

Aviation Command and Control:

*MACCS Transformation*

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# Report Documentation Page

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## Introduction

As the United States Marine Corps continues to progress technologically, so does the way in which the Marine Air Command and Control System (MACCS) provides aviation command and control. The new equipment being developed for the MACCS is called the common aviation command and control system (CAC2S). According to Raytheon, the company that led the development of CAC2S:

CAC2S replaces six disparate legacy platforms and provides an expeditionary and common C2 platform for Marine Aviation that is employable from the sea base, ashore, and in an airborne node. It will provide aviation command posts, air defense, air support, air operations and air traffic control capabilities (including Joint air C2 capability).<sup>1</sup>

While the modernization of common aviation command and control equipment is expected, the relevancy for common operators should be further investigated in order to determine its necessity and its impact on proficiency levels within the MACCS. Due to imminent technical advances, the USMC needs to take a comprehensive look at the future organization of the MACCS. The Marine Corps should not proceed towards an integrated aviation command and control military occupational specialty (MOS), prior to the receipt of the new equipment, to include the introduction of a multi-function operations center (MFOC) because the MACCS will experience a decrease in proficiency.

## Background

The Marine Aviation Command and Control System was born out of necessity in the 1960s. It was developed in order to facilitate timely and responsive aircraft movement throughout the battlespace. The MACCS initially was the result of harnessing technology to enable a more synchronized battlefield not only on the ground, but also in the air. The importance of the MACCS to the Marine Corps is captured by Maj Madsen in the following statement in his Master's thesis written in September 2001:

Command and control are considered vital to any military operation, and computer enhanced/controlled C2 has been a part of Marine aviation since the Vietnam era. The MACG is tasked with fielding the Marine Air Command and Control System (MACCS). The MACCS is both a functional and technical system, and has been structured since its inception to be task organized, with the basic theme being "centralized command, decentralized control." This means that each subordinate squadron of the MACG is formed to provide a tactical piece of the MACCS. No one single squadron, or tactical component, can work autonomously to complete C2 operations. Only when working together can the squadrons of the MACCS field all necessary elements to carry out air command and control operations.<sup>2</sup>

As the world continues to become more advanced, the Marines who work within the Marine Air Control Group (MACG), continue to become more proficient in their particular roles within the MACCS. However, while this individual proficiency has increased, the systems which enable all of the agencies of the MACCS to share information have continued to develop

independently. With the inception of the aviation command and control transition task force (AC2 TTF) a movement has been made to rectify this disparity.

Currently, the Marine Corps' Aviation Command and Control (AC2) Systems are in the process of transformation and modernization. This process is currently a "part of an evolutionary acquisition strategy,"<sup>3</sup> whose focus is to provide the MACCS with a baseline common communications system that can be used by each of the functional nodes resident within the MACG.

#### Defining the MFOC

The multi-functional operations center (MFOC), would eventually include all of the functional agencies which are resident within the MACCS today. Agencies included in the first increment would be the Direct Air Support Center (DASC), the Tactical Air Operations Center (TAOC), and the Tactical Air Command Center (TACC). The idea is that the Marines from these three disparate MOSs will be trained as common operators within the MFOC. (The common operator would have limited knowledge in the performance of the previously mentioned three legacy MOS missions.) Follow-on increments would pertain to both Marine air traffic control (MATC) and low-altitude air defense (LAAD).

The MFOC would be the nerve center of the aviation command and control system. When needed, "nodes" could be pulled from

the MFOC to perform their particular mission(s) when and where they are needed. In order to be more flexible and responsive, "Commanders will have greater flexibility using the CAC2S for concepts such as distributed operations. Each node can adjust for new missions more rapidly than could systems in the past. Marines will have the speed and flexibility to bring the right capability to the right part of the battlespace."<sup>4</sup>

#### Decrease in Proficiency

One idea which has been presented to assist in the transformation of the MACCS is to combine the air support control and air defense control MOSs, which in turn, would cause a loss of experience in the tactics of air defense and air support control. As Marines progress through the training and readiness (T&R) modules within their respective MOSs, they learn more about the intricacies of the system in which they are operating. Through career progression, a Marine will continue to build his or her resident knowledge within his or her MOS, truly becoming a duty expert in his or her operational specialty. Combining these two MOSs could initially be advantageous as more Marines would have base-line knowledge of both air support and air defense operations. Unfortunately, such a consolidation could also lead to unforeseen outcomes later due to the fact that these Marines are now generalists in aviation command and control and have not developed a breadth of

knowledge about routine working relationships and inter-agency standard operating procedures.

No one within the MACCS will say that a single, common tactical picture would not provide an advantage within their command post. However, not every operator who is looking at that screen will truly understand what information the picture is providing or the knowledge and expertise to communicate this information to the operational forces.

#### Combination of MOSs

Opponents in the AC2 TTF will argue that a common aviation command and control MOS would be beneficial to the USMC with regards to manpower and equipment requirements. However, the depth of knowledge lost in each specialized MACCS agency will ultimately be detrimental to the command and control of Marine Corps aviation. In theory, the creation of a multi-function operations center sounds like the MACCS will be revolutionized, but in practice results in MACCS operators performing their legacy missions within a common communications suite. If true, that does not mean that a need exists to make a MACCS generalist, thereby and risking the loss of the relationships that have already been established among the agencies and their respective "users."

To investigate these habitual working relationships that are developed, one need look no further than the DASC after-

action reports (AARs) from combined arms exercises (CAX) in the late-1990s. These reports referred to how responsive the DASC was in integration and de-confliction of USMC indirect fire (IDF) assets with aviation assets.<sup>5,6</sup> The relationship that has been built between the Fire Support Coordination Center (FSCC) and the DASC has proven to be an asset both during exercises and during real-world operations such as Operation IRAQI FREEDOM. The Marines of the DASC understand the Marines of the FSCC, thus the infantry Marines, because they are working off of the same operational mind-set. The familiar working relationships simply have not been established when one examines the relationship of the United States Air Force's Air Support Operations Center (ASOC) and the United States Army's soldiers on the ground. The long-time relationships do not exist because the agencies do not work with each other as closely as the USMC units do.

Anyone who has served in the armed forces knows that change and restructuring are a natural part of the evolution of an organization. The question is what will be the impact on an organization's traditional roles and responsibilities if the restructuring occurs too early in the acquisition timeline. Therefore, the issue still remains: While the modernization of common aviation command and control equipment is expected, the necessity to develop a common operator, which could lead to a

decrease in proficiency levels within the MACCS, is therefore counter-productive.

### Conclusion

As the MACCS desires to develop itself as the most responsive aviation C2 system possible given the new capabilities resident in CAC2S, it must also regulate its agencies in order to preserve the working relationships already established. This is a daunting task when one takes into account the possible decrease in proficiency across the MACCS with the introduction of the new "common operator." Prior to the creation of a common operator for CAC2S, the equipment needs to be fielded, so that the duty experts can determine the requirements necessary for a change in organizational structure within the MACCS. The fielding of new equipment *should not* be the sole basis for organizational restructuring.

1459 words

## End Notes

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*The restructuring of any organization, be it military, commercial, or educational is an extremely arduous task. People naturally resist any change to the way they function. More times than not, when change is needed, it is technology or doctrine that is changed; yet the organization remains stagnant and unmoved. However, no organization can adapt to the ever-changing environment without looking at how it functions and identify where shortcomings exist. And no organization can change itself from the inside; the change must come from external sources. Whether that be having the members step away from the organization and looking back into it, or having an outside entity change it, it must occur from the outside. Barriers to change must be broken down in such a way as to offer as little resistance from the members as possible.*

John C. Madsen, "Reorganization of the Marine Air Command and Control System to Meet 21st Century Doctrine and Technology"  
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Monterey, CA, September 2001