Airspace Control in the Combat Zone

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EWS Contemporary Issue Paper

Major B. Bean, CG8

02 Mar 2010

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
02 MAR 2010		**00-00-2010 to 00-00-2010**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Airspace Control in the Combat Zone	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **Marine Corps, , , ,**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**Public Release**	**9**	

Introduction

In Operation Iraqi Freedom, the boundaries between different services constantly evolved based on an ever-changing situation. Eventually, the Marine Corps area of operations (AO) included all of Al Anbar Province. However, the Air Force still controlled a large amount of airspace above the Marine Corps' AO, and the Marines found that their ability to employ fires against the threat was not responsive enough. Eventually the Marine Corps gained control of more vertical airspace and established a radar-equipped command and control (C^2) site to provide positive control of aircraft. However, U.S. Marine Corps doctrine does not currently address the issue of airspace management and control in the combat zone. Therefore, a lot of confusion still existed on how to best manage the airspace between the various Marine C^2 agencies.

The problem is not a shortage of command and control agencies or assets, and many command and control agencies have basic doctrinal functions. The direct air support center (DASC) provides air direction, the tactical air operations center (TAOC) provides early warning, and air traffic control (ATC) provides control in the terminal area.[1] In a nonlinear battlefield, however, no traditional or accepted responsibility exists for providing control of aircraft in tactical environments. At the same time, there is not a one-size-fits-all solution. Because airspace control is not adequately addressed by doctrine, Marine air-ground task force (MAGTF) commanders must instead consider the enemy situation, friendly capabilities, method of fires, acceptable risk, and time/space factors on the battlefield.

Planning

As part of the first step in the planning process, the commander must lay out his vision on how to exploit enemy critical vulnerabilities and maximize friendly capabilities.[2] This principle is not any different from our current doctrine. However, MAGTF commanders must learn to think in three dimensions when integrating aviation. They must consider how air and ground operations affect each other. In order to maximize advantage in this third dimension (the air), the MAGTF commander must rely heavily on the advice of his aviation combat element (ACE) commander.

Since current doctrine does not address airspace control in a tactical environment, the MAGTF commander must use procedural control, positive control, or a combination of the two. According the *Marine Air Command and Control System Handbook*, procedural control is "a method of air control that relies entirely on previously agreed and promulgated orders and procedures."[3] Positive control, on the other hand, is "a method of airspace control that relies on positive identification, tracking, and direction of aircraft."[4] Both types of control must be considered in the planning process.

Enemy Situation

Any planning within the Marine Corps' maneuver warfare doctrine must start by analyzing the enemy.[5] Since Marines do not fight static targets, but rather a living, thinking enemy, they must plan to employ a flexible C^2 system. After identifying the center of gravity and critical vulnerabilities, the next step is to assess what influence the enemy has on friendly air operations. The following questions are just a starting point which may assist planners: Does the enemy possess a significant air force? Does the enemy have the capability to employ

ground-based air defenses (anti-aircraft artillery, surface-air missiles, etc.)? Is the enemy fighting from mostly fixed position, or is he rapidly mobile?

The answers to these questions drive the commander to different methods of airspace management and control. For example, if the enemy possesses an air force that is able to influence friendly air operations, then a dedicated effort should prevent prohibitive interference. In this case, friendly forces would require a capability for long-range early warning by a radar-equipped C^2 agency. The enemy's speed and tempo is another important consideration. A static enemy may cause the MAGTF commander to prioritize procedural control over positive control. If the enemy is continually mobile, then positive control may be more appropriate. These examples are not all-inclusive, but rather just a starting point. Some other considerations will be presented in later sections.

Friendly Capabilities

MAGTF commanders must have a sound tactical understanding of the air control plan and airspace control order. In addition, they should leverage the expertise of their subordinate ACE commanders. The MAGTF has several assets to provide C^2. The integration of these assets is commonly known as the Marine air command and control system (MACCS). Within the MACCS, three principles agencies are able to provide control of aircraft: the DASC, the TAOC, and ATC. The DASC and TAOC have very different primary functions, even though their areas of responsibility often overlap geographically. While ATC is an important part of air operations, it focuses entirely on the terminal area surrounding air stations and forward operating bases (FOBs), not the tactical environment.[6]

The DASC is the principle MACCS agency for coordinating air operations in support of ground forces and is usually co-located with the ground combat element's (GCE) fire support center (FSC).[7] Because the DASC is not radar-equipped, it uses procedural control. It utilizes clear communications and established protocol as its means of deconfliction, since the DASC does not have any means to track an aircraft's position visually or electronically. An example of procedural control is the DASC assigning a specific altitude and routing in order to deconflict friendly aircraft and fires.

The TAOC, on the other hand, relies almost exclusively on positive control through its TPS-59 radar. This radar is capable of long-range detection and electronic tracking. The TAOC's ability to provide positive control normally helps mitigate the risk of a midair collision, particularly in congested airspace.

Methods of Fires

Fires are inherently important on the battlefield, especially when coupled with the maneuver of friendly forces. So how can airspace control and the method of fires affect each other? Imagine the MAGTF commander wishing to prioritize artillery and mortars over his aviation assets. If artillery and mortars are the primary methods of fires, then the MACCS agency that would be best suited to integrate aviation assets into that scheme of maneuver would be the DASC. The DASC (again being co-located with the FSC) has the ability to rapidly deconflict aircraft from indirect fires and maximize friendly tempo. On the other hand, if friendly forces are operating without the support of artillery or mortars and only have aviation assets, utilizing positive control from the TAOC would be better. Although fires would still need

to be approved by the FSC in this second case, the TAOC has the ability to provide the safe separation of aircraft, particularly in a congested airspace.

Acceptable Risk

After the MAGTF commander has evaluated the threat, his own forces' capabilities, and methods of fires across the battlespace, he must next consider what level of risk he is willing to accept. By nature, procedural control carries more risk than positive control, primarily because procedural control relies heavily on the pilots' ability to see and avoid other aircraft. Therefore, the TAOC generally has the ability to provide better control than the DASC when it comes to safe separation of aircraft. However, MAGTF and ACE commanders must balance this factor with many others when making decisions about airspace management and control. Commanders must balance the need for responsive fires with their ability to deconflict the aircraft, all while orienting their plan on the enemy situation.

Time/Space

Time and space are the last major factors that affect the commanders' decisions. While the enemy drives the friendly planning process and the *methods* of fires, then the friendly C^2 systems drive the *responsiveness* of fires. These tie closely with whether the friendly and enemy forces are in fixed positions or mobile. The airspace may (and most likely should) be structured differently over a static battlefield rather than a dynamic one. For example, in a dynamic battlefield, the commander may want the DASC to be the primary controlling agency for air operations in support of the GCE so that the air support officers can have the most up-to-date information on the ground scheme of maneuver. Procedural control would be acceptable in this

case. However, the ground scheme of maneuver may be changing so rapidly that the DASC is not able to establish their infrastructure at the same pace. If the DASC spends more time breaking down, moving, and setting up their gear than actually controlling aircraft, then the TAOC is a better option.

Conclusion

Ultimately, the MAGTF commander must make a decision about whether to use the DASC or TAOC to control attacking aircraft, with the advice of his ACE commander. Many factors aid commanders in these decisions, and the factors listed here are not all-inclusive. This paper is also not a :one-size-fits-all" solution. When managing airspace, commanders must determine which MACCS agency should have the responsibility of air control. Commanders must use their intuition, experience, and subordinates in order to balance the impacts of the enemy situation, friendly forces, methods of fires, acceptable risk, and the battlespace itself in order to properly manage and control the airspace in the combat zone.

Word Count: 1,664

Notes

1. U.S. Marine Corps, *MCWP 3-25.3: Marine Air Command and Control System Handbook*, 1997 (Marine Corps Combat Development and Command), 2-8 – 2-19.
2. U.S. Marine Corps, *MCDP 1: Warfighting*, 1997 (Headquarters, United States Marine Corps), 76.
3. *MCWP 3-25.3: Marine Air Command and Control System Handbook*, E-9.
4. *MCWP 3-25.3: Marine Air Command and Control System Handbook*, E-9.
5. *MCWP 3-25.3: Marine Air Command and Control System Handbook*, 2-20.
6. *MCWP 3-25.3: Marine Air Command and Control System Handbook*, 2-9.

Bibliography

United States Marine Corps, *MCDP 1: Warfighting*, 1997. Headquarters United States Marine Corps.

United States Marine Corps, *MCWP 3-2: Aviation Operations*, 1997. Marine Corps Combat Development Command.

United States Marine Corps, *MCWP 3-25.3: Marine Air Command and Control System Handbook*, 1997. Marine Corps Combat Development Command.

United States Marine Corps, *MCWP 3-25.5: Direct Air Support Center Handbook*, 1997. Marine Corps Combat Development Command.

United States Marine Corps, *MCWP 3-25.7: Tactical Air Operations Center Handbook*, 1997. Marine Corps Combat Development Command.