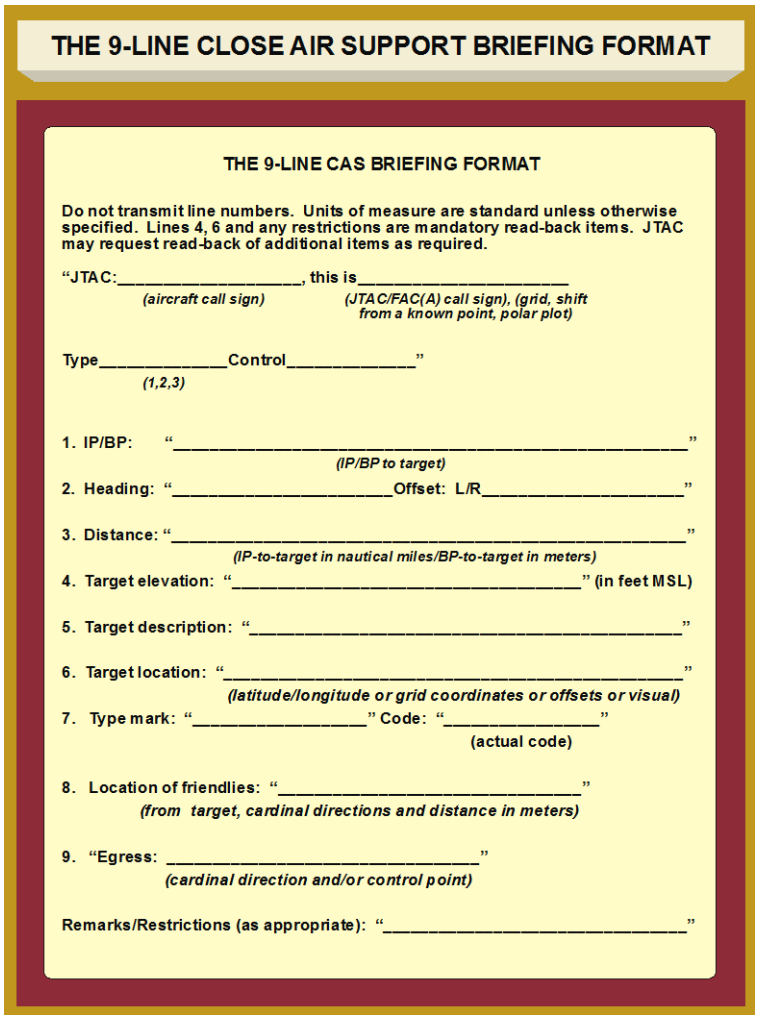

Figure 3. CAS Briefing

Source: Joint Chiefs of Staff, Joint Publication 3-09.3, *Close Air Support* (Washington, DC: Government Printing Office, 2009), V-40.

After the JTAC and CAS aircraft reconcile the essential information from the CAS Briefing, the JTAC provides terminal control for the attacking CAS aircraft and approves final weapons release authority. Joint Publication 3-09.3 encapsulates essential JTAC tasks as follows:

1. Know the enemy situation and location of friendly units.
2. Know the supported commander's target priority, desired effects, and timing of fires.
3. Know the commander's intent and applicable Rules of Engagement.
4. Validate targets of opportunity.
5. Advise the commander on proper employment of air assets.
6. Control CAS with supported commander's approval.
7. Deconflict aircraft and fires from CAS sorties.
8. Provide initial BDA report.[5]

While many of these tasks can be challenging on their own, the JTAC must frequently accomplish most or all of these tasks concurrently. This highlights the immense responsibility the CAS system places on the JTAC.

As the airborne extension of the TACP, the FAC(A) requires the capability to perform the same functions as the JTAC. According to JP 3-09.3, the FAC(A): "is a specifically trained and qualified aviation officer who exercises control from the air of aircraft engaged in CAS of ground troops. The FAC(A) provides coordination, deconfliction, and terminal attack control for CAS missions as well as locating and marking ground targets."[6] Doctrinally, the FAC(A) may perform in concert with a JTAC, or as the supported commander's sole representative from the TACP. When performing as a combined team, the FAC(A) and JTAC can coordinate their efforts to accomplish all of the JTACs required tasks more efficiently. Additionally, the FAC(A) can augment the TACP with a unique airborne perspective by performing aerial reconnaissance and marking CAS targets from the air. When acting without a JTAC, the FAC(A) must

autonomously perform the same tasks required of a JTAC. The primary challenge for a FAC(A) coordinating and controlling CAS without a JTAC is accomplishing the high level of detailed integration required of the TACP. Prior to the mission, the FAC(A) should coordinate with the supported ground unit to satisfy all of the same mission planning requirements as those previously discussed for JTACs. During execution, the FAC(A) must coordinate directly with the supported commander, fire support officer, and forward observers to monitor the evolving friendly ground order of battle and developing targets. JP 3-09.3 further illustrates the FAC(A)'s required capabilities:

> A FAC(A) must be able to coordinate supporting arms in conjunction with CAS missions, such as L-Hour preparatory fires and post-assault fires, without assistance from the TACP/JTAC. The FAC(A) must be capable of executing the desires of the ground commander in day, night, and adverse weather conditions; integrating fires on the battlefield; mitigating fratricide; and conducting detailed planning and integration with the maneuver element.[7]

Consequently, FAC(A) annual currency requirements are similar to those of JTACs.[8] Ultimately, both the JTAC and the FAC(A) fill distinct vital roles within the TACP.

Above the battalion level, the TACP focuses on planning and coordinating for CAS. Brigade TACPs usually retain JTACs, however as the intent is to delegate CAS control to the lowest level subordinate commander, battalion JTACs control the preponderance of CAS missions. At the brigade level and above, the TACP is staffed with an Air Liaison Officer (ALO), who is usually a USAF rated officer that may or may not be JTAC qualified.[9] Division ALOs primarily advise the division commander on how to effectively distribute, employ, and integrate allocated CAS missions. The senior element of the TACP is the Air Support Operations Center (ASOC), usually located at the corps level.

> Normally collocated with the Army tactical headquarters (HQ) senior FSCC within the Ground Combat Element (GCE), the ASOC coordinates and directs air support for Army or joint force land component operations. An ASOC may be collocated with a field army or a division engaged in independent operations . . . The ASOC processes immediate CAS requests received over the Joint Air Request Net, coordinates execution of preplanned and immediate CAS and normally exercises tactical control of joint forces made available for tasking.[10]

The TACP integrates into the greater Theatre Air Control System (TACS) and Army Air-Ground System (AAGS) at all echelons from battalion to corps (figure 4).

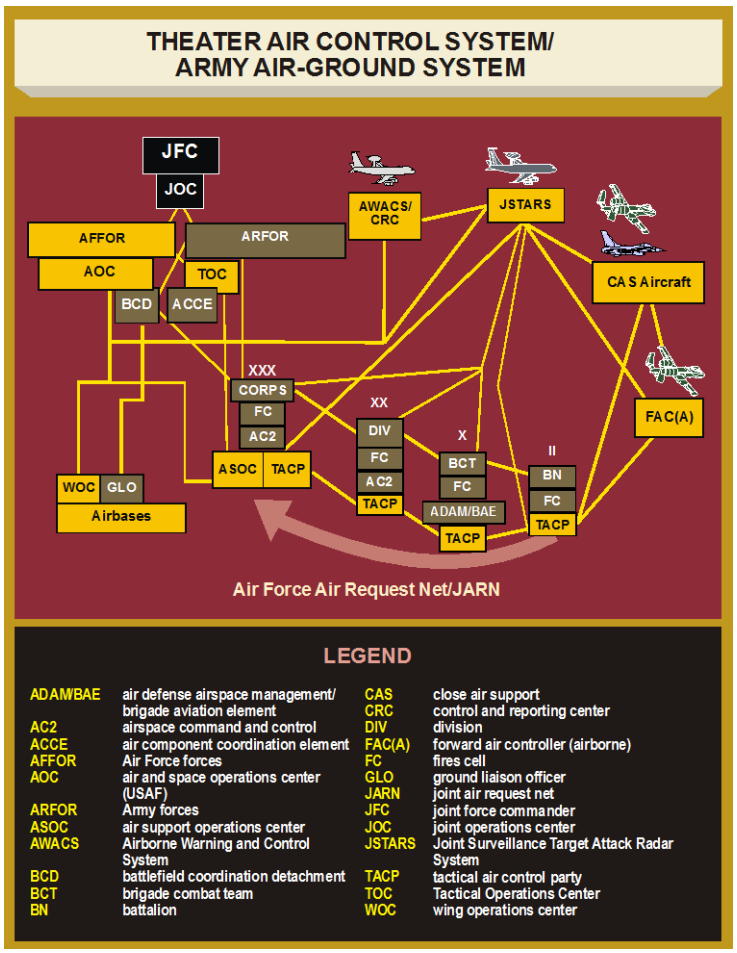

Figure 4. Theatre Air Control System/Army Air Ground System

Source: Joint Chiefs of Staff, Joint Publication 3-09.3, *Close Air Support* (Washington, DC: Government Printing Office, 2009), II-5.

The next chapter will explore the evolution of CAS air tasking doctrine, current joint CAS air tasking doctrine, and alternative models of FAC(A) operations. Analysis in subsequent chapters will determine if current air tasking doctrine allows FAC(A)s to effectively integrate into supported ground operations.

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[1]Michael Baranick, Hans Binnendijk, and Richard L. Kugler, *Operation Anaconda: Lessons for Joint Operations* (Washington DC: National Defense University, 2009), 20, 24-25.

[2]Joint Chiefs of Staff (JCS), Joint Publication (JP) 3-09.3, *Close Air Support* (Washington, DC: Government Printing Office, 2009), I-1.

[3]Ibid., II-9.

[4]Ibid.

[5]Ibid.

[6]Ibid., III-38.

[7]Ibid.

[8]Joint Chiefs of Staff, JCAS AP MOA 2004-02, *Joint Forward Air Conroller (Airborne) (FAC(A)) Memorandum of Agreement (MOA)* (Washington, DC: Director, Joint Staff J8, 2012), 5.

[9]U.S. Air Force, Air Force Instruction 13-113, Volume 1, *Tactical Air Control Party (TACP) Training Program* (Langley AFB, VA: Air Force Operations Directorate, Close Air Support Branch, 2012), 24.

[10]JCS, JP 3-09.3, II-6, 7.

CHAPTER 2

LITERATURE REVIEW

> No subject produces more disagreement between soldiers and aviators than the employment of tactical aircraft in close air support. The basis for this continuing controversy is that the aviator and the soldier view warfare on the battlefield and in the skies differently. Most soldiers in 1941, as today, thought that some aircraft should be controlled by ground force commanders, to be used to protect their units from enemy air attack by maintaining patrols over the battlefield, and to attack ground targets immediately in front of ground units. Ground force commanders viewed tactical problems as those requiring immediate solutions, and they were not particularly interested in the longer-term effects of interdiction or strategic bombardment. By comparison, the airman viewed the ground battle more expansively and considered the battlefield to be any place within the range of his aircraft. The best—if not only—way to defend against enemy air attack was to secure air superiority by destroying the enemy's air force. Then support of ground operations could be more properly rendered by attacking the enemy's tactical and strategic rear, including communications, transportation, and logistics facilities, as well as home front industries. Aviators considered flying defensive patrols over ground forces and parceling out small groups of aircraft to attack lesser targets in enemy front-line positions a misuse of air power and a waste of heavy striking power.
>
> — David Syrett, "The Tunisian Campaign, 1942-43"

> Perhaps an even more important lesson than that of the effectiveness of the airborne FAC is the course an innovation takes in Air Force attitudes and doctrine. It is seen here how doctrine failed to translate a novel, effective solution to a tactical problem into organization, personnel, and equipment, necessitating "reinvention" of the solution each time the problem appeared.
>
> — J. Farmer and M. J. Strumwasser, *The Evolution of the Airborne Forward Air Controller: An Analysis of Mosquito Operations in Korea*

Since the dawn of powered flight, airpower visionaries and land warfare stalwarts have perpetually disputed combat aviation's primary mission. Airpower advocates have overwhelmingly subscribed to variations of Giulio Douhet's strategic bombing theories. Douhet promoted airpower's primary purpose as a powerful offensive air arm capable of inflicting mass damage to the enemy's centers of gravity, including infrastructure and

civilian population, to compel the enemy to capitulate.[1] In contrast, surface warfare loyalists have maintained that airpower's principle purpose is to destroy the enemy's tactical war-fighting capability, which helps the land component to control key terrain, a vital requisite to win any conflict. This fundamental debate over airpower's primary function has enduringly shaped the evolution of CAS doctrine.

World War I

Beginning with the advent of winged flight in 1903, nascent air advocates began to envisage airpower's full potential. Military innovators began to see the opportunity for airpower to shape and potentially win conflicts previously exclusive to the ground domain. Even before World War I, combatants began to experiment with air to surface attacks on the enemy.

> Aerial bombing in support of ground operations was introduced during the Italo-Turkish War of 1911-1912, fought principally in Libya. On November 1, 1911, an Italian pilot dropped three small bombs on Turkish positions, and thereafter the Italians continued bombing from aircraft and airships from time to time.[2]

Air combat evolved rapidly, and reached its World War I pinnacle in 1918 during the Battle of St. Mihiel and the ensuing Argonne-Meuse Offensive (figure 5).

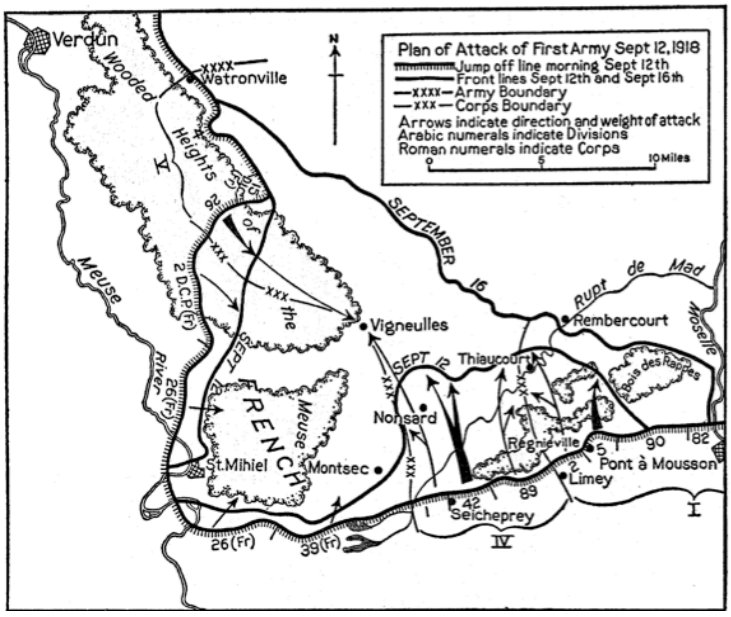

Figure 5. St. Mihiel Offensive, September 1918

Source: 26th Infantry Regiment, *St. Mihiel: Attack of a Fortified Position* (Vienna, VA: 26th Infantry Regimental Association, 1999), 12.

At St Mihiel, aircraft demonstrated the capacity to perform many of the fundamental roles that make airpower successful today. Approximately 1,500 allied aircraft assembled under the command of U.S. Army Air Service Colonel William "Billy" Mitchell.[3] Despite bad weather that significantly hampered air operations, airpower began to prove its mettle in combat. Notably, pursuit aircraft demonstrated airpower's inherent flexibility not only in providing localized air superiority, protecting allied troops from German air attack, but also by adapting to provide reconnaissance and strafe attacks on German ground troops. "For three days the fighters bombed and machine-gunned the retreating Germans, inflicting heavy casualties and considerable damage to German material."[4] Using airpower's demonstrated capabilities from St. Mihiel, allied air forces quickly adapted for the follow-on Argonne Offensive.

> Ground strafing" having proved so efficacious this was continued during the Argonne offensive, and the enemy's troops were attacked by our pursuit airplanes with machine guns and light bombs. Our intelligence reports showed that a much desired effect was obtained, for the mere sight of any of our airplanes, no matter of what type, caused much confusion among the enemy.[5]

Aircraft continued to perform ground attack in addition to a variety of other missions during the Argonne Offensive with considerable success. Airpower's effects were undoubtedly a catalyst for German forces to retreat from the Meuse, which quickly influenced Germany's strategic surrender and the ensuing armistice to end World War I.

A few notable lessons emerged from airpower's introduction to the mainstream during the closing battles of World War I. Significantly; combat aviators identified the benefits and risks of CAS, and the inherent requirement for detailed integration between air-and-ground forces. The U.S. Air Service recognized the benefits of CAS and recommended avenues for improvement in *The Final Report on U.S. Air Service in World War I*:

> The attack by aircraft upon ground troops, using machine guns and small bombs, showed clearly that this has a most demoralizing effect. When properly employed, this aid from the sky in assisting during an attack by our own troops or in repelling an attack or counterattack by the enemy greatly raises the morale of our own forces and much hampers the enemy. It will be well to specialize in this branch of aviation and to provide squadrons or groups with armored airplanes provided with a number of machine guns and small bombs for just such work against ground objectives. Lacking such specially prepared airplanes, we did employ our pursuit airplanes in this way, and at times even our observation airplanes joined in such attacks upon enemy infantry. Just before hostilities ceased it had been decided by the Air Service to organize a number of such battle squadrons and sample airplanes had been equipped and armed for their use. This project should be thoroughly developed in the future.[6]

The impetus for a specialized air component to provide CAS for ground maneuver units was further elaborated in Billy Mitchell's insights into effective air tasking doctrine:

> The successful employment of attack squadrons depends on their concentrated, continuous, uninterrupted engagement at the decisive time and place. This

> condition limits their use to that particular portion of the battlefront upon which the entire operation depends, and prohibits their distribution over relatively unimportant portions of the front line.[7]

Beyond advocating specialized CAS units, the preceding passage highlights several other significant aspects of eventual airpower doctrine, including the requirement for local air superiority over the battlefield and centralized command and control over all air assets. In addition to the tactical benefits of CAS, the Air Service also articulated the considerable challenge of integrating air and ground operations, "the difficulties of close cooperation with the other arms of the service being fully realized, every effort was therefore bent toward bringing about a close understanding between aerial and ground troops."[8] However, this enthusiasm for effective air-ground integration waned in the aftermath of World War I.

Following World War I, the Army air arm's ground support capability atrophied during the interwar years, largely due to lack of interest. In 1921 Italian airpower visionary Giulio Douhet published *The Command of the Air*, which fervidly advocated for an independent air arm based on the principle of strategic bombing. Although many Army Air Service pioneers like Billy Mitchell believed that close attack in support of ground forces would be a vital mission during critical phases of the land operation, most fell in line with Douhet's theories, believing airpower should primarily be used for strategic purposes.[9] Certainly, there were notable exceptions like Claire Chennault and George C. Kenney, who advocated for specialized pursuit and ground attack squadrons.[10] In fact, Lieutenant Colonel William C. Sherman, the First Army Air Service Chief of Staff, published *The Tentative Manual for Employment of the Air Service* shortly after the war. Lieutenant Colonel Sherman's thesis advocated low-level bombing raids "at the

beginning of an advance, or during an offensive, by either friendly or hostile troops."[11]

The specialized ground attack gained more traction when General Mitchell established the 3rd Attack Group in 1921 with the following mission:

> During offensives, attack squadrons operate over and in front of the infantry and neutralize the fire of the enemy's infantry and barrage batteries. On the defensive, the appearance of attack airplanes affords visible proof to heavily engaged troops that Headquarters is maintaining close touch with the front, and is employing all possible auxiliaries to support the fighting troops.[12]

Unfortunately, the 3rd Attack Group fell victim to logistical and training deficiencies. Early attempts at producing a specialized ground attack aircraft were largely unsuccessful and training opportunities were virtually non-existent.

> The only operational experience in the 3d Attack Group was a "surveillance" unit along the Mexican border following World War I, but this mission ended when Mexican bandits stopped their incursions . . . Maneuvers and joint air-ground exercises might have helped fill the void of experience, but there was very little of this . . . Air strikes on the battlefield and in proximity to friendly ground forces called for careful air-ground coordination as well. But occasions for working out such procedures were infrequent.[13]

Consequently, without sufficient training opportunities or practical experience, ground attack doctrine failed to develop in any meaningful way. In fact, the following anecdotes illustrate how CAS doctrine actually devolved from the practical experience obtained during World War I to virtual non-existence on the eve of World War II.

> 1918 (*Provisional Manual of Operations of 1918*, General Billy Mitchell): [Attack aviation] precedes and accompanies the troops in their advance, increasing the fire action when necessary at any section of the line.
>
> 1930 (*The Air Force*, Air Corps Tactical School (ACTS) Text): The air force does not attack objectives on the battlefield or in the immediate proximity thereof, except in most unusual circumstances.
>
> 1939 (*Air Force, The Employment of Combat Aviation*, Tentative ACTS Text): The role of attack aviation [is] to conduct operations in the zone beyond the reach of friendly artillery. Air attacks [are] not to be

> made within artillery range or against deployed troops "except in cases of great emergency."[14]

Ultimately, former Air Force Chief of Staff General Ronald R. Fogleman best encapsulated the reason for attack aviation's stunted growth during the interwar years in his 1971 master's thesis:

> After 1926 attack aviation simply became a mission with few aggressive and vocal supporters. Without the demands of a combat situation or realistic maneuvers, the War Department, with no organization charged with the responsibility for developing and preserving concepts such as the attack mission, allowed that idea to slowly die from a benign sort of neglect.[15]

Instead, the majority of airpower advocates fixed themselves to the central theme of Douhet's strategic bombing theory. Consequently, strategic airpower offensives against the enemy's civilian population centers, was the foundation of the Army Air Force airpower doctrine entering World War II.[16]

World War II

The early battles of World War II demonstrated an operational necessity for the ground support mission and a doctrinal chasm for the U.S. Army air arm. Through the 1930s, the Army Air Corps became utterly preoccupied with strategic bombing. The preponderance of AAC time and resources went into developing new strategic bombing aircraft and doctrine.

> No other nation entered World War II with the range, defensive firepower, and armored protection of these aircraft, thereby underscoring U.S. commitment to a strategy of heavy bombardment by the AAC [Army Air Corps] and its successor, the AAF [Army Air Force], established on June 20, 1941.[17]

> Given the emphasis on strategic bombardment by the AAC before the war, it is hardly surprising that the methods and techniques for conducting more traditional missions, such as close air support of ground forces, remained undeveloped before American entry into the conflict in 1941. The plan for conducting the air war, drawn up at the end of the summer of 1941, was called AWPD-1. This

> scheme emphasized strategic bombardment of the German homeland as the way to achieve victory. The main objective of American air power, according to AWPD-1, would be to launch mass attacks on German industry with the goal of destroying key portions of Germany's war economy. There was also an "intermediate objective" of defeating the German air force as a prerequisite for the large scale attacks.[18]

However, the AAC's conviction about the futility of CAS came into question when Germany invaded France in the summer of 1940. The German *Luftwaffe* and *Stuka* dive bombers demonstrated immense tactical success supporting the Panzer Divisions during their advance across eastern France.[19] Germany's surprising joint operational success elicited a rapid response from the Army Air Corps Commander, General Henry "Hap" Arnold. He immediately requested information from the U.S. Navy on its recent experiments with dive-bombing, and tasked the Air Corps' Strike Force commander with developing tactics and techniques for close air support.[20] Shortly after, in December 1940, the War Department tasked air and ground organizations to conduct joint operational close air support exercises.[21] Through the first half of 1941, multiple Army ground and AAC organizations conducted integrated exercises at Fort Benning, GA, while General Arnold solicited British Royal Air Force leaders for any lessons derived from their recent close air support experience.[22] The Fort Benning tests focused on communication between air and ground units, and aircraft command and control. Not surprisingly, the tests indicated that, unlike artillery, CAS aircraft should operate under centralized command so they could be concentrated at the decisive time and location in the battle.[23] These "lessons" from 1941 eerily echoed Billy Mitchell's insights from 1918. Ultimately, based on the results of these and other air-ground integration tests and experience taken from the Royal Air Force, the Army published FM 31-35, *Aviation in Support of Ground Forces*, in April 1942, which constituted the first attempt to formalize

CAS doctrine.[24] However, this impromptu effort to build CAS doctrine was too little, too late.

> By the end of 1941, it had become clear that the AAF conducted operations according to its own concept of air power, without regard for the needs of ground forces. Basically, it remained AAF doctrine not to attack targets within the range of friendly artillery. As a result, at the beginning of the campaign in Northwest Africa, a large number of U.S. Army ground officers believed that the AAF lacked the will, the ability, and the means to conduct a sustained campaign employing aircraft in close support of land units.[25]

The AAF's half-hearted commitment to CAS was further evidenced in U.S. Army Major General Jacob L. Devers personal letter to General Arnold in September 1942, pleading for a greater commitment from the AAF, "to let you know that I still stick to my opinion that there is no air-ground support training. We are simply puttering. Cannot something be done?"[26] Within two months of Major General Devers plea, the AAF's unfledged CAS doctrine came under fire with American lives on the line in the North African desert.

Allied airpower command and control (C2) lessons from the Northern African campaign (figure 6) established the framework for modern U.S. airpower C2 and air tasking doctrine. During the opening months of the North African campaign, the C2 architecture for air assets was convoluted, to say the least (figure 7). Four separate air commands operated independently from each other, two of which were under the direct command of U.S. Army ground commanders.[27]

Figure 6. World War II Tunisian Campaign

Source: David Syrett, "The Tunisian Campaign, 1942-43," in *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling (Washington, DC: USAF Office of Air Force History, 1990), 154.

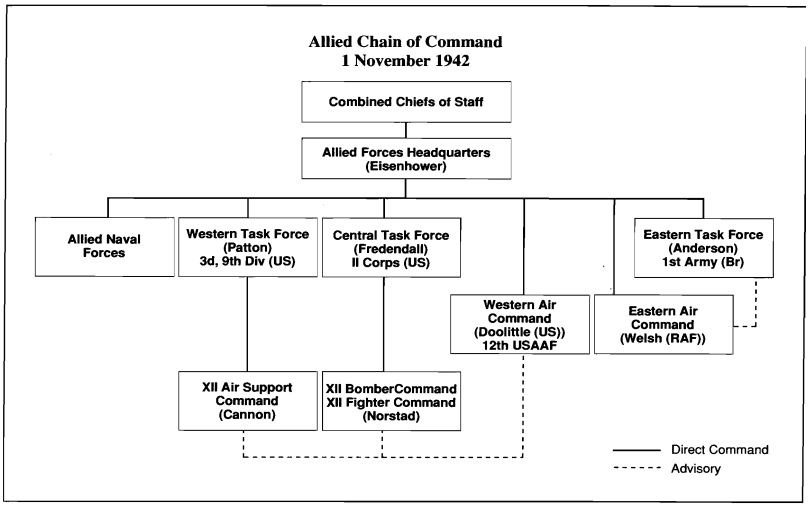

Figure 7. Allied Chain of Command, November 1942

Source: David Syrett, "The Tunisian Campaign, 1942-43," in *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling (Washington, DC: USAF Office of Air Force History, 1990), 163.

Independent allied air commanders in the North African Campaign did not communicate with each other, and ground commanders misused the air assets under their control in "penny-packets." II Corps Commander Major General Lloyd Fredendall "wanted aircraft flying over his troops for a forty-eight hour period preceding an offensive, to protect them from German air and artillery activity."[28] In one instance, General Fredendall denied a request for air support from a French unit under heavy assault because a II Corps battalion G2 believed those aircraft would be better-served loitering overhead American elements with no enemy in the vicinity.[29] Bad weather and the German *Luftwaffe* further complicated operations. Consequently, the allied air campaign operated in a state of disarray for the opening months of the conflict.

> The chaos resulted from confusion in command and control, lack of all-weather airfields, and the penny-parceling of air units for ground support at the whim of ground commanders. Moreover, there was no concerted drive to establish air superiority.[30]

The disjointed command structure continued to create friction between ground commanders who did not think they were receiving enough air support, and airmen who felt like airpower was being wasted. The allies took an intermediate step to improve the C2 problems by removing air assets from direct ground commander control and subordinating all air commands to one unified Allied Air Commander, Major General Carl Spaatz. Shortly after taking command, Spaatz met with Fredendall to discuss ground support. Fredendall insisted that his men were dying because air support was not available for close air support. While Spaatz was sympathetic, he maintained a different view on the effective use of airpower.

> Spaatz wanted to give all the help he could but noted that the correct use of air power was not really close air support, but rather air superiority and interdiction operations, hitting enemy airfields, tank parks, motor pools and troop convoys–in

> effect, interdicting enemy supplies, equipment, and troops *before* they reached the battlefield . . . The two Americans remained widely separated on their approach to proper use of air assets in support of ground operations.[31]

Ultimately, it was British Eighth Army General Sir Bernard Law Montgomery and Air Vice Marshal Arthur Coningham who offered the solution. Montgomery understood both the inherent flexibility of airpower and importance of coordinating air and land operations. Consequently, Montgomery advocated marrying air and ground commanders and their respective staffs together at one consolidated headquarters, all working under one centralized theatre commander to achieve unity of effort. In what eventually became known as the "Tripoli Speech," Coningham eloquently espoused Montgomery's theory:

> The Soldier commands the land forces, the Airman commands the air forces, both commanders work together and operate their respective forces in accordance with the combined Army-Air plan, the whole operation being directed by the Army Commander.[32]

Coningham advocated six basic principles of airpower C2 that would eventually serve as the foundation of the U.S. Air Force airpower doctrine:

1. Air superiority is the first requirement for any major land operation.
2. The strength of airpower lies in its flexibility and capacity for rapid concentration.
3. It follows that control must be concentrated.
4. Air forces must be concentrated in use and not dispersed in penny packets.
5. The [ground and air] commanders and their staffs must work together.
6. The plan of operation should be mutually adjusted and combined from the start.[33]

The Tripoli speech was the catalyst to quickly change the allied C2 architecture. The new construct unified ground forces under one commander with a direct coordination relationship to air forces unified under one commander, both reporting to the allied theatre commander (figure 8).

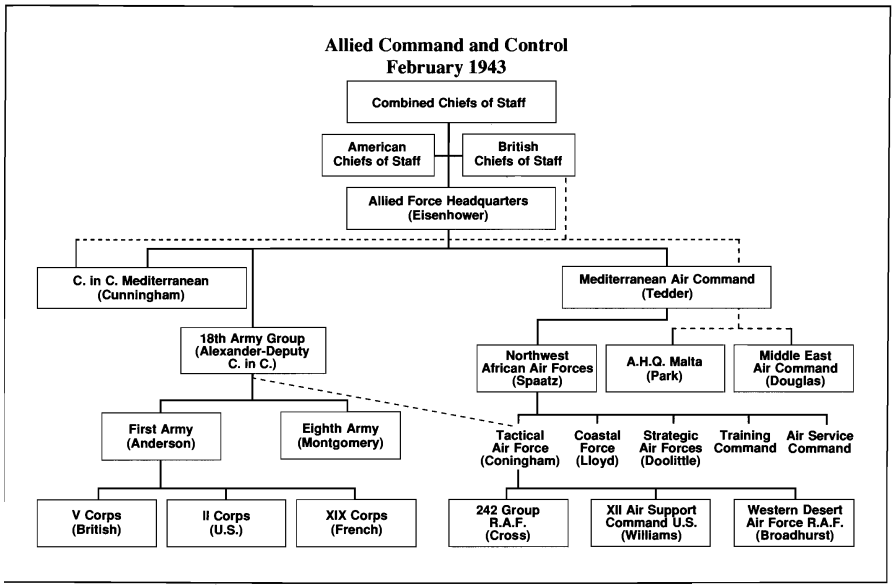

Figure 8. Allied Chain of Command, February 1943

Source: David Syrett, "The Tunisian Campaign, 1942-43," in *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling (Washington, DC: USAF Office of Air Force History, 1990), 171.

Shortly after the allied C2 reorganization following the Tripoli Speech, CAS had its first significant operational success. After the allies' northward ground offensive stagnated at the Mareth Line in central Tunisia, Montgomery and Coningham devised a concerted CAS operation to help allied forces break through the heavy Axis defenses. The following detailed anecdote from the allied experience at the Mareth Line in Central Tunisia illustrates not only the devastating potential for CAS, but also the extensive air-ground coordination required for CAS to be effective.

> With several days of inconclusive fighting on the ground and numerous attacks by the Western Desert Air Force against the enemy rear and front lines, the British turned to air power to win victory at the Mareth Line . . . In the late afternoon of March 26, the Western Desert Air Force began to attack enemy lines before El Hamma. The British and New Zealand forward elements were marked by yellow smoke, while British artillery fired smoke shells into important enemy positions. Behind the Allied front line "a large landmark was cut into the ground against

> which red and blue smoke was burned…Lorries were also arranged in the form of letters to act as ground strips at selected pinpoints." At 1530 hrs, fifty-four bombers—Bostons and Mitchells of the AAF and the South African Air Force—conducted "pattern bombing" on targets near El Hamma. On the heels of the bombers came the first group of fighter-bombers—P-40s, Spitfires, and Hurricanes—which machine-gunned and bombed enemy positions from the lowest possible height at fifteen-minute intervals. The pilots, including some in the AAF, were ordered to attack preset targets and shoot-up enemy gun crews to knock out enemy artillery and antitank guns. Twenty-six fighter-bomber squadrons provided effective close air support, strafing and bombing the enemy for two-and-a-half hours, while a squadron of Spitfires flew top cover for the fighter-bombers. At 1600, half an hour after the fighter-bomber attacks had begun, British and New Zealand forces attacked behind an artillery barrage. The offensive moved at a rate of one hundred yards every three minutes, thus automatically defining the bomb-line. Allied fighter-bombers continued to work in front of the barrage. This combined air-artillery fire proved too much for the Axis defenders, and by the time the moon rose, British armor and New Zealand infantry broke through the enemy line . . . The Allied use of aircraft during the Mareth Line battles provided a classic example of great flexibility.[34]

While CAS in support of the Mareth Line battles was certainly an operational success, the elaborate pre-established visual signals, and rigid bomb-line transition clearly illustrate the need for real-time coordination between air and surface forces. Ultimately, the allied experience with CAS in the North African campaign was the catalyst for the USAF's eventual airpower C2 doctrine, and served as a point of departure for future innovation in tactical air-ground integration procedures. If USAF airpower's C2 doctrine traces its roots to the North African campaign, CAS air control and tactical air-ground integration found their footing in the ensuing allied campaign to retake Italy.

The year between the summer of 1943 and the summer of 1944, during the allied invasion into Southern Italy, was arguably the most doctrinally innovative period in CAS's one hundred-year history. During this twelve-month period, allied forces developed air control tasking procedures for both pre-planned and immediate CAS requests, and began using highly trained pilots as both ground-based and primitive

forward air controllers to coordinate with and control CAS aircraft providing fire support in close proximity to friendly forces. However, these significant innovations were a product of the allies' considerable struggles conducting tactical air support during the Sicily invasion in July 1943 (figure 9).

Figure 9. World War II Allied Italian Campaign

Source: Alan F. Wilt, "Allied Cooperation in Sicily and Italy, 1943-1945," in *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling (Washington, DC: USAF Office of Air Force History, 1990), 193.

Although the allies solved many operational command and control problems in Northern Africa, tactical close air support operations at the beginning of the Italian Campaign were still relatively crude.

> At the time of the invasion, a rudimentary close air support "system" consisting essentially of two components was devised: (1) Fighter Control Centers . . . to

> control the air forces from aboard ships; and (2) Air Support Parties . . . equipped with radars and radios, to come ashore on the heels of the armies to assist and eventually take over directing the close air effort. However, due to inexperienced operators, crowded conditions and poor communications, the Fighter Control Centers did not function well. Although four of the five Air Support Parties landed on the first day, they were hampered by mountainous terrain that masked their radars and by inadequate communications with the land and air components.[35]

Following the war, historian Harry Coles noted, "it is obvious that at the time of the Sicilian campaign much remained to be done in the improvement and coordination techniques of air operations in close support of ground forces."[36] Tactical air control inefficiencies largely stemmed from American air commanders' reluctance to become involved in the joint operational planning effort, which was an apparent result of the Mediterranean Air Command's intent to assert its recently acquired autonomy.[37] The situation only began to improve after U.S. Fifth Army Commander General Mark W. Clark made an emphatic request for better air integration, and Supreme Allied Commander General Dwight D. Eisenhower issued a virtual directive for a more active tactical air support role from the "so-called Strategic Air Force."[38]

> [Clark's] complaint resulted in the maximum Allied air effort of September 14-15, which greatly assisted in turning back the German thrust. Later in September and into October, still further improvement in cooperation became apparent. Centralized control of air assets, close liaison between tactical armies and tactical air commands, and daily meetings of air and ground leaders to choose targets for the following day, all contributed to increased efficiency. There were also experiments with forward air controllers operating from jeeps or other vehicles. As a result, through still in need of much refinement, a close air support system was beginning to take shape.[39]

Despite improvements in the allied close air support system, the Germans remained a stubborn opponent, and the allied advance through southern Italy stagnated through the spring of 1944. However, during the winter and spring of 1944, CAS made some of its greatest advances.

> Ironically, at the same time Allied ground forces were facing heavy resistance, close air support was developing into a highly respected, much appreciated system. By the spring of 1944, it matured to the point where command and control, ground forward air controllers, aircraft and armament, and air-land doctrines required only refinement. In addition, problems associated with close air support, such as Luftwaffe air activity, other air priorities, bomb safety lines and identification markers, and interallied relations, were recognized and effectively dealt with. Close air support in Italy came of age.[40]

The most significant advance in operational close air support doctrine during the Italian campaign was the air control process. Following the parochial service-disputes and integration problems associated with Northern Africa and the Sicilian invasion, air and ground force commanders and their staffs began to cooperate to develop a relatively sophisticated CAS air tasking process. In reality, the "prearranged" and "call" request and tasking system the Allies formalized in 1944 is similar to the modern joint air request system. "At its heart was a well-defined though intricate procedure for command and control, which was governed by a requirement for extensive air-ground cooperation at all levels."[41] Prior to 24-hours before the mission day, echelons as low as division could make a request for "prearranged" air support. These requests funneled up through the corps, and at approximately 3 p.m. each day, the corps staff evaluated and prioritized all division requests and weighed them against the corps' plan to determine how to distribute the available air allocation. The corps staff subsequently forwarded their air plan and any requests for additional air assets up to the army level, where the army and air-staffs met for a nightly air targeting conference.

> [T]he armies then gave to the air representatives the targets they wanted to have attacked the next day. The air officers accepted as many of the requests as their own resources and commitments would allow . . . By the time the conference was finished, the air staff was busy preparing a detailed directive for the next day's operations. It assigned each mission to a particular wing or group, gave the number of aircraft to be employed, the time of attack, and available target information.[42]

The air-staff's daily operations directive was the precursor to the modern joint doctrine's air tasking order. Air requests initiated inside of the standard 24-hour request window were termed "call" requests. "Call" requests for air support against rapidly developing targets originated with a radio call from the front-line requesting agency to the division. The division immediately passed the request up to the joint air-army control center at the army headquarters, while the corps and army commands monitored the net, offering tacit approval for the request with their silence.[43] Final approval for the request came from the army and air force operations officers at the control center. "Approved" missions were tasked to air units operating on alert status in the air operations directive. "Call missions" frequently achieved their goal of having aircraft on-station within ninety minutes of the initial air request.[44] While formalizing the air tasking process greatly contributed to the operational availability of CAS aircraft, the introduction of forward air controllers enabled tactical air-ground integration.

The most important tactical advancement in CAS operations was the introduction of Forward Air Controllers (FAC) to integrate air actions with ground maneuver operations. FACs, initially known as "Rover-Joes," primarily materialized to support call missions because pilots did not have sufficient time before the mission to understand the friendly ground operation and study the assigned targets. However, Rover-Joe FACs routinely became useful on both prearranged and call-missions (figure 10).

> The forward controllers—at least one combat pilot and one army officer—took positions in a well concealed observation post, preferably on a hilltop with a good view of the front lines . . . When ground forces encountered a target that was causing them trouble and that required an air strike they radioed the Rover unit for support. If the ground and air officers at the army-air control center accepted the request, the Rover controller contacted four fighter-bombers that were circling overhead out of range of enemy antiaircraft guns . . . If Rover had a suitable

> target, he would "talk" the flight onto the target by using specially gridded maps and aerial photographs, describing prominent terrain features, and providing colored smoke markers fired by army artillery. When both the flight leader and the controller were satisfied that the target had been positively identified, the flight leader would initiate the attack . . . After the bombing or strafing run, which could be within 1,000 yards of friendly troops, the forward controller and observers with the army formations recorded the results. Using this method, a flight of aircraft might be able to hit an enemy target within 10 minutes from the time a controller received the request.[45]

Rover Joes controlling CAS attacks matured and became common practice during the Italian campaign (figure 11). Even with Rover Joe ground FACs, CAS aircraft target identification continued to be a problem, especially when the Rover Joe team could not get into a suitable position to see the target. This frequent dilemma inspired the use of primitive airborne FACs, known as "Horseflies," (figure 12).

> Begun during the advance on Rome, the Horsefly consisted of an L-5 aircraft hovering near the front lines with a pilot and an army observer aboard. Following a procedure similar to that of the ground-based controller, this team was in contact with [the Ground FAC] at all times. The basic difference was that they, rather than the Rover, directed the fighter-bomber attack.[46]

However, the Horseflies' role in the rest the Italian Campaign and throughout World War II remained limited.

Figure 10. U.S. Ground Forward Air Controller "Rover Joe" in Italy, 1944

Source: Alan F. Wilt, "Allied Cooperation in Sicily and Italy, 1943-1945," in *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling (Washington, DC: USAF Office of Air Force History, 1990), 210.

Figure 11. P-47 Performing CAS Under Rover Joe Control in Italy

Source: Alan F. Wilt, "Allied Cooperation in Sicily and Italy, 1943-1945," in *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling (Washington, DC: USAF Office of Air Force History, 1990), 211.

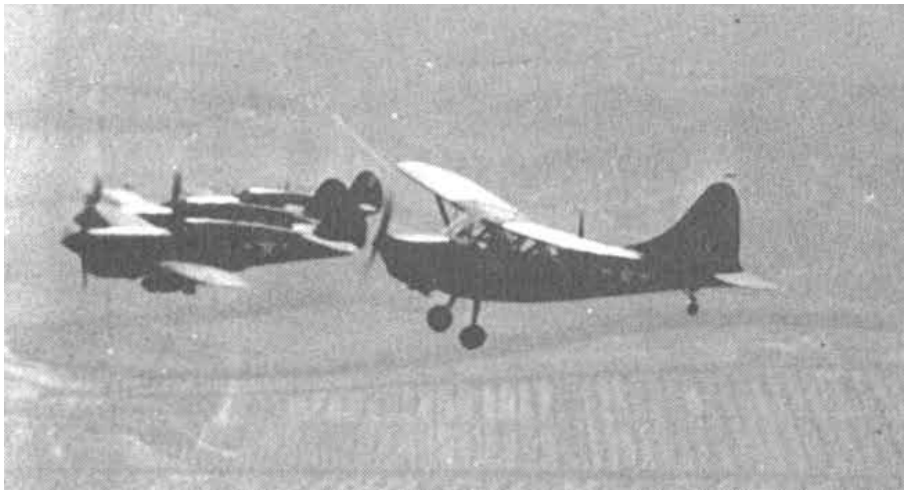

Figure 12. An L-5 "Horsefly" Escorts a Pair of P-40 Warhawks to a Ground Target

Source: Alan F. Wilt, "Allied Cooperation in Sicily and Italy, 1943-1945," in *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling (Washington, DC: USAF Office of Air Force History, 1990), 219.

The Italian campaign was not the sole source of innovation in CAS doctrine during World War II. Certainly, the Allies also made notable improvements in Western Europe and in the Pacific. However, the most significant contributions to operational and tactical air-ground integration—a formalized CAS air tasking process and the incorporation of Forward Air Controllers—were a direct result of the Allied effort to re-capture Italy between 1943-1944.

Korean War

Following World War II, there was an impetus to codify air-ground integration lessons into functional CAS doctrine. The initial result was FM 31-35, *Air-Ground Operations*, published in 1946. After the Air Force became an independent service in 1947, FM 31-35 was incorporated into joint doctrine in the *Joint Training Directive for Air-Ground Operations (JTD)*, published in September 1950. Despite the name change,

doctrinally FM 31-35 and the JTD were essentially the same, and will be considered a single source for the purposes of this paper.[47] FM 31-35 promoted a single theatre air commander, subordinate only to the theatre commander, and assigned a tactical air command to support each theatre army.[48] Tactical air commands integrated with army headquarters at one consolidated Joint Operations Center (JOC).

The CAS air tasking system established in FM 31-35 was highly centralized and inefficient compared to contemporary USMC CAS air tasking doctrine. Although Air Liaison Officers (ALOs) were assigned to each division headquarters, they were limited to an advisory role, and it remained the tactical ground commander's responsibility to "submit air requests through his chain of command to the senior ground force headquarters."[49] At the JOC, each air request required approval from ground authorities before they were forwarded to the senior air officer, who "decided which missions would be flown, guided by priorities established by his air force commander."[50] Furthermore, the Air Force overwhelmingly prioritized interdiction over CAS, and consequently did not want to commit aircraft to fly airborne alert for tactical air support, insisting on ground alert instead. The resulting tactical air request (TAR) and tactical air distribution (TAD) system led to prolonged response times between submission of the air request and the actual arrival of aircraft, frequently in excess of an hour. In contrast, contemporary CAS air tasking doctrine from the Navy and Marine Corps "stressed rapid response and decentralized management of close air-support sorties."[51] Marine TACPs were assigned down to the battalion level and maintained a communications net that reached all the way to the Tactical Air Control Center (TACC).[52] The TACC possessed the authority to prioritize and approve air requests, which enabled CAS aircraft to arrive within minutes

of a request in emergencies.[53] At the tactical level, both Air Force and Marine Corps doctrine advocated similar methods of tactical air control. Both agencies utilized a TACP collocated with the ground maneuver units. Ground FACs within the TACP, or alternatively airborne Tactical Air Coordinators (TACs) flying in light observation aircraft or fighter-bomber aircraft, provided close control for attacking aircraft.[54]

> These agencies guided the attacking aircraft onto the target and away from friendly troops through combinations of voice communication, marking rockets, artillery smoke shells, and electronic signals. Officers who directed air strikes were pilots with prior experience in flying close-support sorties.[55]

The principle difference between Air Force and Marine TACPs was their organizational association and consequent availability at the tactical level. "Although the JTD recognized the TACPs might be attached down to the company level to perform air control missions, the division remained the lowest tactical formation that could assume permanent assignment of a TACP."[56] While the Air Force was reluctant to use highly trained aviators in lower echelon TACPs, the Marines embedded TACPs down to the battalion level. The cumulative result of the Marine air tasking and tactical air control doctrine was more effective CAS integration.

> By eliminating the requirement that intervening ground force headquarters process requests, and by placing aircraft on station on regular schedules, the naval system ensured that strikes arrived only a few minutes after the FAC made his request. The short response time—supplemented by air direction skill and strike accuracy—constituted effective close air support for Marines.[57]

The significant philosophical differences between the Air Force and Marine Corps on CAS doctrine set the stage for conflict when the two services were forced to cooperate in a single theatre during the Korean War (figure 13).

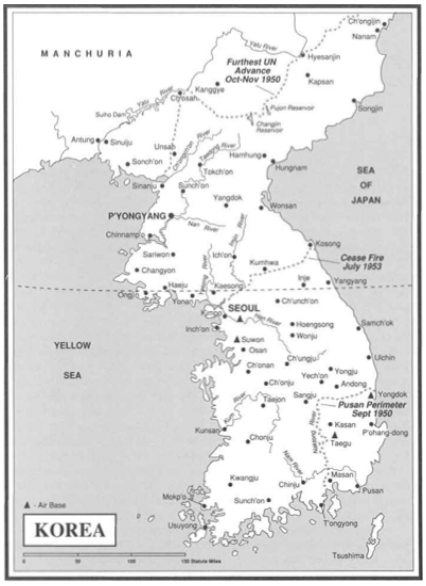

Figure 13. Korean War: 1950-1953

Source: Allan R. Millett, "Korea, 1950-1953," in *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling (Washington, DC: USAF Office of Air Force History, 1990), 346.

Close Air Support's evolution during the Korean War was marred by inter-service conflict, and organizational unwillingness to abide by established CAS doctrine.

> From the invasion of South Korea on June 25, 1950 until the end of the year, air operations over the embattled peninsula had all the characteristics of a classic American early war effort. Coordination between services was minimal; roles and missions became indistinct and overlapping; the lack of preparedness for war ensured confusion, frustration, and inefficiency.[58]

Contextually, it is important to understand that United Nations Command (UNC) air forces established air superiority over the Korean peninsula early in the war, which facilitated the ability to freely conduct CAS, and UNC ground forces possessed very little heavy artillery until late in the war, which impelled a considerable requirement for CAS. However, the frequent transitions between rapid, fluid maneuver and recurrent static stalemates challenged CAS doctrine's flexibility.

> The TACS described in the 1946 revision of Field Manual 31-35 was essentially based on the 1942 version, but incorporated the lessons learned in World War II. These lessons, however, were not universally applicable to Korea, where the allies depended on immediate air support to halt a mercurial enemy advance and avert imminent defeat. This theoretical TACS proved to be insufficient, and it was not until a few hasty modifications, including the airborne forward air controller, had made in the field that the system achieved a satisfactory degree of efficiency.[59]

Furthermore, the presence of both the Air Force and Marine Corps CAS systems in the same theatre, both concurrently supporting the same Army commanders, created considerable friction.

> The first six months of the war also focused attention upon the differences in Air Force and Marine Corps close air support operations and sparked a serious interservice controversy over which system worked best in Korea and might work best in a major war with the Soviet Union in Europe.[60]

Inter-service conflicts primarily stemmed from differences between what Army commanders expected of CAS and variations in the way the Air Force, Navy, and Marine Corps provided CAS missions to requesting units. The JTD's highly centralized TAR/TAD system combined with a mutual Army-Air Force reluctance to adequately man and equip the JOC and problems with the tactical air control system hindered the Air Force CAS system.

> effectiveness of close air support depended upon the Eighth Army-Fifth Air Force organization to request and direct ground attack sorties. Both the TAR and TAD systems proved defective, and neither Eighth Army nor Fifth Air Force were prepared for air-ground operations.[61]

In response to the disorganized joint TAR/TAD system, Fifth Air Force established an ad-hoc air request network at its own headquarters.[62] However, while the Fifth Air Force's improvised system was moderately effective, it remained inefficient because it was highly centralized. The requirement for division headquarters to originate all air requests imposed artificial inefficiency into the TAR/TAD system. Tactical air control

problems also challenged the Air Force CAS system. In the opening weeks of the war, elements of two separate TACP units assigned to the 24th Infantry Division and Republic of Korea (ROK) I Corps overextended their position beyond the range of infantry protection and came under heavy contact from communist forces. Multiple TACP members were killed and almost all of their radio jeeps were destroyed in the battle.[63] In response, Fifth Air Force subsequently prohibited TACPs from taking positions forward of the infantry regimental headquarters, realistically limiting FACs to an ALO role.[64] This significant limitation imposed on ground FACs compelled the wide proliferation of airborne Forward Air Controllers.

The Mosquito Airborne Tactical Air Coordinator (TAC(A)) role, known as FAC(A) in modern joint vernacular, rapidly evolved out of operational necessity only days into the Korean War. Although there were infrequent examples of airborne TACs in World War II and FM 31-35 did include provisions for airborne terminal air control, FAC(A)s were far from commonplace before the Korean War.[65] The operational and manning limitations of ground FACs combined with short station times for new jet-powered air-ground strike aircraft based out of Japan compelled an alternative to reconnoiter enemy forces and direct air strikes.[66] In response, Fifth Air Force officially established the 6147th Tactical Control Squadron (Airborne) on August 1st 1950 to support the Eighth Army.[67]

> The first pilots to fly tactical control missions were simply instructed to make flights over the front lines, locate targets, and direct friendly fighters to the targets. Major Carlton (6147th TCS Commander) was somewhat more specific when in July 1950 he told his still unofficial organization that their mission was to conduct tactical reconnaissance to obtain front-line dispositions and monitor enemy lines of communication, control front-line air strikes in the immediate

> vicinity of friendly troops, and control preplanned air strikes as desired by the Commanding General of the Eighth Army.[68]
>
> In the following months, the 6147th Squadron became the chief tactical control mechanism and a major source of day-by-day intelligence for the UN command. Flying every day as weather permitted, Mosquitoes developed in combat a new tactical weapon—the airborne forward air controller.[69]

Initially known as 'Mosquitos," early airborne tactical air coordinators (TAC) from the 6147th Tactical Control Squadron (TCS) flew in vulnerable light observation planes, but quickly transitioned to the T-6 (figure 14), the Air Force's two-seat trainer.[70]

> The burden of actually directing air strikes against visible enemy targets shifted to Fifth Air Force's emergency squadron of airborne tactical air coordinators (TACs), who entered the war on July 10 . . . By the end of the year, Mosquitos had directed 90 percent of Air Force close air-support sorties at a cost of 18 personnel killed or missing and 24 aircraft lost to ground fire or accidental crashes. The 6147th TCS losses were trivial compared with the damage it helped inflict on the Communists around the Pusan perimeter.[71]

Figure 14. T-6 "Texans" Served as the Air Force's TACs during the Korean War

Source: Allan R. Millett, "Korea, 1950-1953," in *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling (Washington, DC: USAF Office of Air Force History, 1990), 367.

Mosquito TACs integrated into ground operations in multiple facets during the Korean War. Persistent coverage over the target area was the requisite for effective TAC operations. Consequently, Mosquitos TACs were assigned as groups, each allocated to a division, to cover a specific operational station from dawn to dusk each day.

> For airborne FAC operations to be successful, they must be in continual service from first to last light. The 6147th learned this lesson almost immediately. Consequently, ground commanders grew to depend on them, and it came to be assumed that if any planes could fly on a given day, the Mosquitos would. While fighters came over the combat zone in spurts, only the Mosquito was on station during all daylight hours. The airborne FAC became associated with good close air support.[72]

> Each Mosquito was assigned to an Army division and instructed to reconnoiter the area in which that division was fighting, coordinating strikes with the regimental or divisional TACPs. A rotation was established permitting each division to have a Mosquito on station from first to last light.[73]

> From early in the unit's operations, Mosquitos were deployed to furnish one aircraft at each "station" during all daylight hours. Because one station was usually allocated to a division, the Mosquito took the code name of the division he was serving; for example, Mosquito Wildwest for the 1st Cavalry Division.[74]

Mosquito TACs did not perform extensive tactical pre-mission integration with their allocated division on a daily basis. According to the 6147th Standard Operating Procedure, the first contact between the Mosquito and his division TACP was en route to the target area.[75] Once contact was established, friendly and enemy positions were passed along with targeting instructions or reconnaissance routes depending on the situation.[76] However, flying aboard the two-seat T-6, the 6147th pilots were accompanied by a ground observer, preferably from the Mosquito's supported division to improve integration.[77] However, communications problems hampered early efforts to integrate TACs into CAS operations. The result looked more like FAC(A) for interdiction.

> Communications limitations affected the entire TAR/TAD [Tactical Air Request/Tactical Air Distribution] system. Since strikes within the bombline

> required positive links between a ground controller—or at least some Army communicator who could identify the American lines—and the TAC, the Air Force preferred to direct strikes at targets well forward of friendly troops. In practice, the T-6 teams, and Air Force pilot and an Army observer, acquired their own targets by visual reconnaissance, radioed the TACC for a strike, and then directed the ground attack without any coordination with friendly artillery and infantry action.[78]

In addition to performing reconnaissance and strike control, Mosquito TACs also assumed the radio relay role in the immediate CAS request process (figure 15), which helped to alleviate some of the problems with the existing air-ground operations system.[79]

> In the absence of a genuine air request network, the Army first attempted to improvise by forwarding requests by land line or radio over the divisional command or artillery communications net. However, in emergencies or when units were extended beyond the limits of these systems, requests were relayed to divisional TACPs or directly to the JOC by Mosquitos, over their ARC-3 radio. This procedure worked so well that it soon became the standard technique for submission of immediate CAS requests, further cluttering the already crowded VHF channels.[80]

With the Fifth Air Force's ad hoc tactical air control system and the introduction of TAC(A)s to coordinate augment the TACs and control CAS aircraft, the Air Force-Army CAS system eventually provided functional close air support.

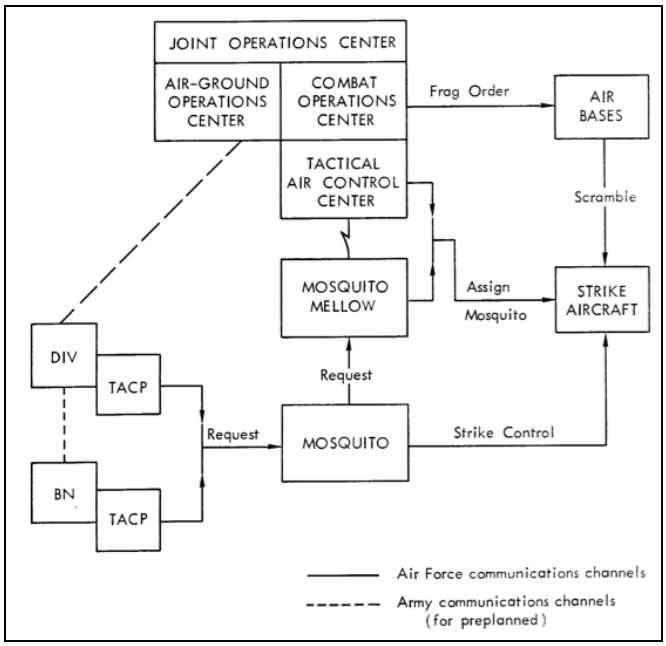

Figure 15. UNC Immediate CAS Request Channels

Source: J. Farmer and M. J. Strumwasser, *The Evolution of the Airborne Forward Air Controller: An Analysis of Mosquito Operations in Korea* (Santa Monica, CA: Rand Corporation, 1967), 35.

Despite the Air Force-Army CAS system's modest tactical success, it faced considerable disapproval when compared to the highly responsive Marine Corps system. U.S. Army Major General Edward M. Almond, X Corps Commander, was an outspoken critic of the Air Force-Army CAS system.

> Almond's expectations closely paralleled existing doctrine for making air requests and directing strikes, but his preferred system placed special emphasis on two matters that did not match Fifth Air Force's view of its responsibilities. First, Almond had faith in the efficiency of ground-based FACs in locating targets. Although he recognized the utility of airborne controllers, he regarded the ground FAC as essential in ensuring that bombs hit the enemy and not friendly troops. Almond also believed that the Air Force should dispatch fighter-bomber flights to engaged front-line regiments on a regular schedule rather than wait for missions on ground alert; he doubted that air strikes required detailed presortie briefings if the air direction system worked well.[81]

Essentially, Almond advocated for the Marine Corps CAS system. Marine TACPs were more widely proliferated than Air Force TACPs, and the Marine air request system was decentralized and primed to be responsive.

> The brigade's air group, MAG-33, committed three Corsair squadrons to the air war. One squadron of radar-equipped night fighters operated from Japan under Fifth Air Force control, but the other two entered the fray embarked on two escort carriers, the *Sicily* and the *Badoeng Strait*. These squadrons could reach the brigade's front in minutes and remain on-station for as much as four hours, which meant that they were available for on-call missions in a matter of ten rather than thirty or more minutes . . . More importantly, the Marines had a ground FAC with each infantry battalion, a TACC alongside the brigade fire support coordination center (FSCC), an aviation general serving as brigade deputy commander, and jeep and man-portable radio systems superior to those of the Air Force.[82]

Army commanders only became further convinced about the superiority of the Marine Corps system after Marine aviation's exceptional support during the Incheon landing.

> The result was a four-week virtuoso performance in close air support that impressed the U.S. 25th Infantry Division and the 5th Regimental Combat Team deployed with the Marines along the critical Naktong River line. Marine air strikes arrived quickly and devastated NKPA defensive complexes, mobile formations, and artillery positions. More than half of the Marine sorties came against targets only half a mile from the frontlines. It was the kind of close air support Marines expected, but it came as a revelation for the Army officers who shared the experience.[83]

The Army's preference for the Marine CAS system led to multiple formal complaints about deficiencies in the Air Force system from high-level army officers, culminating with the Army Chief of Staff General Collins filing a formal criticism directly to Air Force Chief of Staff General Hoyt Vandenberg. In response, General Vandenberg commissioned a high-level study group in November of 1950 to deploy to the theatre to analyze the effectiveness of both systems. In an effort to avoid the perception of partisan preference, the study group included a tactical air expert, Major General Glenn O. Barcus, U.S. Army Brigadier General Gerald J. Higgins, the director of the Army Air

Support Center, and Dr. Robert L. Stearns, the President of the University of Colorado.[84] Through the two-month investigation, the Stearns-Barcus group determined that the FM 31-35/JTD doctrine was sound, however the Air Force and Army were not adhering to the established doctrine.[85] Specifically, the group indicated that neither the Army nor the Air Force had adequately organized, trained, or equipped the staffs and agencies required to make the doctrine work.[86] While leaving the established doctrine mostly untouched, the panel made several recommendations to improve CAS execution in theatre:

> better radio equipment and more vehicles for the TACPs; better training and longer duty tours for FACs; better radios and aircraft for the 6147th TCS(A); a serious effort by the Army to provide people and equipment to fill the AGOS (Air Ground Operations System); improved training for Army commanders in close air support operations; improved ordnance and training for fighter-bomber squadrons; increased attention to the use of radar to guide tactical air support strikes; and additional staffing of the JOC.[87]

Not only did the panel place a fair amount of the blame on the Army's unwillingness to support the established doctrine, they also concluded that air alert aircraft were uneconomical and ground commanders did not need operational control of a set quota of close air support sorties, which stood in direct contrast to the Marine system.[88] However, despite the Stearns-Barcus group findings, the Air Force system again struggled while the Marine system flourished during the UNC's dynamic retrograde from the Yalu River after the Chinese intervened in mass in December 1950.

> Fifth Air force did its best to cover the Eighth Army's withdrawal, but without a sturdy ground control system, the 2d and 25th U.S. Divisions could not coordinate their retrograde with air strikes . . . The 1st Marine Division, on the other hand, withdrew intact from the Chosin Reservoir and destroyed seven Chinese divisions during its own anabasis. This epic "attack in a different direction" tested the Marine close air-support system and found it fully justified in the most demanding of extended ground operations. The December campaign simply reinforced the conviction in X Corps from General Almond to the lowliest rifleman that the Marine system surpassed the Air Force system in every way.[89]

Over the next two and a half years, the Army's satisfaction with the Air Force CAS system ebbed and flowed with the tides of the war. In fact, the Army was actually culpable for many of the deficiencies in the execution of the "Air Force" system. A subsequent study initiated by U.S. Army Brigadier General John J. Burns, Eighth Army Chief of Artillery and acting G-3, largely paralleled the findings of the Stearns-Barcus report with one significant exception.[90] The Burns report recommended extending the Army air-ground staff down to the battalion level, which was the catalyst for the Eighth Army to reflect on the established air request system. In a separate investigation conducted by an Army aviator, he determined that most Army organizations did not follow any standardized practice for requesting air support.[91]

> The organizational confusion reflected a serious doctrinal question: should tactical air requests and planning flow through the G-2/G-3 staffs or be managed from the battalion upward by artillery forward observers and liaison officers?[92]

Otherwise, the Burns report simply recommended that Eighth Army do its part to adhere to the established doctrine.[93] However, despite many attempts by both the Army and Air Force to execute the established system more effectively, ground commanders overwhelmingly preferred the flexibility and responsiveness of the Marine system. The problem intensified when MacArthur authorized the Air Force to consolidate air tasking for all theatre air assets, including the Marine Corps, in one unified system, which was naturally the Air Force system.[94] The consequences of the Air Force's highly centralized system were readily apparent during an intense span of fighting in the spring of 1951.

> Although the JOC filled ninety-five percent of the 1st Marine Division's emergency requests, the Marine FACs judged that the missions contained only forty percent of the aircraft required. The average delay in receiving emergency sorties was an hour and a half. Although the division could calculate with accuracy the level of air effort it required on the basis of the type of operation it planned, it found that its preplanned strikes received approval only about half the

> time. The division abandoned requesting preplanned strikes in June, relying instead on emergency requests, however slow the JOC might be in responding. Most of the delay, the Marines charged, came from the tactical air request system, which required clearance by X Corps and Eighth Army.[95]

Although the Fifth Air Force Commander, Major General Earl E. Partridge, vowed to re-evaluate the tactical air request system, a similar scene replayed in the fall.

> In three weeks of heavy fighting (September 3-21), the 1st Marine Division took its objectives but found its foe, two NKPA divisions, amply supplied with artillery, mortars, machine guns, in fortified positions. Division FACs called for 182 close air support strikes, but received only 127, and only 24 of the missions came quickly enough to contribute to the ground battle in an optimal way. Delay time for strikes averaged nearly 2 hours, and for some nearly 4.[96]

Over the next year, Fifth Air Force and Eighth Army conducted a series of "experiments" intended to improve CAS responsiveness. The experiments included dedicating a set number of sorties daily to Eighth Army to train for battalion-sized operations, and creating a JOC at each corps, which would allow the corps commander to exercise operational control over a set number of sorties.[97] However, the experiments, mostly overcome by wartime events, yielded little progress. The general dissatisfaction with the inefficiency of the Army—Air Force tactical air request and tactical air control system was pervasive through the remainder of the war until the armistice on July 27, 1953.

> No one questioned the intensity of the air effort in terms of sorties flown and tons of ordnance dropped, but Navy and Marine air commanders believed that the Army—Air Force request and strike control system had again proved to be unsound in fluid operations. The complaints were familiar and justified. The quota of four TACPs per division effectively eliminated the ground FAC as a source of air control, and Mosquito controllers could not handle the sortie load and target acquisition role without ground assistance.[98]

After the war, "the major participants in UNC's close air support operations sent representatives to Fifth Air Force headquarters at Seoul to examine the lessons of the war."[99] The four services agreed on many lessons from the war, including the importance

of training and diligence in tactical air control, the requirement for improved communications equipment and the potential for other technological advances to increase the effectiveness of CAS.[100] However, one significant conclusion of the Air Ground Operations Conference met absolute dissent from the Air Force. The Army, Navy, and Marine Corps collectively recommended a decentralized air request system and an increase in the availability of TACPs and proposed the following changes to the tactical air control system:

1. Once the theatre air commander had decided on the relative importance of all air missions, the JOC should allocate a set number of sorties to ground corps commanders and pass control of the sorties to a subordinate TADC run by an air officer. The corps could communicate directly through the AGOS to the supporting aviation units. In an emergency the JOC could override corps-determined sorties.

2. The corps TADC/FSCC could manage its sorties so that aircraft checked in on a predetermined time-table for pre-planned strikes, but would be predictably available for emergency missions. The existence of pre-planned missions ensured that the corps would not make up trivial sorties just to use its aircraft.

3. The air request system had to be decentralized and simplified, especially for emergency missions. Whether the request came from a ground officer or air officer, it should go directly to the corps TADC/FSCC. Intervening echelons of command should monitor the TAR net, but not intervene except in emergencies.

4. Because airborne controllers had severe limitations in spotting targets and friendly lines, they could not carry the responsibility alone for directing accurate strikes, especially within a mile of troops. An effective close air support system demanded a FAC and TACP at the front, which meant an allocation of TACPs on an establishment of four per infantry regiment or armored combat command. Four TACPs per division meant that the FAC would function only as an ALO. Only a ground FAC with each battalion could prevent accidents and reduce the risk to aircraft from enemy or friendly fire.

The Air Force representatives at the Air—Ground Operations Conference refused to endorse any deviation from the existing doctrine in the JTD, even though they

> often admitted that the Navy—Marine Corps analysis of the 1953 problems was accurate. At the heart of the Air Force opposition to any change remained its commitment to interdiction as the principal instrument of air war upon enemy ground forces. The question of increasing the number of TACPs per division from four to thirteen crystallized Air Force opposition to any reform that would increase the relative effectiveness and importance of close air support.[101]

After the Air—Ground Operations Conference submitted its recommendations, there was again initiative to reform CAS doctrine. Unfortunately, "the Air Force took the lead in demanding that a series of joint boards writing doctrine be cancelled, which was done in 1955."[102] Ultimately, there were many lessons to support the evolution of CAS doctrine from the Korean War. Unfortunately, the Air Force's organizational mentality ensured the lessons remained on the Korean peninsula, and did not become "lessons learned," codified in doctrine.

Vietnam War

Despite continued neglect and unsettling inter-service disputes through the interwar years, CAS doctrine again evolved out of necessity during the Vietnam War. Following the protracted struggle in Korea, American Defense officials were once again convinced that the United States would never participate in another conventional war.[103] Strategic air proponents in the Air Force saw the Eisenhower Administration's opposition to conventional war as an endorsement of the nuclear enterprise. Consequently, the Air Force devoted little time and effort towards CAS and tactical aviation at large.

> American strategists during the 1950's tailored the armed forces to meet an all-out nuclear exchange (including "massive retaliation") and only secondarily a general conventional war. As a result, until about 1960 the Air Force emphasized general nuclear-war capabilities in the belief that these capabilities would meet the requirements of any limited war.[104]

Later recalling the period in 1968, former Air Force Chief of staff General John P. McConnell lamented, "We (USAF) did not even start doing anything about tactical aviation until about 1961 or 1962."[105] The Air Force's vision for the future stood in stark contrast to the Army's.

> During the 1950s, Air Force views also created friction with the Army. While the Air Force concentrated on large-scale nuclear conflict, the Army continued to advocate preparation for conventional warfare . . . Consequently, the strategic perspectives of the two services as shaped in the years immediately following the Korean War seemed destined to clash.[106]

"In the early 1960s the Air Force and the Army struggled to reach some accommodation concerning close air support within this general strategic context."[107] Although the Joint Chiefs of Staff did eventually agree on a common definition of CAS, "Air action against hostile targets . . . in close proximity to friendly forces and which requires detailed integration of each air mission with the fire and movement of those forces," the services failed to agree on little else.[108] The principle conflict between the Air Force and the Army in the realm of CAS doctrine centered on the issues of air tasking and command and control of CAS aircraft. In accordance with its own evolving airpower doctrine, the Air Force sought to maintain centralized control over all air assets. However, Army leaders argued that centralized Air Force CAS assets were not dependable or responsive enough to meet the needs of the dynamic land battle.

> The Air Force doctrine for tactical air power centered on three missions: (1) counterair, (2) interdiction, and (3) close air support. Air Force leaders expected to set priorities for these missions according to each situation as it arose . . . Always, however, the Air Force argued for centralized Air Force control of these tactical resources, mainly to assure success in achieving air superiority, the primary mission of air power.[109]
>
> In 1960 and 1961, Army studies on close air support underlined a different perspective . . . As Army Chief of Staff Gen. George H. Decker wrote in May 1961: "The Army's requirement is to have close air support where we need it,

> when we need it, and under a system of operational control that makes it responsive to Army needs." To provide a quantitative and organizational gauge of General Decker's requirement, the Army suggested that three Air Force squadrons designated solely for the close air support mission be assigned to each Army division.[110]

These fundamental differences between the two services obstructed any progress in CAS doctrine. "On the eve of the American buildup in Southeast Asia, joint Army-Air Force doctrine—the fundamental principles by which military forces guide their actions—on close air support was virtually non-existent."[111]

> Faced with these differing viewpoints, in February 1963 (Secretary of Defense Robert) McNamara ordered a joint Army-Air Force examination of close air support. Two months later, Army and Air Force Close Air Support Boards were organized at the CONARC (Continental Army Command)/Tactical Air Command level. The joint investigation covered five close air support topics: (1) procedures, tactics, and techniques; (2) training and indoctrination; (3) resources; (4) command relationships; and (5) type of aircraft. Despite some agreement on issues in the first three categories, the joint group could not reach accord either on command and control issues or on the type of aircraft to be employed. No consensus emerged, and decisions were deferred pending further study.[112]

While the type of aircraft best suited for CAS was more of an acquisition issue, the fundamental doctrinal issue in the debate revolved around command and control.

> For the Army this meant a decentralized system in which the local ground force commander received close air support adequate to eliminate the targets he chose at the time he desired . . . In particular, the Army wanted the ground commander to be able to rely on the supporting aircraft he received without worrying whether the aircraft might be ordered elsewhere without notice just at a time when he needed them. The Air Force, on the other hand, adopted the approach that close air support was a joint venture. According to the Air Force view, a joint task force commander would enjoy operational control over all resources. For instance, he would decide on the allocation of tactical air resources from the general (centralized) pool of Air Force operationally ready aircraft . . . Discussion of this issue, sometimes referred to as the "single manager for air" concept, touched, in turn, on another source of interservice controversy: the setting of quantitative measures to determine "adequate" close air support. The Army desired that each division be allocated a certain number of close air support sorties for each combat day, enabling the division commander to develop operational plans on a reliable basis. Even more important to him: he could be certain of not losing that air support in the midst of an engagement, as he would hold operational control over

> the aircraft assigned to him each day. In contrast, the Air Force argued that in the fluid, rapidly changing circumstances of combat, battlefield priorities could shift quickly and unexpectedly, and this could necessitate concentrating close air support resources in a particular area at the expense of denying support to ground units less heavily engaged. Therefore, according to the Air Force, assigning the overriding authority to a joint force commander is a method valuable not only for meeting an unforeseen turn of events but also for parceling out tactical air resources to the best advantage. Requests—and problems—of commanders in local parts of the broad battle area must be weighed against the overall tactical situation. Although Air Force leaders remained skeptical about assigning a certain number of close air support sorties to each Army division in a combat day, they did not absolutely oppose this proposal. Rather, the Air Force called for joint testing and war gaming to determine if the Army's recommendation had merit. Until such time as the merit of the Army's view proved decisive, however, the Air Force would not agree to the idea.[113]

While interservice disputes challenged the evolution of CAS doctrine leading into the Vietnam War (figure 16), America's insidious slide into the war made establishing CAS procedures for the conflict equally as challenging. Unique support relationships with the South Vietnamese, stringent rules of engagement, and the rapid proliferation of U.S. Army organic rotary-wing aircraft into the theatre all added considerable stress to the already contentious air command and control system.[114]

Figure 16. Southeast Asia

Source: John J. Sbrega, "Southeast Asia," in *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling (Washington, DC: USAF Office of Air Force History, 1990), 412.

Based on the operational problems for U.S. air assets in Vietnam and the recommendations from the joint CAS investigation board in 1963, Secretary of Defense Robert McNamara recommended a series of tests to improve the CAS command and control process.[115]

> In the fall of 1964, the Army and Air Force participated in the largest joint exercise since World War II, known as Operation Desert Strike. In the deserts of Southern California it became apparent that the two services would have to compromise if they were to work effectively on the same battlefield. The Air Force admitted that its command and control system had become too disconnected from ground operations and developed new links to reconnect them. These improvements included a new agency that would provide a liaison team to the Army at the corps level, known as Air Support Operations Centers (ASOCs). The ASOCs changed the role of Air Liaison Officers (ALOs) from mere advisors

> to staff officers with operational responsibilities for seeing that air and ground operations were successfully integrated. The Army gave in on its call for a hard commitment on sortie numbers, agreeing that the joint commander would decide how many sorties would be apportioned to CAS and interdiction missions on a daily basis. The Air Force, in turn, agreed that the ground commander would allocate the specified CAS sorties to subordinate commanders for the decentralized application of air power according to the needs of the lower echelon units in contact with the enemy. The Air Force also agreed to provide tactical air control parties down to the battalion level in order to provide a link between the lowest maneuver unit and the air power that would support it.[116]

Based on the results of those tests and the need to cooperate to support increasing U.S. troop levels in Vietnam, the Army and Air Force Chiefs of Staff finally compromised on a viable solution to solve the resident command and control problems.[117] Signed in April of 1965, the "Concept for Improved Joint Air-Ground Coordination" resolved many of the problems that chronically plagued the joint CAS command and control process, and established the foundation for modern joint CAS command and control doctrine.[118]

> the agreement essentially formalized procedures for the apportionment and allocation of tactical air resources. Thus the joint commander would decide the daily proportion of tactical air resources for close air support, counterair, and interdiction. While the various component commanders might submit recommendations on this apportionment, only the joint commander could change the daily quotas. In turn, the apportionment for close air support had to be specifically reported each day by the air commander to the ground commander, who could then allocate these close air support resources among his subcommanders. The new agreement specified that full authority over close air support remain in the hands of the appropriate commander (for economy of use) and that no arbitrary minimum amount of sorties be established. Also, the Air Force agreed in this pact not only to assume responsibility for the required communications in requesting and delivering close air support but also to provide advisors (forward air controllers and air liaison officers in tactical air control parties) down to the level of Army battalions. In addition, the Joint Concept gave these tactical air control parties direct access to the regional coordinating centers (now called Direct Air Support Centers instead of Air Support Operations Centers) for requesting "immediate" (usually emergency) calls for close air support.[119]

The new CAS command and control system worked remarkably well during the war. Within the revised air support request process, requests could originate at any level as either preplanned or immediate.[120]

> Each request received a priority identification, and a frag order went to the air unit designated to furnish the required support. In turn, the air unit identified air assets to satisfy the request. When the frag cleared the Tactical Air Control Center (TACC), the appropriate regional Direct Air Support Center provided information about the planned strike to the air liaison officer at the Army/ARVN division. The division air liaison officer then passed this information to the tactical air control party assigned to the original requestor. Thus, both the tactical air strike unit and the forward air controller (in the requesting TACP), who would direct the strike, usually knew the details by the early evening hours of the day before the operation. This advance notice enabled the forward air controller to obtain clearances for ordnance, to confirm the target coordinates, and to learn the positions of friendly forces and civilians in the vicinity of the strike.[121]

Requests that were initiated more than three hours before the mission were considered preplanned, while requests within three hours of the mission were immediate requests.[122]

> Any unit or individual could initiate a request for immediate close air support. All requests from battalion level or above went straight to the regional direct air support center by way of the nearest tactical air control party or airborne forward air controller. Requests from below battalion level first required verification and approval by the battalion command post.[123]

The joint air tasking system finally seemed to hit its stride in Southeast Asia. However, it would not be accurate to say that the *Concept for Improved Joint Air-Ground Coordination* solved all of the air tasking problems in Vietnam. The practice of submitting preplanned air support requests frequently devolved into a convenient way to get aircraft stationed overhead, even when there were not any legitimate preplanned CAS targets.[124] "Rather than have specific targets, strike pilots received general directions to proceed to rendezvous points to await further instructions."[125] Consequently, the Military Assistance Command, Vietnam, (MACV) Commander General William C.

Westmoreland, was forced to revise the air tasking system to prevent ground units from misusing it.[126]

> In May 1968, Westmoreland modified the system to apportion seventy percent of total tactical close air support resources among the ground forces on a weekly basis. He retained the other thirty percent for allocations on a daily basis (as required by the flow of combat). This change greatly reduced the complexity of fragging planned missions. Also, the new fragging system reduced the number of daily requests and improved the response to a ground commander's needs by making a weekly commitment of aircraft for use as he wished.[127]

Although Westmoreland's modification helped fix the air tasking system in Vietnam, tactical CAS operations in Southeast Asia were certainly not easy. A motivated, dynamic, and resilient enemy, combined with challenging weather and terrain covered by dense foliage, made successful CAS strikes extremely challenging.[128]

> . . . most of the engagements in South Vietnam consisted of small-size hit and run raids by the enemy that rarely exceeded twenty minutes. This set a difficult task for tactical air power. Desirable targets were few, and all too often small groups of enemy soldiers that had been spotted disappeared before strike aircraft could arrive. …Since large-size enemy units rarely exposed themselves, it became vitally important to knock out the small, fleeting enemy groups that did appear.[129]

Consequently, the air tasking process sought to accomplish the 20/40 response goal for every CAS mission.

> This formula or guideline meant that, on average, "immediates" would be answered within twenty minutes (by aircraft already airborne being diverted from lower priority missions) or forty minutes (by scrambling aircraft on the ground). In fact, by 1968, ground commanders incorporated the "20/40" formula in their planning. As a follow up to this process of classifying response times, a joint Army-Air Force study group in 1972 set the general criteria that at least fifty percent of the requests for immediate air support should be answered within fifteen minutes, seventy-five percent within twenty minutes, and one hundred percent within forty minutes.[130]

The need to maintain continuous visual contact with an elusive enemy and to reduce CAS response times significantly contributed to the proliferation of FAC(A)s during the Vietnam War.

> Experience quickly taught how difficult it was to acquire and identify small fleeting targets. It took only a short time to rediscover the value of the airborne FAC, as the heavy foliage and the nature of guerrilla warfare contributed to FACs taking to the air. Also, by being able to cover more territory than a surface observer, mobile or not, the airborne FAC helped make up for the shortage of qualified personnel.[131]

FAC(A)s began operations in Vietnam with Air Force fighter pilots flying O-1 aircraft (figure 17) as area reconnoiters, coordinating strikes after observing enemy forces, but rapidly evolved to be an essential component of the TACP with the introduction of U.S. ground troops in 1965.[132]

> Prior to the deployment of U.S. ground combat forces in Vietnam in 1965, the Air Force erected a forward air control system centered on the FAC(A). Ideally, four to six Air Liaison Officers and FACs were assigned to each of South Vietnam's 44 provinces. These became known as "area FACs" since their primary responsibility was territorial, rather than to ground units which might be operating in that province . . . Their primary responsibility was reconnaissance, although they could and did control attacks by strike aircraft when suitable targets could be found and approved by the province chief. As direct U.S. involvement in the war increased in 1965, General Westmoreland directed that this reconnaissance effort by area FACs be organized for more comprehensive coverage. The country was then further divided into sectors, each of which could be inspected in two hours. Ideally, each sector would be covered by at least one O-1 each day, and the same FAC(A) would patrol the same sector day after day, gaining great familiarity with the terrain and its inhabitants.[133]

In accordance with the recently revised air tasking doctrine, General Westmoreland, the Joint Force Commander, apportioned a Tactical Air Support Squadron (TASS) of FAC(A)s to each of the four corps in South Vietnam, under the operational control of the Seventh Air Force Tactical Air Control Center (TACC) through the Direct Air Support Centers (DASC).[134] Over the course of the war, O-1 FAC(A)s played a vital role in locating enemy forces and controlling strike aircraft after leading them to the target. By 1970 over 800 FACs were operating in Southeast Asia, divided administratively into four tactical air support squadrons, under the TACC's operational control.[135] However,

despite the O-1 FAC(A)s valiant efforts to reconnoiter and rapidly coordinate for aircraft to perform strikes on identified enemy positions, the Viet Cong's rapid hit and run tactics frequently necessitated a quicker strike response capability.

The requirement to rapidly engage the fleeting enemy before strike aircraft could arrive led to the subsequent introduction of armed FAC(A)s. OV-10s (figure 18) equipped with four machine guns and four rocket pods had considerable success against the enemy. "During the "Misty Bronco" test period in III Corps (April 4—June 13, 1969), OV-10 pilots handled seventy-eight of ninety-eight requests for close air support by themselves in an average response time of just over seven minutes."[136]

Figure 17. O-1 "Bird Dog" FAC(A) Overflies U.S. Marines in South Vietnam

Source: Shawn P. Callahan, *Close Air Support and the Battle for Khe Sanh* (Quantico, VA: U.S. Marine Corps History Division, 2009), 34.

Figure 18. OV-10 "Bronco" FAC(A) Aircraft

Source: John J. Sbrega, "Southeast Asia," in *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling (Washington, DC: USAF Office of Air Force History, 1990), 440.

Ultimately, CAS operations in Vietnam appear to be a bright spot in an otherwise contentious conflict. The new command and control system imposed by the *Concept for Improved Joint Air-Ground Coordination* helped to alleviate many of the interservice conflicts that challenged CAS operations for the preceding fifty years. Given the unique characteristics of the Vietnam War, "the 20/40 rule appears to have been a reliable gauge of close air support and, more important, generally sufficient in the war. Thus, virtually every reaction from the "users"—ground force commanders—proved highly favorable."[137] As one Army ground commander reflected, "I learned after a while that my casualties were tremendously decreased if I used the air power and air strikes and used it properly. And it was there to use."[138] CAS has maintained significant role in American military operations since Vietnam.

Recent U.S. Conflicts

The need for improved air-ground integration in CAS is a recurring lesson from the majority of U.S. combat operations over the last thirty years. Although Operation Desert Storm demonstrated many of America's military innovations since the Vietnam War, CAS played a limited role during the one hundred hour ground campaign. The rapid ground maneuver from February 24-27 1991, largely enabled by an extensive air interdiction campaign over the preceding month, posed a challenging environment in which to conduct detailed integration for close air support.[139]

> According to data compiled by RAND, 4,393 close air support sorties (out of a total of 112,235 for all missions) were tasked during Desert Storm. The vast majority of these were flown during the ground war period of 23-27 February. Of these, 1,461 were flown by Air Force aircraft—mostly in support of U.S. Army and Coalition forces and typically to accomplish an alternative interdiction mission. Marines provided almost all of their own close air support . . . Because Army forces were executing the famous "left hook" or "Hail Mary," they moved rapidly. Iraqi resistance was seldom prolonged in any given location and was dealt with for the most part with ground forces firepower. Typically, CAS sorties, operating under the "push CAS" or "push flow" concepts, were either on-station airborne under the control of a Fast-FAC aircraft or were handed off to a forward air controller accompanying the ground forces. Other aircraft stood strip alert and "scrambled" to meet emerging requirements. The tactics used were not new . . . [The Army] moved forward so rapidly that the classic situation for close air support—troops in contact with the enemy—rarely developed.[140]

However, despite the limited opportunity to conduct extensive CAS, the challenging environment led to multiple air-ground fratricide incidents.

> Altogether there were 28 incidents involving U.S. forces, of which nine were the result of air-to-ground engagements, resulting in 11 deaths and 15 wounded . . . Many factors contributed to the air-to-ground incidents during the ground campaign, including extremely poor visibility due to the low cloud cover and heavy black smoke from oil well fires, the very rapid nonlinear ground advance, nighttime operations, and the featureless desert terrain.[141]

The challenges of supporting Desert Storm's dynamic ground maneuver operations illustrate the need for improved integration during CAS operations. In contrast to Desert

Storm, CAS played a monumental role in both Operations Enduring Freedom (OEF) and Iraqi Freedom (OIF).

Enemy tactics presented a significant challenge for close air support aircraft during OEF and OIF. Similar to war in South Vietnam, the predominantly dismounted and highly elusive enemy proved to be an impractical target for strategic airpower and air interdiction, which again put the impetus of airpower on close air support for friendly ground forces searching for the enemy. However, while CAS aircraft played a vital role in both OEF and OIF in reconnoitering for potential enemy forces and responding to troops in contact situations, subtle differences in enemy tactics made CAS even more challenging than in Southeast Asia. In both Iraq and Afghanistan, the enemy attempted to reduce their vulnerability to airpower by minimizing their tactical footprint. Small groups of dismounted soldiers, usually less than a dozen, blended in with the local populace throughout both urban and remote areas and made opportunistic attacks against exposed American and allied ground forces. This tactical presentation made CAS challenging on two fronts. The first challenge was based on the U.S. strategic mandate to avoid collateral damage to local civilians and infrastructure. Consequently, there was an unprecedented emphasis on positively identifying the enemy in and amongst the local population, and theater rules of engagement compelled friendly forces to assess the potential enemy's hostile intent before nominating the target for CAS. The second significant challenge for fixed-wing air assets in OEF and OIF CAS was the inability to positively identify the enemy. Despite significant technological developments in advanced targeting pods that enable enough detail to monitor individual dismounted personnel, it remains virtually impossible for a fixed-wing tactical aviator to assess an individual's intent or determine if

they have a weapon, and thus positively identify a dismounted individual as a hostile target. In fact, small groups of enemy engaged in unconventional tactics and the inability to positively identify individuals as hostile were the primary factors that precluded FAC(A) operations throughout the majority of OEF and OIF. The only notable exceptions were the brief opening ground offensive in OIF and Operation Anaconda in OEF.

Operation Anaconda clearly illustrated both the need for joint air-ground integration throughout all phases of an operation, and the immense utility of FAC(A)s during major operations. However, the need for FAC(A)s only became obvious during execution, while American soldiers were in harm's way. Coalition Joint Task Force (TF) Mountain (10th Mountain Division) conducted Operation Anaconda in early March 2002.[142] Staging out of Bagram Airbase, TF Mountain planned to conduct an air assault into the Shahikot Valley in eastern Afghanistan to defeat a suspected stronghold of enemy forces (figure 19).[143] The coalition of U.S. special operations forces and Afghanistan ground forces were concentrated into the highly elevated Shahikot Valley, roughly confined to 40 squares miles of mountainous battle space.[144]

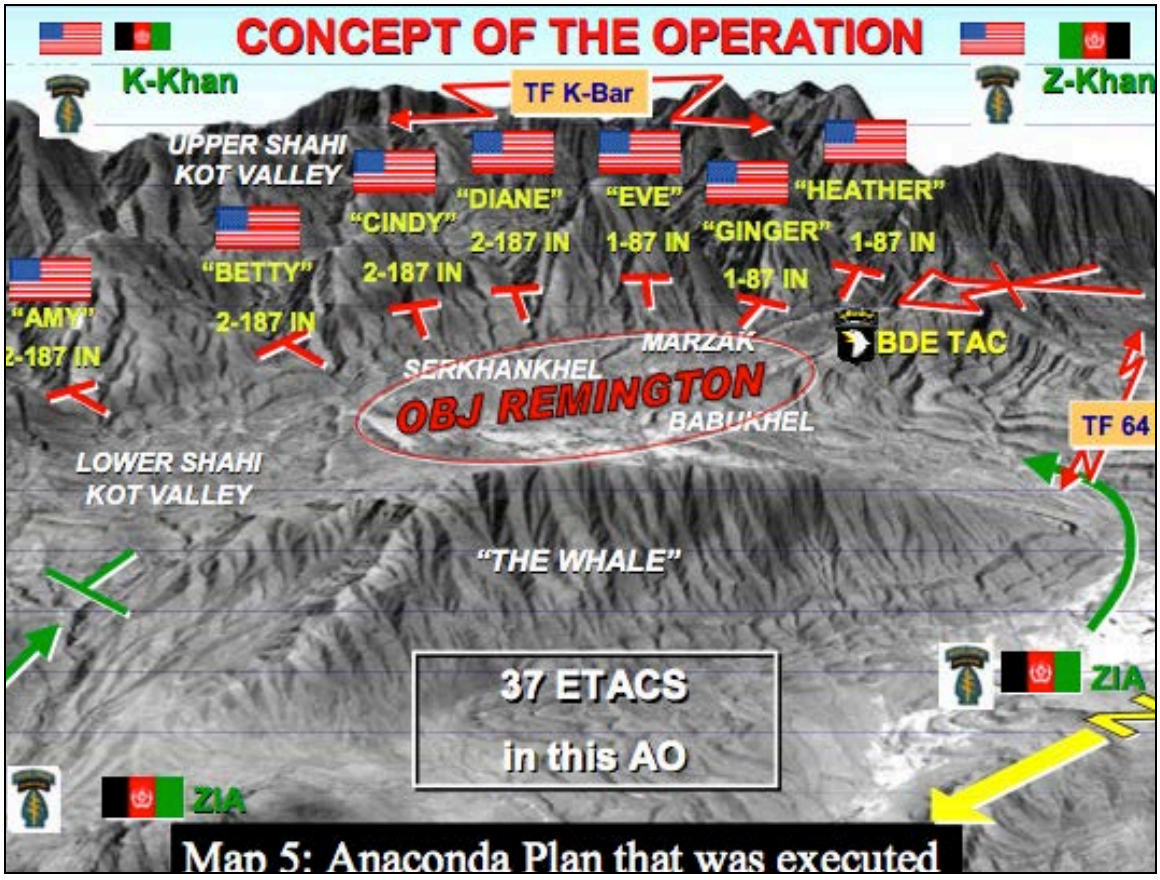

Figure 19. OEF Operation Anaconda

Source: Edgar Flari, Ernest Howard, Jeffrey Jukill, and Thomas Searle, "Operation Anaconda Case Study" (USAF College of Aerospace Doctrine, Research and Education, Maxwell AFB, AL, 2003), 22.

One significant problem with Operation Anaconda was the lack of joint air-ground integration during mission planning. However, Anaconda's problems were not necessarily due to problems with doctrine, but were more directly associated with a failure to follow joint doctrine and integrate the air component into ground force mission planning. Anaconda was primarily conceived as a ground operation, with limited air support planned in the form of pre-assault fires and immediate CAS requests.[145] In fact,

Anaconda was so heavily emphasized as a ground operation that air component planners were not invited to the original planning sessions, and TF Mountain did not appraise the CAOC of the full air requirement until three days prior to the operation's planned start date.[146] Additionally, when FAC(A)s were eventually incorporated into Anaconda during the operation, ground liaisons were not available for FAC(A) units attempting to integrate into the ground scheme of maneuver. Colonel (Retired) David M. Neuenswander was the Deputy 332nd Air Expeditionary Group Commander, when the 74th Expeditionary Fighter Squadron (EFS) eventually deployed forward to Pakistan to provide A-10 FAC(A) support in Anaconda. According to Colonel Neuenswander, the ground component did not provide the 332nd or the 74th EFS with a Ground Liaison Officer (GLO), despite multiple requests.[147] Additionally, the 74th's attempts to determine the status of the ground operation through the battlefield coordination detachment at the CAOC did not provide any useful information.[148] Consequently, without effective pre-mission air-ground integration, FAC(A)s in Anaconda were forced to perform all of their coordination during execution, which encumbered close air support.[149]

The failure to establish effective air-ground integration during mission planning led to unfortunate consequences. TF Mountain's desire to maintain tactical surprise limited pre-assault air strikes to a 40-minute period before the air-assault.[150] Unfortunately, the enemy size and opposition was much greater than originally expected, and TF Mountain met heavy resistance during the initial air assault.[151] The limited number of pre-assault air interdiction strikes was inadequate, the high-elevations made rotary wing air support tenuous, and the uncontrolled congested air-battle space prevented efficient fixed-wing close air support.[152] By the end of the second day of

fighting, TF Mountain lost seven American special operators and one helicopter to the determined enemy near Objective Ginger.[153]

> In response, the limited planned air support was increased to provide sustained force application against the enemy throughout the battle . . . An intense version of CAS and nearby interdiction inside the valley, and along its surrounding hills and ridgelines, was improvised when the ground battle took a bad turn.[154]

Amidst the increasing CAS requirement and the congested airspace, the need for effective and efficient forward air control became definitively clear. "Over the entire battle, fixed-wing strike aircraft, flying an average of 65 sorties per day, delivered considerable accurate firepower in support of the ground battle. . . . In addition, the air operation encountered troubles in acquiring and striking targets on this rugged terrain in the face of clever enemy tactics designed to dilute the effectiveness of precision airstrikes."[155] On-station FAC(A) qualified Air Force F-16s and Navy F-14s initially attempted to coordinate the airspace and control airstrikes until more experienced A-10 FAC(A)s deployed into theater on day three of the operation, "thus greatly improving command and control."[156] FAC(A) operations in Anaconda truly became effective once FAC(A)s established recurring operations with TF Mountain, after multiple days of execution.[157] "The battle was ultimately won when U.S. forces recovered their balance and mounted an effective, integrated joint campaign. By the end, air bombardment followed by ground assaults destroyed or dispersed the enemy, and the Shahikot Valley was secured."[158]

Of the many joint integration lessons available from Operation Anaconda, two significant lessons focused on the need for detailed integration during air-ground operations and the utility of FAC(A)s.

> At Anaconda, greater inclusion of the air component in early joint planning might have resulted in better air-ground integration during the battle itself and in carrying out the emergency response that was mounted. The battlespace was very small, with dispersed nonlinear operations in which numerous small units were conducting independent engagements in rugged terrain, in an area in which a considerable number of tactical air control parties (TACPs) were operating. Anaconda illustrates the reasons for having a forward air command and control staff, plus airborne command aircraft and FACs, capable of handling responsively the demanding functions of air battle management and coordination with local ground commanders. The problems encountered during Anaconda's first 3 days likely would have been less serious if such command an control considerations and assets had been part of initial Anaconda planning . . . Airborne command and control is a critical component of CAS operations, especially in complex operations such as Anaconda . . . There is a general agreement that FAC-A is a facilitator and essential to effective CAS in this type of operation . . . Because CAS will be a continuing mission that requires detailed force integration, the standardization of procedures and training for airborne command and control among the services is a critical element for future training and operations.[159]

In addition to the lessons offered by Operation Anaconda, JP 3-09.3 illustrates the utility of the FAC(A), while the Unified Combatant Commanders actually establish the requirement.

Current Joint FAC(A) Requirements

FAC(A)s maintain specialized capabilities that will be an essential aspect of the TACP during major operations. Specifically, FAC(A)s offer a unique battlefield perspective and airborne operational CAS experience. According to JP 3-09.3, there are several reasons to incorporate a FAC(A) into the TACP:

a. Expecting a large number of CAS aircraft in a small amount of time or restrictive airspace.
b. Operating in restrictive terrain (urban, forested) where a platform with the same perspective as CAS assets for target talk-ons would aid in the efficiency of CAS missions.
c. Operating with a limited capability to mark targets.
d. Expecting difficult communications due to terrain and/or high threat environment.

e. When operational needs require an aviator overhead who is intimately familiar with the ground commander's intent and scheme of maneuver, versed in CAS TTP, to assist in the battle/operation.[160]

The Unified Combatant Commanders establish the requirement for the FAC(A) mission. Formally, the Geographic Combatant Commanders establish the FAC(A) requirement through their respective Air Component Commanders, who in turn translate the requirement to the services. Specifically within the Air Force, the Component Numbered Air Force Commanders establish the requirement through the Air Combat Command Ready Aircrew Program Tasking Memorandum (RTM).[161] For example, the 2013 A-10 RTM establishes FAC(A) as the second priority primary mission for A-10 squadrons. Currently in the USAF, only a limited number of A-10 and F-16 pilots are FAC(A) qualified. Additionally, the Navy maintains limited FAC(A) capability, and the USMC maintains FAC(A)s as part of the Air Combat Element within the Marine Air-Ground Task Force.[162] Currently, multiple elements of joint doctrine dictate the tactics, techniques, and procedures for CAS and FAC(A) integration across the joint force.

Current Joint CAS Air Tasking Doctrine

JP 3-09.3, *Close Air Support*, defines the CAS air support request (AIRSUPREQ) process. Ground units can request CAS assets through either preplanned or immediate AIRSUPREQs. Requests submitted before production of the joint Air Tasking Order (ATO) are preplanned, while requests received after ATO production begins are considered immediate.

> Those CAS requirements foreseen early enough to be included in the first ATO (Air Tasking Order) distribution are submitted as preplanned AIRSUPREQs for CAS. As soon as the requirements for CAS are identified during the planning process, planners submit AIRSUPREQs for CAS per the JAOC (Joint Air Operations Center) battle rhythm.[163]

The requesting unit submits preplanned CAS AIRAUPREQs via command echelons through the corps level, and each echelon consolidates and prioritizes all AIRSUPREQs in terms of precedence.[164] Superior ground commanders are responsible for approving or disapproving subordinate AIRSUPREQs, the air component does not make an approval decision on any ground component AIRSUPREQs.[165] However, based on the Joint Force Commander's (JFC) air apportionment decision, there may not be enough air allocated to CAS to fill all AIRSUPREQs. Consequently, detailed preplanned AIRSUPREQs with high precedence have a greater chance of maintaining their precedence at higher echelons and ultimately receiving a CAS sortie allocation. Alternatively, the CAS AIRSUPREQ process does allow for CAS requests that originate inside of the standard ATO timeline (figure 20). "Immediate requests arise from situations that develop outside the ATO planning cycle."[166] JP 3-09.3 describes the immediate AIRSUPREQs process for conventional forces as follows:

> Immediate requests are forwarded to the appropriate command post by the most effective means available, voice or digital . . . The most responsive air support for troops in contact may require immediate requests sent directly from the TACP (JTAC, ALO, AO) to the ASOC/DASC using AFARN or TAR/helicopter request (HR). The AO/FSC/ALO at each intermediate HQ monitors the flow of requests. Based on the commander's intent, and after considering whether organic assets are available to fulfill the request, they approve or deny the request . . . Silence by intermediate HQ implies consent to the request.[167]

The requesting unit classifies immediate CAS requests as emergency, priority, or routine to help higher HQs prioritize the request.[168] Immediate CAS requests may be filled by re-tasking other ATO CAS assets, by tasking alert CAS aircraft, or by forwarding an AIRSUPREQ to the JAOC to procure additional CAS assets.[169] Throughout the entire process, the Joint Force Air Component Commander (JFACC) normally retains operational control (OPCON) over assigned air assets tasked in a support relationship to

the ground commander.[170] During the mission vulnerability period, the JFACC normally delegates tactical control (TACON) over CAS forces made available for tasking to the ASOC.[171] Ultimately, whether submitted as preplanned or immediate requests, the air component fills all CAS AIRSUPREQs through the Joint Air Tasking Cycle (JATC).

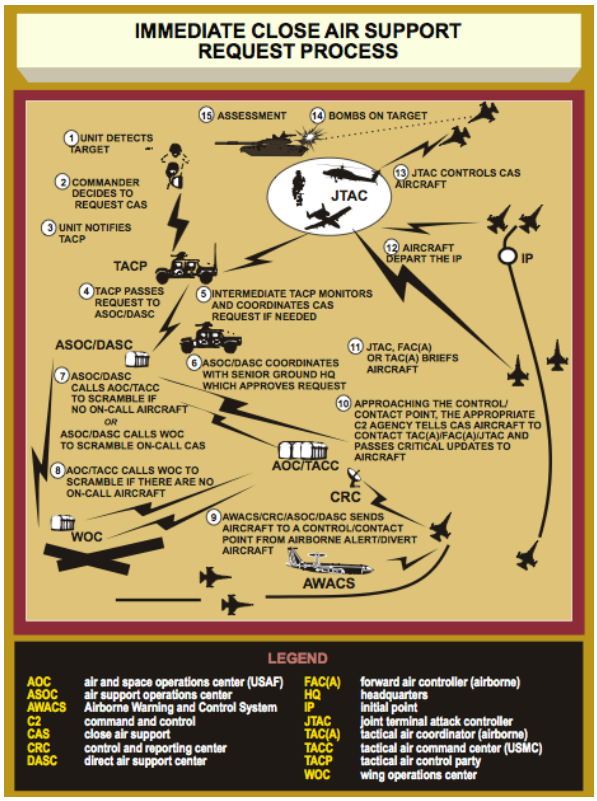

Figure 20. Immediate CAS AIRSUPREQ Process

Source: Joint Chiefs of Staff, Joint Publication 3-09.3, *Close Air Support* (Washington, DC: Government Printing Office, 2009), III-35.

Current joint air tasking doctrine is designed to exploit airpower's inherent flexibility. Joint Publication 3-30, *Command and Control for Joint Air Operations*, governs the current air tasking process. JP 3-30 identifies the Joint Air Operations Plan

(JAOP) as the "JFACC's (Joint Force Air Component Commander) plan for integrating and coordinating joint air operations and encompasses air capabilities and forces supported by, and in support of, other joint force components."[172] The seven-step JAOP performs many functions to orchestrate the air campaign, much of which is beyond the scope of this paper. However, one significant aspect of the JAOP establishes air-tasking doctrine for all air operations, including CAS and FAC(A). The JAOP's requirement to "Develop specific procedures for allocating, tasking, exercising, and transitioning C2 of joint air capabilities and forces,"[173] is the basis for the Joint Air Tasking Cycle (JATC).

> The joint air tasking process provides for the employment of joint air capabilities and forces. It provides an iterative, cyclic process for planning, apportionment, allocation, coordination, and tasking of joint air missions and sorties. The joint air tasking cycle begins with the JFC's objectives, incorporates other JFC guidance received, and culminates with the assessment of previous actions.[174]

Within the JATC (figure 21), a few notable inputs and outputs are significant to CAS air tasking doctrine, and serve as potential obstacles to pre-mission integration.

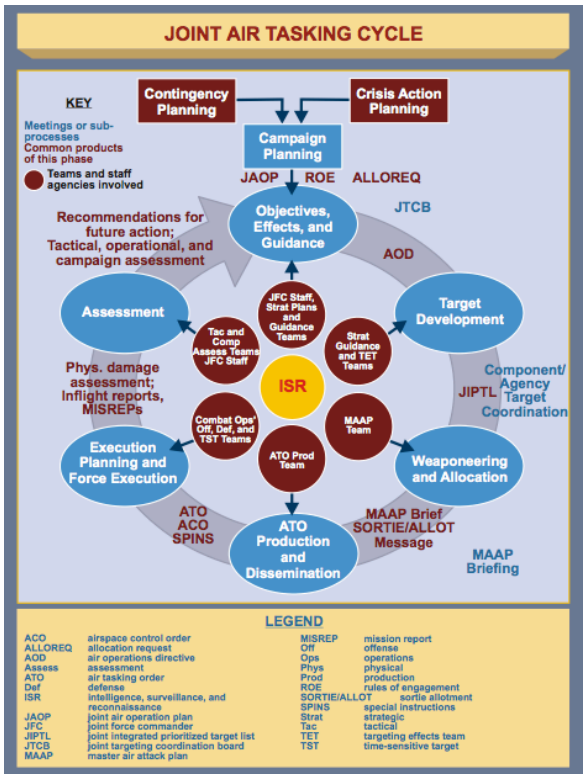

Figure 21. Joint Air Tasking Cycle

Source: Joint Chiefs of Staff, Joint Publication 3-30, *Command and Control for Joint Air Operations* (Washington, DC: Government Printing Office, 2010), III-22.

The JATC air allocation process and ATO are the primary factors that influence the current joint air tasking timeline. The modern air apportionment and air allocation process undoubtedly stems from the lessons reluctantly learned entering the Vietnam War. Air apportionment represents a percentage of available air assets apportioned to each operational mission area (For example: 40percent-Air Superiority, 20percent-Strategic Attack, 30percent-Interdiction, 10percent-Close Air Support).[175] "Air apportionment allows the JFC to ensure the priority of the joint air effort is consistent with campaign or operation phases and objectives."[176] During apportionment, the JFACC solicits air requests from each of the component commanders, determines the most

effective way to apportion the air assets to support the various requirements, and makes an air apportionment recommendation to the JFC. However, the JFC, who is responsible for the overall command of the mission and unbiased toward any particular component parochialisms, is ultimately responsible for the final apportionment decision.[177] Air apportionment occurs during the first stage of the JATC, Objectives, Effects, and Guidance, multiple days before execution. Based on the JFC's air apportionment decision, "the JFACC translates that decision into total number of sorties by weapon system type available for each objective and task."[178] The Master Air Attack Plan (MAAP) team in the Joint Air Operations Center (JAOC) Combat Plans Division (CPD) is the JFACC's designated representative to allocate specific air assets with the appropriate capabilities to specific missions within the JFC's directed mission areas. During the air allocation process, the MAAP team examines the air support requests from each of the components, and allocates appropriate air assets to each supported request based on the required capabilities.[179] However, air allocation does not occur until the third stage of the JATC, Weaponeering and Allocation, immediately before ATO production, which usually occurs only 24 to 36 before execution. As the primary output from the JATC, the ATO:

> articulates the tasking for joint air operations for a specific timeframe, normally 24 hours. The full air tasking cycle, from JFC guidance to the start of ATO execution is dependent on the JFC's and JFACC's procedures, but a 72-hour cycle is fairly standard. The ATO matches specific targets with the capabilities and forces made available to the JFACC for the given ATO day.[180]

The typical 72 to 96 hour ATO planning cycle generally operates in the following manner:

1. ATO in Development (Execution minus 48-hours to Execution minus 24-hours): CPD MAAP team consolidates JFC's air apportionment direction and

strategic planning guidance, Joint Targeting Coordination Board and JAOC Strategy Division inputs, and Air Support Requests to determine air allocation and MAAP, which serves as the prelude to the ATO.[181]

2. ATO in Production (Execution minus 24-hours to Execution): Following the approved MAAP, the CPD ATO production team translates the graphical MAAP into a text version ATO which should include all of the necessary mission execution data for JFACC-assigned theatre air assets. While the ATO is usually not final until immediately prior to execution, a pre-ATO is frequently released six to twelve hours prior to execution to enable air assets tasked within the early portion to the ATO execution day to begin mission planning.[182]

3. ATO in Execution (Execution to Execution plus 24-hours): Each daily execution ATO identifies the mission and any specific requirements for each air mission flown in the JFC's theater of operations. Specifically for CAS operations, the ATO provided each assigned CAS aircraft with a call sign, mission number, mission location, vulnerability period (or assigned mission arrival and on-station time), required weapons load, and contact information for the JTAC of the supported ground element. The JAOC Combat Operations Division (COD) or its designated airborne representative assumes command and control over all ATO assigned air mission assets. Same-day air support requests received during the execution day are coordinated by the COD by re-tasking alternatively ATO-assigned air assets, by launching alert aircraft, or by requesting air mission units generate additional sorties to meet the new requirement.[183]

4. ATO in Assessment (Execution plus 24-hours and beyond): At the operational level, JAOC Strategy Division coordinates with the JFC J-3 and J-2 to evaluate the air component effectiveness toward achieving JFC objectives for the given ATO execution day.[184]

All joint air assets are apportioned and allocated subject to the JATC and ATO cycle. Interestingly, although JP 3-30 provides considerations for unique air tasking circumstances like intelligence, surveillance, and reconnaissance; air mobility; unmanned aircraft systems; and joint personnel recovery; the primary joint air tasking doctrine does not include any specific considerations for tasking CAS or FAC(A) assets. In contrast, CAS is an integral aspect of USMC aviation and air tasking doctrine.

USMC CAS Air Tasking Doctrine

The unique construct of the Marine Air-Ground Task Force (MAGTF), which combines both the aviation and ground elements as co-equal participants under one operational commander, provides a valuable model for effective air-ground integration. The principal function of Marine aviation is to compensate for the Marine Corps' inherent lack of organic fire support.

> Marine forces are general purpose forces and traditionally come "from the sea" with limited organic fire support and mobility assets. As such, Marine forces rely heavily on the fires, fire support, and mobility provided by Marine aviation. . . . Marine aviation is an integral part of the Marine air-ground task force (MAGTF). . . The MAGTF is the Marine Corps' principal organization for all military operations. It is composed of forces task-organized under a single commander to accomplish a specific mission. These forces are functionally grouped into four core elements: a command element (CE), and aviation combat element (ACE), a ground combat element (GCE), and a combat service support element (CSSE). . . . The ACE is task-organized to provide the specific capabilities required of Marine aviation to support the MAGTF. The ACE is not subordinate to the GCE; it is a co-equal combat-arm of the MAGTF that provides the mobility, flexibility, coordination, and firepower required to successfully employ maneuver warfare.[185]

Marine aviation performs six primary functions to support the MAGTF's unified mission (figure 22): Offensive Air Support (OAS), Antiair Warfare, Assault Support, Air Reconnaissance, Control of Aircraft and Missiles, and Electronic Warfare.[186] CAS and FAC(A) operations are a significant part of the OAS function. It is also worth noting that Marine Corps aviation doctrine, like joint air doctrine, places a heavy emphasis on the AAW function to establish air superiority within the MAGTF's area of operations.[187]

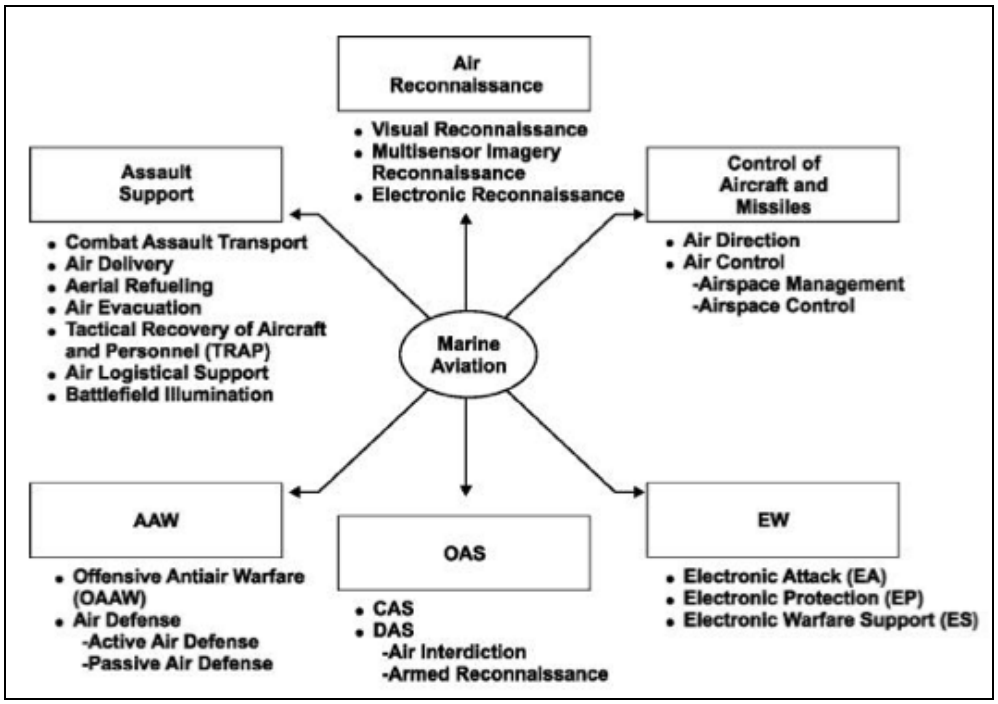

Figure 22. Six Functions of Marine Aviation

Source: Headquarters, U.S. Marine Corps, Marine Core Warfighting Publication 3-2, *Aviation Operations* (Washington, DC: Government Printing Office, 2000), 2-2.

MAGTFs vary in size and scale based on their JFC assigned mission. During expeditionary operations, MAGTFs primarily range from Marine Expeditionary Forces (MEF) (Forward), to Marine Expeditionary Brigades (MEB) to Marine Expeditionary Units (MEU), to Special Purpose (SP) MAGTFs on a limited basis (figure 23).[188]

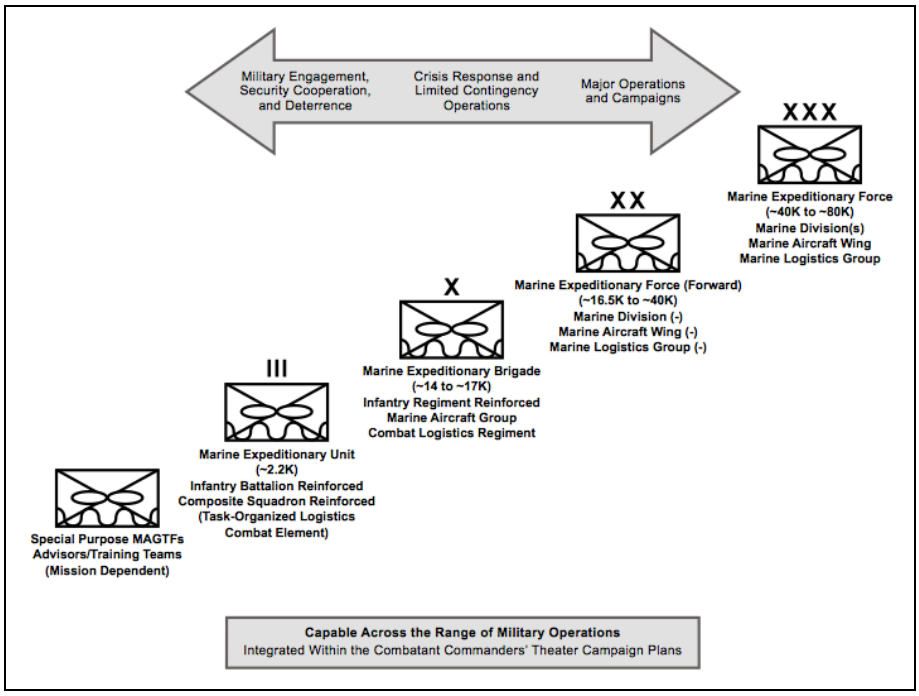

Figure 23. MAGTF Organizations

Source: Headquarters, U.S. Marine Corps, Marine Core Doctrinal Publication 1-0, *Marine Corps Operations* (Washington, DC: Government Printing Office, 2011), 2-10.

During major operations, the MAGTF is generally an operational and tactical level combined-arms asset with the capability to function autonomously or as a part of a larger joint force. However, although there are provisions for excess Marine aviation assets to support the JFACC's larger air operations, Marine aviation is almost exclusively used in support of the task-organized MAGTF's operations.

> The MAGTF's single-battle concept exploits the combined-arms nature of MAGTF operations. It allows the MAGTF commander to fight a single battle with an integrated, task-organized force of ground, aviation, and logistic forces. Based on this concept, operations performed by Marine aviation are rarely undertaken in isolation since its greatest value is in its integrated contribution to the MAGTF's overall mission. It is designed to function most effectively as an integral part of the MAGTF and cannot be separated without a significant loss of capability.[189]

Much like the JATC, the MAGTF uses a six-phase air tasking cycle (Figure 24). In the first step of the MAGTF ATC, the MAGTF commander tasks the ACE commander with a mission that includes guidance through mission orders, clear mission intent, and the MAGTF's designated main effort.[190] The overall main effort constitutes the central focus for all MAGTF elements.

> The main effort is the designated subordinate unit whose mission is most critical to overall mission success . . . the main effort is a unifying device that concentrates the MAGTF's efforts on the most important goal. Support of the main effort becomes an overriding factor in all decisions. When the MAGTF commander designates an element (ACE, GCE, or CSSE) of the MAGTF as the main effort, the other elements assume a supporting role. . . . The ACE commander focuses all internal ACE resources (maintenance, manpower, supply, etc.) on the aviation functions and capabilities needed to support the MAGTF's main effort. The ACE commander may still designate a main effort with the ACE to achieve maximum ACE support to the MAGTF's main effort.[191]

Based on the assigned mission, the ACE commander and MAGTF force fires coordinator make an apportionment recommendation to the MAGTF commander.[192]

> The MAGTF commander uses the recommendations of the ACE commander and the MAGTF force fires coordinator to make apportionment decisions. These decisions identify the total level of effort that should be dedicated to aviation tasks in order to accomplish the assigned mission. As the battle progresses, the MAGTF commander revises apportionment decisions to meet the requirements of the current situation. Apportionment is usually expressed as a percentage of the total aviation effort and helps to ensure the efficient use of limited aviation resources.[193]

During phase two of the MAGTF air tasking cycle, the MAGTF fires force coordinator, assisted by the ACE commander and staff, prioritize the MAGTF air mission requests and the target list.[194] However, "the MAGTF commander will ultimately approve the prioritization of both the target list and the air support mission list."[195] Based on the MAGTF commander's apportionment decision and approved target/air mission support

priorities, the ACE commander allocates the planned effort, again with MAGTF commander approval, in phase 3.[196]

> When all air support requests have been received, the ACE commander presents the allocation request to the MAGTF commander. Once the allocation request has been approved, the allocated sorties are distributed, or allotted, to support the MAGTF and its elements. Allotment decisions allow MAGTF elements to plan and coordinate the integration of sorties into their fire and maneuver efforts. The GCE and CSSE commanders determine the appropriate distribution of these sorties.[197]

The MAGTF ATO, published during phase four on a similar timeline as the joint ATO, articulates the allocation as official air mission taskings to individual units within the ACE.[198] "Actual mission planning and coordination with the MAGTF command element, ACE, GCE, and CSSE staffs are performed by the designated mission commander."[199] During phase five,

> task-organized flights of aircraft execute the assigned missions. During execution, the ACE commander exercises command and control of aviation forces through the MACCS (Marine Air Command and Control System), including the dynamic re-tasking of assets to meet the changing situation.[200]

Finally, the MAGTF air tasking cycle concludes with an assessment phase, again mirroring the JATC.

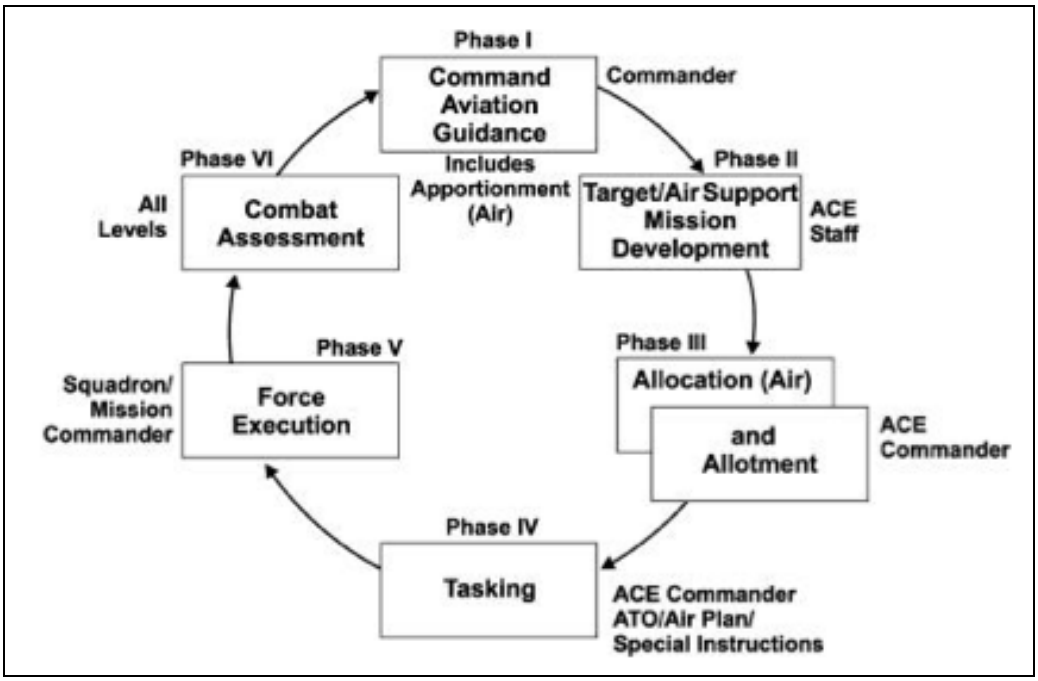

Figure 24. MAGTF Six-Phase Air Tasking Cycle

Source: Headquarters, U.S. Marine Corps, Marine Core Warfighting Publication 3-2, *Aviation Operations* (Washington, DC: Government Printing Office, 2000), 5-7.

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[1]Giulio Douhet, *The Command of The Air*, trans. Dino Ferrari, New Imprint (Washington, DC: Air Force History and Museums Program, 1998), 20.

[2]Lee Kennett, "Developments to 1939," in *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling (Washington, DC: USAF Office of Air Force History, 1990), 14-15.

[3]Maurer Maurer, ed., *The U.S. Air Service in World War I* (Washington, DC: The Office of Air Force History, Headquarters USAF, 1978), 37.

[4]Kennett, 42.

[5]Maurer, 43.

[6]Ibid., 49.

[7]Richard R. Muller, "Close Air Support: The German, British, and American experiences, 1918-1941," in *Military Innovation in the Interwar Period*, ed. Williamson Murray and Allan R. Millett (Cambridge, UK: Cambridge University Press, 1996), 154.

[8]Maurer, 40.

[9]Kennett, 42.

[10]Ibid., 46.

[11]Ibid., 43.

[12]Ibid.

[13]Ibid., 45.

[14]Ibid., 46-47.

[15]Ibid., 59.

[16]Douhet, 15-16.

[17]David Syrett, "The Tunisian Campaign, 1942-43," in *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling (Washington, DC: USAF Office of Air Force History, 1990), 155.

[18]Ibid.

[19]Kennett, 52.

[20]Ibid., 52-53.

[21]Ibid., 53.

[22]Ibid.

[23]Ibid.

[24]Ibid., 56.

[25]Syrett, 157.

[26]Kennett, 56.

[27]Syrett, 162.

[28]Ibid., 169.

[29]Ibid., 167.

[30]Ibid., 165.

[31]Ibid., 169.

[32]Ibid., 173.

[33]Ibid., 174.

[34]Ibid., 177.

[35]Alan F. Wilt, "Allied Cooperation in Sicily and Italy, 1943-1945," in *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling (Washington, DC: USAF Office of Air Force History, 1990), 199.

[36]Ibid., 200.

[37]Ibid.

[38]Ibid., 202.

[39]Ibid., 203.

[40]Ibid., 205.

[41]Ibid.

[42]Ibid., 206.

[43]Ibid., 207.

[44]Ibid.

[45]Ibid., 207-209.

[46]Ibid., 217-218.

[47]Allan R. Millett, "Korea, 1950-1953," in *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling (Washington, DC: USAF Office of Air Force History, 1990), 350.

[48]Ibid., 347.

[49]Ibid., 348.

[50]Ibid.

[51]Ibid., 351.

[52]Ibid.

[53]Ibid.

[54]Ibid., 348.

[55]Ibid.

[56]Ibid., 350.

[57]Ibid., 353.

[58]Ibid.

[59]J. Farmer and M. J. Strumwasser, *The Evolution of the Airborne Forward Air Controller: An Analysis of Mosquito Operations in Korea* (Santa Monica, CA: Rand Corporation, 1967), 32.

[60]Millett, 353.

[61]Ibid., 363.

[62]Ibid., 364.

[63]Ibid.

[64]Ibid.

[65]Ibid., 348.

[66]Farmer and Strumwasser, 19.

[67]A. Timothy Warnock, ed., *The USAF in Korea: A Chronology 1950-1953* (Washington, DC: Air University Press, 2000), 10.

[68]Farmer and Strumwasser, 21.

[69]Ibid., 20.

[70]Millett, 365.

[71]Ibid., 364.

[72]Farmer and Strumwasser, 24.

[73]Ibid., 27.

[74]Ibid., 57.

[75]Ibid., 109.

[76]Ibid.

[77]Ibid., 61.

[78]Millett, 364.

[79]Farmer and Strumwasser, 34.

[80]Ibid.

[81]Millett, 361.

[82]Ibid., 367.

[83]Ibid.

[84]Ibid., 371.

[85]Ibid., 372.

[86]Ibid.

[87]Ibid.

[88]Ibid.

[89]Ibid., 372-373.

[90]Ibid., 377.

[91]Ibid.

[92]Ibid.

[93]Ibid.

[94]Ibid., 373.

[95]Ibid., 380.

[96]Ibid., 381.

[97]Ibid., 388.

[98]Ibid., 392.

[99]Ibid., 394.

[100]Ibid.

[101]Ibid., 394-395.

[102] Ibid, 398.

[103]John J. Sbrega, "Southeast Asia," in *Case Studies in the Development of Close Air Support*, ed. Benjamin Franklin Cooling (Washington, DC: USAF Office of Air Force History, 1990), 411.

[104]Ibid.

[105]Ibid.

[106]Ibid., 412.

[107]Ibid.

[108]Ibid.

[109]Ibid., 413-414.

[110]Ibid., 414.

[111]Ibid.

[112]Ibid., 416.

[113]Ibid., 416-417.

[114]Ibid., 425, 427.

[115]Ibid., 428.

[116]Shawn P. Callahan, *Close Air Support and the Battle for Khe Sanh* (Quantico, VA: U.S. Marine Corps History Division, 2009), 16-17.

[117]Sbrega, 428.

[118]Ibid.

[119]Ibid., 428-429

[120]Ibid., 432.

[121]Ibid.

[122]Ibid.

[123]Ibid., 433.

[124]Ibid., 463.

[125]Ibid.

[126]Ibid.

[127]Ibid.

[128]Ibid., 439.

[129]Ibid.

[130]Ibid., 449.

[131]Ibid., 435.

[132]Callahan, 18.

[133]Ibid., 18-19.

[134]Ibid., 19.

[135]Sbrega, 436.

[136]Ibid., 438.

[137]Ibid., 469.

[138]Ibid.

[139]Dana J. Johnson, James A. Winnefeld, and Preston Niblack, *A League of Airmen: U.S. Air Power in the Gulf War* (Santa Monica, CA: Rand Corporation, 1994), 117.

[140]Ibid., 174.

[141]Ibid., 155.

[142]Baranick et al., 2.

[143]Ibid., 4.

[144]Ibid.

[145]Ibid., 7.

[146]Ibid., 3.

[147]Colonel (Retired) David M. Neuenswander, interview with author, Ft. Leavenworth, KS, 5 December 2013.

[148]Ibid.

[149]Ibid.

[150]Baranick et al., 7.

[151]Ibid.

[152]Ibid., 4.

[153]Ibid., 7.

[154]Ibid., 4, 6.

[155]Ibid., 6.

[156]Ibid., 26.

[157]Neuenswander, Interview.

[158]Ibid., 7.

[159]Ibid., 24-26.

[160]JCS, JP 3-09.3, III-38-39.

[161]U.S. Air Force, "A-10 Ready Aircrew Program Tasking Memorandum, Aviation Schedule 2013," Change 2 (Langley AFB, VA: Headquarters Air Combat Command, Air Operations-Training Directorate, 2013), 1.

[162]Headquarters, U.S. Marine Corps (HQMC), Marine Corps Warfighting Publication (MCWP) 3-2, *Aviation Operations* (Washington, DC: Government Printing Office, 2000), 4-10.

[163]JCS, JP 3-09.3, III-31.

[164]Ibid., III-33.

[165]Ibid.

[166]Ibid.

[167]Ibid., III-35-36.

[168]Ibid., III-36.

[169]Ibid., III-33.

[170]Joint Chiefs of Staff (JCS), Joint Publication (JP) 3-30, *Command and Control for Joint Air Operations* (Washington, DC: Government Printing Office, 2010), II-2.

[171]JCS, JP 3-09.3, II-6-7.

[172]JCS, JP 3-30, III-3.

[173]Ibid., III-16.

[174]Ibid., xx.

[175]Ibid., III-23.

[176]Ibid.

[177]Ibid.

[178]Ibid., III-24.

[179]Ibid.

[180]Ibid., xx.

[181]Ibid., III-23-24.

[182]Ibid., III-26.

[183]Ibid..

[184]Ibid., III-27.

[185]HQMC, MCWP 3-2, 1-1.

[186]Ibid., 2-2.

[187]Ibid., 3-6.

[188]Headquarters, U.S. Marine Corps (HQMC), Marine Corps Doctrinal Publication (MCDP) 1-0, *Marine Corps Operations* (Washington, DC: Government Printing Office, 2011), 2-9.

[189]Ibid., 1-1.

[190]Ibid., 5-8.

[191]Ibid., 3-8, 3-9.

[192]Ibid., 5-8.

[193]Ibid.

[194]Ibid., 5-9.

[195]Ibid.

[196]Ibid.

[197]Ibid.

[198]Ibid.

[199]Ibid., 5-9, 5-10.

[200]Ibid., 5-10.

CHAPTER 3

RESEARCH METHODOLOGY

> While we honor the Air Force for its accomplishments in the strategic field, in the field of air superiority, in its interceptor capabilities, and in its improved tactical airlift capabilities, we feel that in its magnificent accomplishments in the wild blue yonder it has tended to ignore the foot soldiers in the dirty brown under. They need and are entitled to better support than they have received . . .
>
> In substance, the Navy and Marine Corps have devoted primary emphasis to the development of close tactical air-support operations for ground units and are properly, organized, trained, and equipped to carry out this important function.
>
> The knowledge, the technique, the capability for effective close air support exists. It could be well emulated by the Army-Air Force team.
>
> — House Committee on Armed Services, Special Subcommittee on Tactical Air Support, Close Air Support, in Callahan, *Close Air Support and the Battle for Khe Sanh*

The primary purpose of this thesis is to determine if current joint air tasking doctrine allows the FAC(A) to effectively integrate into supported ground operations. To answer this question, this paper will perform a comparative analysis between the requirements for effective FAC(A) integration and the level of air-ground integration achieved under current joint air tasking doctrine, and a historical analysis examining the characteristics of successful FAC(A) operations throughout the history of close air support. Finally, the thesis will recommend changes to current air tasking doctrine that will improve FAC(A) air-ground integration in future operations.

Based on deficiencies in modern joint FAC(A) air-ground integration, as evidenced in Operation Anaconda, this study will examine potential modifications to joint air tasking doctrine that will allow FAC(A)s to integrate with their supported ground units more effectively. Specifically, this paper will examine joint doctrine as part of a

joint Capabilities Based Assessment (CBA). "The CBA is an analytic basis to identify capability requirements and associated capability gaps."[1]

> Doctrine, Organization, Training, Material, Leadership and Education, Personnel, Facilities, and Policy (DOTmLPF-P) Analysis is part of all CBAs, but may be used independent of a CBA when the scope of an issue being studied is not likely to result in a new material solution development.[2]

The paper's scope of analysis is limited to the doctrinal aspect of the DOTmLPF-P model. The conclusions will either recommend changes to joint doctrine, or propose areas for further exploration in other functions of the DOTmLPF-P model to improve FAC(A) integration with the supported ground unit.

This study primarily relies on the previous historical analysis of CAS air tasking doctrine and FAC(A) integration, and a comparative analysis between the requirements for effective FAC(A) integration and the level of integration achieved under current joint air tasking doctrine to determine joint air tasking doctrine's capacity to facilitate effective FAC(A) integration. The analysis will start by defining the characteristics of effective FAC(A) integration. Subsequently, the analysis will compare the level of FAC(A) integration achieved under current joint air tasking doctrine to the requirement for effective FAC(A) integration to determine if current joint air tasking doctrine has the capacity to establish the required level of integration between the FAC(A) and the supported ground unit. Finally, the analysis will compare historical anecdotes of effective FAC(A) integration with current joint doctrine and the requirements for effective FAC(A) integration to determine if there is a better model to facilitate effective air-ground integration. Specifically, this aspect will review Joint FAC(A) integration in major combat operations from Korea to present day. The analysis will conclude by

answering the primary research question: Does current joint air tasking doctrine allow the FAC(A) to effectively integrate into supported ground operations?

Finally, the conclusion will make recommendations for a new doctrinal model for FAC(A) integration, employment, and air tasking to bridge the gap between current doctrine and the findings in the analysis. If required, the study will make specific recommendations for changes in existing FAC(A) doctrine in the appropriate Joint and service publications. If the study concludes that the requirements for effective FAC(A) integration extend beyond the doctrinal realm, it will provide recommendations for further study in other areas of the DOTmLPF-P analysis model to improve joint air-ground integration.

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[1]Joint Chiefs of Staff, *Manual for the Operation of the Joint Capabilities Integration and Development System* (United States Navy, 2012), http://acquisition.navy.mil/content/download/10454/47193/version/1/file/20120119+jcids+manual+-+released+version.pdf (accessed 20 October 2013), A-4.

[2]Ibid.

CHAPTER 4

ANALYSIS

> To obtain maximum results, aviation and the troops with which it operates should be closely associated with each other, and know each other, as well as have a thorough knowledge of each other's work.
>
> — Major Edwin H. Brainard, in Callahan, *Close Air Support and the Battle for Khe Sanh*

The primary purpose of this thesis is to determine if current joint air tasking doctrine allows the FAC(A) to effectively integrate into supported ground operations. Based on this study, there are two primary methods to successfully integrate the FAC(A) into supported ground operations. The first method is through detailed pre-mission coordination, currently called for in joint doctrine. Consequently, this analysis will start by comparing the integration opportunities available in current joint air tasking doctrine to the established requirement for effective FAC(A) integration to determine if current joint air tasking doctrine facilitates effective air-ground integration. The second method of successfully integrating the FAC(A) into supported ground operations is through recurrent working relationships established over time. The preceding study identified joint FAC(A) operations during the Vietnam War and the USMC MAGTF construct as effective models for this type of air-ground integration. Consequently, the subsequent analysis will compare current joint air tasking doctrine to the successful models illustrated in the Vietnam War TASS system and the USMC MAGTF to identify potential avenues for improved FAC(A) integration. First, it is important to illustrate the requirement for effective FAC(A) integration, which will serve as a baseline for the subsequent evaluation of current joint air tasking doctrine.

The Requirement for Effective FAC(A) Air-Ground Integration

The requirement for effective FAC(A) integration stems from Unified Combatant Commander directives, historical precedent, and joint tactical doctrine. The Unified Combatant Commanders establish the requirement for the FAC(A) mission in general through their subordinate commanders to the services' respective ready aircrew program tasking memoranda.[1] While combatant commander directives set the official mandate, lessons from Operation Anaconda clearly illustrate the practical requirements of integrating the FAC(A) into major operations.

> At Anaconda, greater inclusion of the air component in early joint planning might have resulted in better air-ground integration during the battle itself and in carrying out the emergency response that was mounted. . . . Anaconda illustrates the reasons for having a forward air command and control staff, plus airborne command aircraft and FACs, capable of handling responsively the demanding functions of air battle management and coordination with local ground commanders. The problems encountered during Anaconda's first 3 days likely would have been less serious if such command and control considerations and assets had been part of initial Anaconda planning.[2]

JP 3-09.3 articulates the specific doctrinal requirements for effective FAC(A) and TACP coordination needed to achieve the type of pre-mission integration absent from Anaconda. In fact, the expectations of a FAC(A) echo the lessons from Anaconda:

> A FAC(A) must be able to coordinate supporting arms in conjunction with CAS missions, such as L-Hour preparatory fires and post-assault fires, without assistance from the TACP/JTAC. The FAC(A) must be capable of executing the desires of the ground commander in day, night, and adverse weather conditions; integrating fires on the battlefield; mitigating fratricide; and conducting detailed planning and integration with the maneuver element.[3]

To achieve this high-level of detailed integration, JP 3-09.3 advocates extensive pre-mission coordination between the FAC(A) and the TACP.

> Detailed integration and coordination prior to execution will provide the TACP and FAC(A) with a template from which to deviate when unforeseen tactical problems arise during execution. . . . Successful detailed integration and

coordination will enhance the potential impact that airpower will have on the battle/operation in support of the ground commander's plan. With this pre-coordination complete, parties need to only provide changes or updates when the FAC(A) checks-in during execution.[4]

JP 3-09.3 further enumerates the essential information the FAC(A) must obtain from the TACP in following prioritized list:

a) The ground commander's intent.
b) Ground force scheme of maneuver.
    a. Essential tasks that must occur to ensure mission success.
    b. Expected friendly locations and marking plan.
    c. Essential friendly coordinating documents.
c) Threat scheme of maneuver.
    a. Most likely enemy COA [course of action].
    b. Most dangerous enemy COA.
    c. Known or anticipated threat.
d) Fire support/targeting plan.
    a. Target priorities/precedence.
    b. Established FSCMs [fire support coordination measures].
    c. Expected target arrays.
    d. Asset integration plan.
e) Communications plan.
    a. Terminal control nets.
    b. Air request nets.
    c. TACP administrative nets.
    d. Ground force nets.
    e. Code words.
f) Fire support assets.
    a. Established position areas of artillery (PAAs).
    b. Tasked ATO assets.
        i. Fixed-wing/Rotary-wing CAS/FAC(A).
        ii. Unmanned Aerial Systems.
        iii. Tanker assets.
g) Airspace plan
    a. Routing plan.
    b. Planned contact points (CPs), initial positions (IPs), holding areas (HAs), battle positions (BPs), restricted operations zones (ROZs).
h) Terminal control plan.
    a. FAC(A) game plan.
        i. JTAC responsibilities.
        ii. FAC(A) responsibilities.
        iii. Mission approval process.
    b. Marking / guidance plan.

i. SEAD (suppression of enemy air defenses) SOP (standard operating procedures)
ii. Laser plan.

c. TACP capabilities.
i. TACP equipment.
ii. TACP limitations.

i) ISR [Intelligence, Surveillance, and Reconnaissance] plan.
a. Enemy order of battle and equipment.
b. Enemy signature/recognition.
c. UAS ROZs.
d. ISR integration plan.

j) Supporting documents/information.
a. Map overlays/graphics.
b. Forward arming and refueling point (FARP) locations.[5]

Reading this expansive list of coordination requirements should seem overwhelming. However, it merely illustrates the immense requirement for pre-mission coordination between the FAC(A) and the TACP to establish effective air-ground integration. Understanding the significant requirement for effective FAC(A) integration, it is now important to illuminate the limitations of current joint air tasking doctrine that serve as a barrier to effective FAC(A) integration.

Air-Ground Integration Deficiencies Associated With Current Air Tasking Doctrine

Within the modern air tasking process, disparities between the joint air tasking cycle and ground component planning timelines function as an obstacle to effective air-ground integration between FAC(A)s and their supported ground units. As the primary force provider for the land component, the Army develops the operations plan through the Military Decision Making Process (MDMP), and rehearses the mission through the Combined Arms Rehearsal (CAR). Army Doctrine Reference Publication (ADRP) 5-0, *The Operations Process*, offers the following description of MDMP:

> The military decision making process is an iterative planning methodology to understand the situation and mission, develop a course of action, and produce an operation plan or order. The (MDMP) integrates the activities of the commander, staff, subordinate headquarters, and unified action partners to understand the situation and mission; develop and compare courses of action; decide on a course of action that best accomplishes the mission; and produce an operation plan or order for execution . . . The MDMP results in an improved understanding of the situation and a plan or order that guides the force through preparation and execution.[6]

MDMP culminates with a transition brief and rehearsal, as described by ADRP 5-0:

> A rehearsal is a session in which the commander and staff or unit practices expected actions to improve performance during execution… Rehearsals also allow leaders to practice synchronizing operations at times and places critical to mission accomplishment. Effective rehearsals imprint a mental picture of the sequence of the operation's key actions and improve mutual understanding and coordination of subordinate and supporting leaders and units . . . Rehearsals, including conformation briefings, and the plans-to-operations transition briefing, help improve understanding of the concept of operations, control measures, decision points, and command and support relationships. Rehearsals are key events during preparation that assist the force with understanding the plan and practicing expected actions to improve performance during execution.[7]

Certainly, it is not practical or even advisable for FAC(A)s to be present for the entire multi-day MDMP. However, as the CAR is intended to coordinate and synchronize the actions of all operations units before execution, participating in the CAR would be an invaluable opportunity for the FAC(A) to achieve the level of integration specified in JP 3-09.3.

Unfortunately, disparities between the MDMP timeline and the JATC timeline realistically preclude FAC(A) attendance at the CAR. The CAR is intended to coincide with the Future Operations to Current Operations Transition (figure 25), days before execution. In contrast, modern joint air allocation occurs only 24-48 hours before execution and ATO publication within 24 hours of execution, making it impractical for FAC(A)s to attend the CAR. In fact, JP 3-09.3 is contradictory on this subject. In one

paragraph, JP 3-09.3 emphasizes the value and importance of having the FAC(A) present for mission planning, "benefits of having a FAC(A) involved in the planning process will translate to increased aircrew SA [situational awareness] during execution and enhanced airpower effectiveness."[8] However, in the next paragraph, JP 3-09.3 dismisses this integration opportunity as an impractical luxury, "Due to manning and the ATO cycle however, it is unlikely that a FAC(A) will be able to be present during the planning stages of every ground operation."[9] In reality, based on the disparity in mission planning timelines, it is virtually impossible for mission FAC(A)s to participate in the planning stages for *any* ground operation they are directly supporting.

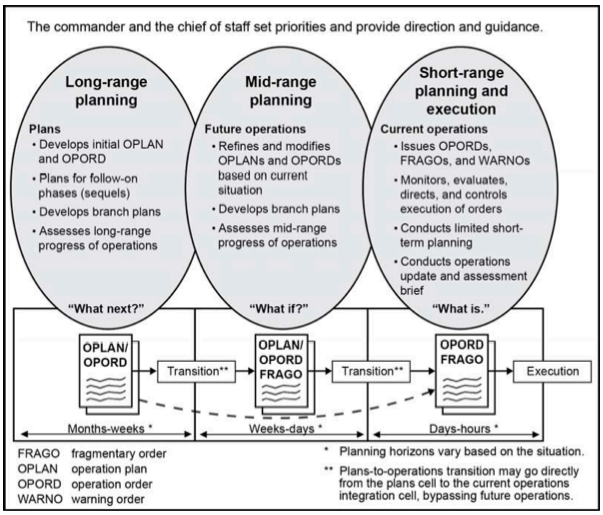

Figure 25. MDMP Planning Transitions

Source: Headquarters, Department of the Army, Army Doctrine Reference Publication 5-0, *The Operations Process* (Washington, DC: Government Printing Office, 2012), 3-4.

Joint doctrine attempts to reconcile the disparity between the air and ground component mission planning timelines through various air-ground integration bandages.

Although the air tasking cycle precludes FAC(A) attendance at the supported ground unit's mission planning and CAR, JP 3-09.3 advocates FAC(A) and TACP coordination through electronic means as a potential solution.

> The AO/ALO should make a concerted effort to take advantage of a FAC(A)'s expertise in this area via secure e-mail/phone or chat. When a FAC(A) is unable to participate in the planning process via any means, TACP/JTAC members will be responsible for advising the ground commander on FAC(A) employment and as such must be well versed in FAC(A) integration TTP [Tactics, Techniques, and Procedures].[10]

However, this recommendation is also contradictory. Given the discrepancy between the air tasking and ground mission planning processes, the FAC(A) will not have been tasked to the supported unit prior to mission planning, rendering this recommendation as impractical. The resulting process compels Army and Air Force liaisons to accomplish the required level of air-ground integration. Primarily, the Army and Air Force attempt to integrate tactical air-ground operations through dedicated Air Liaison Officers (ALO) and Ground Liaison Officers (GLO).

> The ALO is the senior TACP member attached to a ground unit who functions as the primary advisor to the ground commander on air operations. An ALO is usually an aeronautically rated officer and is an expert in the capabilities and limitations of air operations. The ALO plans and executes CAS in accordance with the ground commander's guidance and intent.[11]
>
> The Air Force currently provides ALOs at the brigade level and above.[12]

However, there is no requirement for ALOs to be FAC(A) qualified or even JTAC qualified.[13] Consequently, without the requisite qualifications to coordinate and control CAS aircraft, the ALO's capability to achieve the high level of coordination required for effective FAC(A) integration is usually very limited.

Historically, the Air Force also provided rated CAS pilots as battalion air liaison officers (BALO). However, in the modern era, BALOs were not required to have

FAC(A) experience, which typically meant that supported ground units received an A-10 unit's newest mission-ready wingman with limited operational CAS experience. Further compounding the problem, the Air Force recently removed the requirement for BALOs to be rated CAS officers, instead calling on experienced non-commissioned officer JTACs to fill the important role.[14] Although JTACs have certainly proven their value as the backbone of the TACP, this study already highlighted the immense responsibility currently emplaced on battalion JTACs. Furthermore, JTACs lack the unique airborne perspective and experience required of FAC(A)s. Consequently, Air Force liaison officers generally lack the capacity to achieve the high level of integration required between the FAC(A) and the TACP. It is worth noting that this practice stands in stark contrast to the Air Force's attempt to source TACPs with highly experienced fighter pilots during World War II, Korea, and Vietnam.

Similarly, the Army provides ground liaison officers to some Air Force organizations. "The ground LNO is the primary ground officer assigned to air commander's staffs, such as fighter wings, air operations centers, and related HQ. They provide expert advice, information and interface on all matters pertaining to ground operations to enable more effective air planning in support of ground operations."[15] According to the current *Army/Air Force Liaison Support Memorandum of Agreement (MOA),* each operational fighter wing will be augmented with both an active duty GLO and non-commissioned officer "with appropriate military operational specialties for the organization for which they provide support."[16] In concept, GLOs are supposed to translate the ground maneuver scheme into the detailed integration required for CAS and FAC(A) operations.

In practice, however, the GLO function falls short of the required level of integration for two primary reasons. The first reason is actually illustrated in the verbiage of the Liaison MOA. The MOA specifies that GLOs will be assigned at the fighter wing level. However, at its core, the Air Force's CAS aircraft operate out of fighter and bomber squadrons, two organizational echelons below the wing. With potentially multiple fighter and bomber squadrons subordinate to a single expeditionary wing, there are simply not going to be enough GLOs available to provide the required detailed integration at the squadron level. The second reason the GLO function fails to deliver the necessary integration is associated with the GLO's relationship to the ground maneuver units. In a theater full of ground forces, the GLO will not be organizationally associated with the vast majority of maneuver units. While the GLO certainly benefits from the ability to "speak Army," he himself is rarely an integrated member of the supported maneuver unit. In reality, the GLO receives an electronically distributed mission product from the maneuver unit, prints it off, and hands it to the aircrew without any genuine coordination or integration, assuming the GLO is actually available at the fighter squadron.

Ultimately, the joint liaison programs fail to achieve the high level of detailed integration required for effective FAC(A) operations. Although this disparity in pre-mission coordination does indeed prevent the FAC(A) from integrating into supported ground operations, anecdotal experience illustrates there is another method to produce effective air-ground integration.

An Alternate Method for Effective Air-Ground Integration

Recurring integration over time stands as an alternate method to achieve effective FAC(A) integration with supported ground operations. The TASS experience in Vietnam and the USMC MAGTF construct exemplify this type of integration. However, while the USMC naturally gravitated toward this model, it took the joint community several iterations of unsuccessful attempts through multiple wars to demonstrate this capability.

Although USMC aviation functions on a different operational scale than the joint air component, the MAGTF's operational focus illustrates several aspects of effective air-ground integration. Without question, the distinct differences between the roles of joint air assets and Marine aviation make comparing the joint and Marine Corps air allocation process tenuous. The principle function of the joint air component is to provide strategic, operational, and tactical effects to support the JFC's objectives. The broad nature of this mission requires joint air assets to operate theatre-wide across the spectrum of warfare, which necessitates a centralized control authority to coordinate airpower's effects across time and space to concurrently achieve strategic, operational, and tactical objectives.

> Joint air operations are normally conducted using centralized control and decentralized execution to achieve effective control and foster initiative, responsiveness, and flexibility. In joint air operations centralized control is giving one commander the responsibility and authority for planning, directing, and coordinating a military operation or group/category of operations. Centralized control facilitates integration of forces to provide guidance, organization, and control to the joint air effort and maintain the ability to focus the impact of joint air forces wherever needed across the operational area.[17]

In contrast, Marine aviation operates on a much narrower scope. The focused role of Marine aviation enables the MAGTF commander to allocate and employ ACE assets much differently than the JFACC is able to provide forces to support the joint ground component commander. However, the unparalleled integration between the aviation

combat element and the ground combat element make the MAGTF too valuable to ignore as a CAS air-ground integration model. Realistically, the MAGTF's air tasking process virtually mirrors the joint model. The MAGTF air tasking cycle and the JATC are primarily differentiated only through the operational scale and their strict focus around the MAGTF main effort.

The biggest difference between joint and USMC air-ground integration is the fact that all MAGTF assets are unified under a single operational commander, which results perennial integration between the ACE and the GCE, focused on the commander's main effort. Unlike the JATC, the MAGTF aviation planning process occurs concurrently with the rest of the Marine Corps Planning Process under one operational level command, which is only possible through detailed coordination between all elements of the MAGTF. Marine aviation integrates with MAGTF planning by aligning the aviation functions with the warfighting functions, which helps to identify aviation support requirements for the command element, ground combat element and logistics element.[18]

> This concurrent, parallel approach to planning is possible through the use of mission-type orders, a clear understanding of the MAGTF commander's intent, and close and continuous liaison among the MAGTF command element, ACE, GCE, and CSSE and external organizations. Concurrent, parallel planning provides aviation planners with the time necessary to execute the air tasking cycle while enhancing the tempo of MAGTF operations. This form of planning also ensures that ACE operations are focused on attainment of MAGTF objectives in concert with the MAGTF commander's concept of operations.[19]

This process illustrates a high level of integration between the MAGTF's air and ground elements, which are unified under one commander, focused on a single mission and main effort. In effect, although the MAGTF's air apportionment, allocation, and distribution process mirrors the joint process, the MAGTF's ACE constitutes a perpetual allocation of air assets to the MAGTF. Accordingly, the MAGTF commander and his staff are able to

appropriately distribute the ACE assets to best accomplish the MAGTF's main effort and operational objectives.

In addition to a unified organizational architecture, USMC air and ground units share understanding, mutual trust, and a common professional ethos.

> As one senior Marine aviator put it, "the Marine Corps attempts to initiate the bulk of its officer personnel into service with a common background of training, friendship and mutual purpose. This tends to bond together air and ground organizations into an extremely close-knit striking force with reciprocal confidence of all elements, each with the other.[20]

This innate cooperative relationship between the air and ground arms of the USMC has been pervasive throughout the evolution of air-ground integration. Even in 1926, the Director of Marine Corps Aviation, Major Edwin H. Brainard, articulated:

> To obtain maximum results, aviation and the troops with which it operates should be closely associated with each other, and know each other, as well as have a thorough knowledge of each other's work. . . . Marine Aviation is not being developed as a separate branch of the service that considers itself too good to do anything else. Unlike the Army Air Service, we do not aspire or want to be separated from the line or to be considered as anything but regular Marines.[21]

Consequently, both air and ground assets plan and execute with a significantly higher level of shared understanding than joint assets, which results in more effective air-ground integration. Ultimately, the MAGTF's unity of command, narrow operational scope, and perpetual air-ground integration allow both air and ground assets to focus on the operational mission and the MAGTF commander's main effort. Although the Army-Air Force system struggled through multiple conflicts, it eventually evolved to a similar model of FAC(A) integration with the TASS construct in Vietnam. However, before it evolved to the effective TASS model, the joint system had to find the right balance in the command relationship between CAS and FAC(A) aircraft and supported ground commanders.

The command relationship between close air support assets and their supported ground units has a significant impact on the effectiveness of joint CAS operations. Joint command and support relationships are specifically defined in JP 3-0, *Joint Operations*. Operational control (OPCON) implies authoritative control over forces made available for an extended duration.

> OPCON is command authority that may be exercised by commanders at any echelon at or below CCMD [combatant command] to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. OPCON includes authoritative direction over all aspects of military operations and joint training necessary to accomplish missions assigned to the command.[22]

Tactical control (TACON), on the other hand, is typically limited to temporary tasking authority.

> TACON is command authority over assigned or attached forces or commands, or military capability or forces made available for tasking, that is limited to the detailed direction and control of movements or maneuvers within the operational area necessary to accomplish missions or tasks assigned. . . . TACON provides sufficient authority for controlling and directing the application of force or tactical use of combat support assets within the assigned mission or task.[23]

While there are several examples of ineffective command relationships that adversely affected CAS operations through World War II, the Korean War serves as the most valuable anecdote to illustrate the drawbacks of both overly air-centric and overly ground-centric command relationships.

The consequences of ineffective command authority during the Korean War were apparent in the distinctive problems associated with FAC(A)s operating under ground commander operational control, and CAS responsiveness under an overly centralized air control system. Recalling the Korean experience, ground commander OPCON over the TACs deprived the Mosquitos of the ability to exploit the flexibility of airpower. The

Mosquitos were frequently tethered overhead their supported units, even with no ground activity, while they could have been more useful performing deep reconnaissance or supporting neighboring ground commanders.[24] In contrast, although Far East Air Forces retained OPCON over all other air assets (including the Marines starting in 1951), the overly centralized air tasking system led to only a 50percent approval rate for preplanned requests, and resulted in unacceptably long response times for emergency CAS requests, which averaged nearly two hours.[25] Consequently, the Air-Ground Operations Conference's most significant finding following the war was the need to decentralize the Tactical Air Request, Tactical Air Distribution system.

Largely based on the types of problems observed in Korea, the air tasking system evolved to its current form to balance the inherent flexibility of airpower with the ability to provide responsive close air support for ground forces. In modern joint doctrine, the JFACC retains OPCON over all assigned theater air assets to ensure the air component retains the flexibility to concentrate air effects at the appropriate time and place across the operational area. However, the ASOC, embedded with the highest echelon supported ground commander, assumes TACON of CAS forces available for tasking during the mission vulnerability period in order to provide responsive close air support. During the Vietnam War, the Army-Air Force system demonstrated the effectiveness of this system with one significant variation to the allocation process.

The Vietnam experience illustrates that successful joint FAC(A) operations can be established through persistent integration between the FAC(A) and supported ground units. The U.S. MACV air tasking process was quite similar to modern joint air tasking doctrine. In concept, the air apportionment decision and air allocation process during the

Vietnam War was virtually identical to modern doctrine. The principle difference between the two was the perpetual apportionment of a TASS to each corps in South Vietnam. In effect, this "apportionment" represented a long-term allocation of FAC(A)s to the corps. The perpetual apportionment of FAC(A) squadrons to each MACV corps in South Vietnam helped facilitate effective FAC(A) operations for two primary reasons. First, perennial operations over the same geographic area allowed FAC(A)s to develop a comprehensive understanding of the terrain, friendly operations, and enemy characteristics.

> To conduct successful visual reconnaissance, the forward air controllers had to become intimately familiar with their assigned geographic areas, observing the eating, sleeping, working, and traveling routines of the local inhabitants and learning when crops were planted, harvested, processed, distributed, and stored. These pilots came to recognize clues that pointed to the enemy's presence, even though his forces could not be seen the sudden disappearance of the men of a village that could signal a muster of part-time Viet Cong guerrillas, indications that roads or trails had been used during the night, footprints along a shoreline, shadows that revealed a camouflaged man-made structure, and telltale marks of human presence like camp fires or flocks of birds suddenly taking flight.[26]

> The geographical assignments enabled FACs to familiarize themselves with a certain area and to become aware of unusual activity in their areas. This familiarity with a specified region, according to General Momyer, was a key reason why a FAC could bring close air-support strikes within fifty meters of friendly positions.[27]

These anecdotes echo Major Carlton's remarks on the characteristics of effective FAC(A) operations for the Mosquito TACs in Korea.

In addition to building a detailed awareness of their assigned geographic region, FAC(A)s in Vietnam were able to build enduring relationships with their supported ground units, which helped facilitate cohesion, increase understanding, and inspire mutual trust.

> Moreover, a variety of verbal interchanges, which ranged from formal briefings to informal "beer bashes," enabled the FACs to develop a rapport with both USAF tactical air units and Army ground-forces. One F-100 wing instituted a "FAC of the Month" award for the FAC who rated highest on the mission debriefing sheets. An Army captain admitted: "Until I really talked to the FAC and found out the effects of 20 Mike-Mike [20-mm ordnance], I really didn't know that you could shoot it as close as, what is it, 50, 75 feet you can bring it in." Army commanders, even platoon leaders, got to know the faces that went with the FAC call signs. FACs, in turn, seemed to take more of a personal interest in their ground-force "charges." A FAC might provide exact fixes for a rifle company or routinely check in with a Special Forces camp.[28]

Ultimately, while the daily air tasking process in Southeast Asia was similar to modern doctrine, the enduring relationships established between the TASSs and their respective corps allowed FAC(A) operations to be remarkably successful in the Vietnam War.

Interestingly, the success of this alternate "recurring relationship" air-ground integration model is not based on detailed coordination during mission planning. Neither the TASS nor the ACE were or are significantly involved in the ground force mission planning process. Given the previous analysis describing the importance of FAC(A) integration into ground force mission planning, it is logical to question how this alternate model could be successful. The answer lies in the shared understanding and mutual trust established over time. Although the FAC(A) integration requirements specified above are not specifically answered through common mission planning during recurring integration, many of the elements are answered through standardized operations. Fire support operations, airspace and communication architecture, and terminal control considerations can commonly be translated into standard operating procedures between units with recurring relationships, whereas unfamiliar forces must cover each of these items in detail for each new mission. Under current joint air tasking doctrine, this lack of familiarity would likely be prevalent because the FAC(A) could be tasked to support any unit within

a vast theater of ground forces. Consequently, the lack of recurring tasking relationships will adversely effect FAC(A) air-ground integration under current joint air tasking doctrine.

Based on this analysis, current joint air tasking doctrine is not optimized to facilitate effective air-ground integration between FAC(A)s and their supported ground units. Disparities between the current air tasking cycle and the ground force planning process preclude effective pre-mission FAC(A) integration. Additionally, joint doctrine's attempt to reconcile these disparities in the form of liaisons also falls short of the necessary level of integration. However, the joint air tasking system's integration deficiency is not simply isolated to the inability to conduct pre-mission coordination.

The increased level of integration required to facilitate effective FAC(A) operations can also be obtained through enduring relationships, cultivated over time. The idea for this type of persistent integration between air and ground units is certainly not new. In fact, *The Final Report on U.S. Air Service in World War I* first recommended dedicated specialized close air support units following the Battle of St Mihiel, "It will be well to specialize in this branch of aviation and to provide squadrons or groups with armored airplanes provided with a number of machine guns and small bombs for just such work against ground objectives. . . . This project should be thoroughly developed in the future."[29] This recommendation echoes Major Brainard's reflections on Marine Corps aviation in 1926, "To obtain maximum results, aviation and the troops with which it operates should be closely associated with each other, and know each other, as well as have a thorough knowledge of each other's work."[30]

In practice, this type of persistent integration was best exemplified in the Tactical Air Support Squadron experience from Vietnam, and in the cooperative air-ground relationship innate in the USMC MAGTF. The perennial relationship between the TASS's and their supported ground units in Vietnam catalyzed effective air-ground integration, enabling mutual trust and understanding between the FAC(A) and soldiers on the ground. The principle difference between the Tactical Air Support Squadrons in Vietnam and the 6147th Tactical Air Control Squadron (airborne) in Korea was the source of operational control. In Korea, FAC(A)s from the 6147th were under the operational control of their assigned ground unit, which meant they were tethered to that unit, even when the ground situation did not require a FAC(A). In contrast, the Tactical Air Support Squadrons in Vietnam remained under Seventh Air Force Operational control through the Tactical Air Control Center. Consequently, while FAC(A)s were able to build persistent relationships with their designated corps, the TACC could redirect them as required by the operational situation. This persistent integration model was similar to the current MAGTF construct, which perpetually integrates the ACE and the GCE under one single operational commander with a dedicated main effort. This type of enduring relationship could conceivably be established under current joint air tasking doctrine by recommending a recurring allocation of FAC(A) units to specific ground units when possible. Unfortunately, JP 3-30 fails to include any specific considerations for tasking CAS or FAC(A) assets. Although this study determined that current joint air tasking doctrine is not primed to produce effective air-ground FAC(A) integration, the analysis identified several opportunities to improve the shortfall.

[1]U.S. Air Force, "A-10 Ready Aircrew Program Tasking Memorandum," 1.

[2]Baranick et al., 24-26.

[3]JCS, JP 3-09.3, III-38.

[4]Ibid., III-42.

[5]Ibid., III-39-42.

[6]Headquarters, Department of the Army, Army Doctrine Reference Publication 5-0, *The Operations Process* (Washington, DC: Government Printing Office, 2012), 2-11.

[7]Ibid., 3-3, 3-6.

[8]JCS, JP 3-09.3, III-39.

[9]Ibid.

[10]Ibid.

[11]Ibid., II-9.

[12]U.S. Army and U.S. Air Force, "Army/Air Force Liaison Support MOA: Memorandum of Agreement between the United States Army and the United States Air Force for Army/Air Force Liaison Support" (Washington, DC: Headquarters, Department of the Army, Operations and Plans Directorate and U.S. Air Force Air Staff Operations, Plans, and Requirements Directorate, 2011), 4.

[13]U.S. Air Force, Air Force Instruction 13-113, 24.

[14]U.S. Army and U.S. Air Force, "Army/Air Force Liaison Support MOA," 4.

[15]JCS, JP 3-09.3, III-13.

[16]U.S. Army and U.S. Air Force, "Army/Air Force Liaison Support MOA," 6.

[17]JCS, JP 3-30, I-3.

[18]HQMC, MCWP 3-2, 5-5, 5-6.

[19]Ibid.

[20]Callahan, 28.

[21]Ibid., 25.

[22]JCS, JP 3-30, III-4.

[23]Ibid.

[24]Farmer and Strumwasser, 58.

[25]Millett, 380.

[26]John Schlight, *A War Too Long: The USAF in Southeast Asia 1961-1975* (Washington, DC: Air Force History Office, 1996), 27-28.

[27]Sbrega, 436.

[28]Ibid.

[29]Maurer, 49.

[30]Callahan, 25.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

> Because CAS will be a continuing mission that requires detailed force integration, the standardization of procedures and training for airborne command and control [FAC(A)s] among the services is a critical element for future training and operations.
>
> — M. Baranick, H. Binnendijk, and R. Kugler, *Operation Anaconda: Lessons for Joint Operations*

Conclusions

This study considered the historical experience of CAS doctrine and FAC(A) operations, and compared FAC(A) operations under current joint air tasking doctrine to two separate methods of effective FAC(A) integration. Specifically, the study compared the requirements for effective FAC(A) operations to FAC(A) integration under current air tasking doctrine and anecdotal experience of effective air-ground integration to determine significant limitations of current joint air tasking doctrine. Based on the previous analysis, this study again reflects on the original question: Does current joint air tasking doctrine allow the FAC(A) to effectively integrate into supported ground operations?

Current joint air tasking doctrine is not optimized to facilitate effective air-ground integration between FAC(A)s and their supported ground units. Disparities between the current air tasking cycle and the ground force planning process do not provide FAC(A)s with the opportunity to achieve detailed integration with the supported ground unit. Additionally, air and ground liaison officers lack the qualifications and capacity to accomplish the high level of integration required for effective FAC(A) operations. However, the joint air tasking system's integration deficiency is not isolated to a pre-

mission coordination deficit. Anecdotal experience shows the increased level of integration required to facilitate effective FAC(A) operations can also be obtained through enduring relationships established over time. Unfortunately, JP 3-30 fails to include any specific considerations for tasking FAC(A) units to the same ground units on a recurring basis when able. Although this study determined that current joint air tasking doctrine is not structured to optimize effective air-ground FAC(A) integration, the analysis also presented several avenues for potential improvement.

The recommendations that follow pursue a continuum of approaches that will improve FAC(A) air-ground integration. The initial approaches recommend minor modifications to existing joint air tasking doctrine that will improve FAC(A) integration with minimal impact to the joint community. Later approaches recommend areas for future study, which might include modifications to joint doctrine as well as other functions of the DOTmLPF architecture, and will require further investigation before implementation.

Recommendations

Joint air tasking doctrine should include specific considerations for tasking FAC(A) missions. Specifically, JP 3-30, Command and Control for Joint Air Operations, should include the following text within Chapter III, Section B:

A FAC(A) must be able to coordinate supporting arms in conjunction with CAS missions without assistance from the TACP/JTAC. The FAC(A) must be capable of executing the desires of the ground commander in day, night, and adverse weather conditions; integrating fires on the battlefield; mitigating fratricide; and conducting detailed planning and integration with the maneuver element. Accordingly, FAC(A)s

require a higher level of integration with supported ground maneuver units than regular CAS missions. The high level of detailed integration required between FAC(A)s and their supported ground unit can be obtained through both extensive pre-mission coordination, and through enduring relationships established over time. Consequently, FAC(A) units should receive the earliest possible notice of upcoming taskings to help facilitate effective pre-mission coordination. Additionally, when able, FAC(A) units should be tasked to the same division (or highest supported field element) on a recurring basis to promote enduring air-ground integration.

The joint community should establish a separate annex to the DD Form 1972 Joint Tactical Air Strike Request that articulates the essential elements of FAC(A) and TACP coordination. Although JP 3-09.3 already contains the checklist previously specified in Chapter 4 of this paper, it may not be readily accessible to TACPs in the field. The majority of DD Form 1972s are currently submitted electronically, commonly as a PDF or an excel file with drop-down menus. Future versions of the DD Form 1972 should include a separate annex that includes the specified mission coordination requirements between the FAC(A) and the TACP. This simple addition could greatly assist busy TACPs in their attempt to conduct detailed pre-mission coordination with FAC(A)s.

The Army and Air Force should amend the *Army/Air Force Liaison Support MOA* to include highly qualified liaisons at the tactical echelons. Specifically the Army should provide GLOs down to the Air Force squadron level to ensure their availability to perform pre-mission coordination. However, this only solves the GLO capacity problem, and not the likely problem of GLO unfamiliarity with the majority of theater ground

units. Additionally, the Air Force should revisit the practice of providing FAC(A) qualified tactical air liaison officers down to the Army battalion level. FAC(A) qualified aviators have the potential to solve the pre-mission integration disparity by both developing an effective FAC(A) plan of operations to support the ground scheme of maneuver, and by liaising with FAC(A) units to provide the necessary level of detail to successfully achieve the FAC(A) integration requirements. This modification would require an Air Force organizational change to provide FAC(A) qualified aviators to maneuver battalions. However, it would significantly help improve pre-mission coordination, and help cultivate persistent air-ground integration to foster mutual trust and understanding between FAC(A) units and their supported ground units.

Recommendations for Future Study

The Air Force should examine the concept of deploying Tactical Air Support Squadrons in concert with ground forces supporting major operations. During the current interwar period, as with all of the others throughout the last century, the Air Force is examining ways to reorganize, train, and equip to prepare for future operations. Much of the current discussion revolves around divesting obsolete platforms and consolidating others to develop a more lethal but cost-efficient joint air component. This plan to shape the future Air Force should be balanced against the lessons of history. Every major U.S. conflict since the dawn of airpower has involved a significant ground component requiring extensive close air support. Each of these major conflicts has illustrated both the utility and the need for integrated FAC(A)s. Consequently, the Air Force should consider establishing deployable Tactical Air Support Squadrons as part of its modern force reorganization.

As a current target for consolidation, the A-10 community is the natural candidate to fill this role as CAS specialists and the primary FAC(A) provider for the joint community. During the current interwar period, the Air Force is again considering the option of saving money by divesting the A-10 because it is a single mission platform. An alternate option would be to consolidate the A-10 community into a few squadrons of FAC(A) and CAS specialists, organized as EFSs or Expeditionary Tactical Air Support Squadrons (ETASS). These squadrons would help the Air Force maintain the essential discrete FAC(A) capability until the Joint Strike Fighter becomes fully operationally capable as the primary joint close air support platform.

From a DOTmLPF-P standpoint, establishing ETASSs would require changes to joint and Air Force doctrine, organization and training. However, because the A-10 community is already structured to provide CAS and FAC(A) capability, changes to training would be limited to TASS-ground unit integration. Organizationally, the Air Force could incorporate ETASSs as part of its Expeditionary Air Force construct, to be deployed when the operational situation dictates. Doctrinal changes would include the option to perpetually allocate ETASSs to the highest echelon ground unit, leaving the JFACC with operational control through the ASOC.

The joint community should examine the concept of formally establishing enduring air-ground integration relationships by removing TASS units from the daily air tasking cycle and emplacing them under tactical control of the ASOC for an extended duration. This approach would allow ASOCs paired with the highest echelon ground field units to allocate FAC(A) missions to the supported ground maneuver units on a recurring basis. However, it avoids the pitfalls of the Korean War TAC(A) system by retaining

FAC(A)s under the JFACC's operational control and delegating TACON to the ASOC. FAC(A) and CAS assets currently operate TACON to the ASOC for the duration of their mission vulnerability period.

Under the new model, TASSs would remain under TACON of the ASOC for an extended duration, and consequently, would not fall under the daily air tasking cycle. Instead, the ASOC commander would approve the FAC(A) air support requests from the supported ground unit, and formally task the required amount of FAC(A) missions from the TASS to the supported units. However, these missions would not be completely removed from the air tasking order, but instead published on the ATO for coordination purposes, analogous to the manner in which USMC aviation assets are published on the ATO. Joint air tasking of support assets in the form of CAS fighters, SEAD assets, and air refueling tankers would remain unchanged from the current system. The only significant difference for MAAP cell planners would be that they would receive the TASS's list of tasked FAC(A) missions from the ASOC, along with a number of untasked, available assets. Those untasked, available assets from the TASS would be released to the CAOC for tasking in accordance with the current joint air tasking cycle. When operational requirements dictate the requirement for TASS assets to support the JFC's objectives elsewhere in theater, the JFACC would retain full authority to redirect those aircraft to provide the required effects at the necessary time and location.

This seemingly significant change to doctrine might appear to be a paradigm shift. In reality, this constitutes a relatively minor deviation from current joint doctrine to establish a new precedent. However, this course of action would also require significant organizational changes within the ASOCs. Specifically, the ASOCs would need to be

augmented, particularly at the command echelon, to assume TACON of a TASS for an extended duration. Ultimately, changing joint air tasking doctrine in this fashion would allow the joint community to increase FAC(A) integration capacity through both detailed pre-mission coordination and through habitual air-ground relationships established over time.

From the halls of Montezuma and the shores of Tripoli to the jungles of Southeast Asia, there is a vast array of lessons to learn from America's cumulative experiences with close air support. This study performed an extensive analysis of the evolution of CAS air tasking doctrine through modern day to assess current joint air tasking doctrine's ability to facilitate effective FAC(A) air-ground integration. Although this analysis determined current joint air tasking doctrine is not optimized to promote effective FAC(A) integration with supported ground units, it also identified several opportunities for the joint community to improve air-ground integration in the future. Ultimately, implementing some or all of these recommendations before they are required in future major operations would help the joint community, and particularly the Air Force, ensure that the close air support lessons from the past become "lessons learned," codified in doctrine.

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