NAVAL WAR COLLEGE
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IMPROVING JFACC:
Doctrine and Communications

by

Gary E. Washburn
LTCOL USMC

A paper submitted to the faculty of the Naval War College in partial satisfaction of the requirements of the Department of Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: Gary E Washb

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Professor of Operations

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The employment of the Joint Force Air Component Commander Concept during Operation Desert Storm raised a number of issues. After-action reports highlight communications difficulties between JFACC and the Naval aviation forces operating in the theater. The existing doctrine regarding the JFACC states that normally the service component with the preponderance of air assets and the ability to assume the function will be designated as JFACC. Because it failed to provide any more definitive guidance, joint doctrine assumed that different service components would perform as JFACC in more or less the same manner. However, the Navy and Air Force developed dissimilar philosophies regarding the command and control of tactical air assets and subsequently procured communications systems to support their own philosophies. This produced interoperability problems during Desert Storm. The communications problems which occurred were the product of inadequate joint doctrine and the service components' insistence on employing their individual doctrines during a joint operation.

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Abstract of
IMPROVING JFACC: Doctrine and Communications

The employment of the Joint Force Air Component Commander concept during Operation Desert Storm raised a number of issues. After-action reports highlight communications difficulties between the JFACC and the Naval aviation forces operating in the theater. The existing joint doctrine regarding the JFACC states that normally the service component with the preponderance of air assets and the ability to assume the function will be designated as JFACC. Because it failed to provide any more definitive guidance, joint doctrine assumed that different service components would perform as JFACC in more or less the same manner. However, the Navy and the Air Force developed dissimilar philosophies regarding the command and control of tactical air assets and subsequently procured communications systems to support their own philosophies. This produced interoperability problems during Desert Storm. The communications problems which occurred were the product of inadequate joint doctrine and the service components' insistence on employing their individual service doctrines/philosophies during a joint operation.

PREFACE

Specific after-action report submissions and lessons learned regarding JFACC operations remain classified. To avoid producing a classified research paper, the information presented has been obtained from both miltary and civilian unclassified sources, and from professional forums which included unclassified discussions regarding problems and issues. There is a wealth of classified material which supplements the information presented in this paper.

Much of the information presented regarding USCINCLANT Exercises Solid Shield 87 and Solid Shield 89, is derived from the author's personal experience. During Solid Shield 89, the author served as the chief communications planner for the Marine Component.

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CHAPTER I

INTRODUCTION

Issues. In the aftermath of Operation Desert Storm, there has been a great deal of discussion regarding the most efficient and effective method to plan and execute air operations in a joint operation. The Joint Force Air Component Commander concept and its supporting doctrine are not new and many of the challenges associated with managing air operations highlighted during Desert Storm are contained in the after-action reports of several previous major joint exercises. The communications interoperability problems identified during the Gulf War were in large part due to the limitations of the present doctrine regarding joint air operations which permitted the Navy and the Air Force to develop and maintain dissimilar philosophies and systems for command and control of tactical air assets.

Conditions. Desert Storm was a very large and unique operation. Doctrine developed over time during much smaller joint exercises was tested on a scale that few envisioned. The size and the duration of the operation required the employment of all the individual services within and near the theater for an extended period. This was particularly significant because it required integrated air operations planning among JFACC and the service components. This was

an atypical condition particularly for the Navy. Routinely in joint operations and exercises, the Navy role in joint air planning diminishes somewhat as ground and Air Force combat power builds within the theater of operations.

Focus. This paper addresses several issues regarding JFACC operations. These include the existing doctrine regarding joint air planning along with some of the perceptions and misconceptions associated with it, the joint communications system and its limitations, and the need to better define the planning process. In light of the many divergent opinions regarding these areas, it is important to note that the focus of this paper is to present the issues as clearly as possible. It will hopefully be a "step in the right direction" toward the resolution of these longstanding issues.

CHAPTER II

JFACC OPERATIONS

Doctrine. JCS Publication 3-01.2, Joint Doctrine For Theater Counter Air Operations, discusses the role of JFACC. Although this document is currently being revised, it is the source of existing doctrine. In defining command and control relationships for counter air operations, it states the following:

> " The joint force commander will normally designate a joint force air component commander. The joint force air component commander's responsibilities will be assigned by the joint commander (normally these would include, but not limited to, planning, coordination, allocation, and tasking based on the joint force commander's apportionment decision). Normally the joint force air component commander will be the Service component who has the preponderance of air assets to be used and the ability to assume that responsibility."

JCS Publication 3-01.2 (previously JCS Pub 26) was published in April 1986. At that time, the guidance provided was probably adequate considering the size and complexity of previous joint operations and exercises. In attempting to retain the CINC's prerogatives in assigning specific responsibilities to the JFACC, it follows that different CINCs may wish to employ JFACC differently. Of particular significance is the degree to which the CINC or his designated JFACC will directly involve themselves in the air planning process. This really involves the management style employed and this has an enormous impact upon command and

control. Detailed management of air operations requires a dedicated means of communications. By not designating a specific service component to function as JFACC, the doctrine remained somewhat flexible in recognizing that there were sure to be contingencies which would require different service components to function as JFACC. This attempt to preserve operational flexibility produced the inter-service debates which still continue today. Regardless of which service component the joint force commander designated as JFACC, it was (and is) apparent that definitive procedures were necessary to integrate the other components into the air planning process. These procedures would standardize the planning process for all service components, ensure a degree of interoperability, and actually make it feasible for different components to assume the JFACC role. Obviously the JFACC function will remain, who does it may change. Whether because of disagreements among the Navy, Air Force, and to some extent the Marine Corps, or because of a failure to perceive a requirement for such procedures, they simply have not been published as joint doctrine. This has resulted in two dissimilar and still evolving versions of how a JFACC should function. There are significant disagreements over the degree to which JFACC should be involved in detailed coordination, allocation, and tasking.

Competing Philosophies. The fundamental difference between Navy and Air Force tactical aviation is each service's command and control doctrine. Marine Corps doctrine regarding tactical aviation planning falls somewhere in between based upon whether the Aviation Combat Element is operating as part of Navy component or as part of a Marine component ashore. In a single theater it is possible to find Marine aircraft operating in both modes. Regardless of the command structure, Marine Corps aviation doctrine centers on retaining sufficient aviation assets to support the Marine Air Ground Task Force (MAGTF).[1] Marine aircraft in a joint operation will operate under either Navy or Air Force doctrine based upon the circumstances. The Air Force doctrine emphasizes positive control of all tactical aviation assets.[2] This centralized management concept results in very detailed planning and tasking, with the control of air operations being accomplished relatively high in the command structure. The Navy advocates a decentralized management concept, based more on practice than doctrine, which has been described as "control by negation".[3] Tactical air planning and decisions are made and executed at the lowest possible level. The Air Force believes its positive control philosophy best supports a unified strategic plan to achieve air supremacy, while the Navy believes its doctrine permits the flexibility and

autonomy required to succeed should command and control means fail or become casualties.[4] These very different approaches have influenced the planning practices and the command and control systems developed and employed by the Navy and Air Force. This precluded either service component from developing an air planning system that could easily integrate the other service's requirements in the event of a joint operation or exercise. In more practical terms, neither service developed a system with the capacity to accommodate a large joint planning effort. The Navy and the Air Force were permitted to continue on their separate paths while doctrine continued to treat them as interchangeable.

The "Ability To Assume That Responsibility". The "ability to assume that responsibility" initially consisted of the ability to send and receive narrative message traffic through AUTODIN or through the Navy's interface with AUTODIN, the Common User Digital Exchange System (CUDIXS). This method provided a common user system which was well-suited for general management of air operations. All service components possessed this capability as well as the aviation installations and platforms which would actually execute the missions. This common communications means for air apportionment, planning, and tasking reached all levels of the joint aviation community. When massive backlogs routinely occurred during joint training exercises, it

became apparent that AUTODIN could marginally support the apportionment process however this means was not timely enough to support the planning and tasking processes. Adjusting the assigned precedences, sorting between operational and administrative traffic, and imposing Minimize Procedures all failed to effectively reduce the backlogs and delays. Efforts by JCS to standardize joint message text formats through the use of the US Message Text Formatting (USMTF) Program did improve interoperability however the focus of this effort was to reduce the time required to draft and release these messages. Streamlining message preparation did nothing to expedite the delivery of the traffic through the AUTODIN system. Unable to solve the congestion in AUTODIN, planners searched for alternate means of transferring JFACC information. Up until this point the only factor which contributed any degree of standardization to JFACC operations was the use of a common means of communications with standardized message formats. As specialized or dedicated systems were utilized as potential solutions to this issue, it was immediately apparent that such systems were not readily available to all participants in JFACC operations, that hardware and software interoperability problems existed, and that potential service component solutions had opened discussion regarding

just how involved the JFACC should become involved in the detailed planning and tasking of air operations.

Making Things Work. Instead of bringing order to JFACC, JCS Publication 3-01.2 provided guidance which frustrated attempts to improve it. In a given contingency or exercise, the CINC would determine the exact responsibilities of the JFACC, decide to what degree the JFACC would be involved in detailed planning and tasking, and decide which service component would execute the JFACC function. With these crucial decisions being made on a case-by-case basis, there was little impetus for the service components to coordinate joint procedures or to procure the command and control means necessary to perform an undefined situational joint function. The lack of guidance and the failure of AUTODIN as an effective means of command and control, led to ad hoc arrangements for JFACC operations during joint exercises. These problem areas did not go unnoticed, the problems were recognized however they weren't resolved. Integration of Navy and Air Force tactical air assets in joint exercises was achieved through the efforts of service component liaison officers in the JFACC. In light of inter-service competition , it is important to note that these liaison officers were often placed in the JFACC to protect or preserve their service component's air assets from joint tasking and to ensure relative freedom of action for their

component commanders. The requirement for liaison officers to frequently "check" with their components added to the communications requirements for the JFACC. Along with voice communications, there was also a requirement to interface with their component's air planning system.

Two CINCLANT joint exercises, Solid Shield 87 and Solid Shield 89, provided some insight into the problems associated with having different service components fill the JFACC role. The difficulties noted during these exercises reappeared during Desert Storm. During Solid Shield 87, the Air Force was the JFACC and during Solid Shield 89, the Navy was the JFACC. Solid Shield 87 highlighted the planning difficulties produced by the delays in delivery of narrative message traffic via AUTODIN. AUTODIN did not provide the flexibility necessary to effectively integrate Navy and Air Force assets on an ad hoc basis. Generally speaking, planning responsiveness and effectiveness are a function of the ability to coordinate, and the ability to coordinate depends heavily on the ability to communicate. Communications between the JFACC ashore and the Navy component afloat were marginal at best. There was a great deal of post-exercise discussion regarding which component was responsible for the poor coordination which occurred. The problems were generally attributed more to communications than to doctrine. As a result of this

exercise, CINCLANT operations and communications planners began searching for a different means of communications to support JFACC operations. At the initial planning conference for Solid Shield 89, the CINCLANT J-3 announced that the Navy would function as JFACC, that JFACC would be located aboard the U.S.S. Mount Whitney (LCC), and that the World Wide Military Command and Control System (WWMCCS) would be used as the primary means of record communications for the JFACC. AUTODIN would be used as a secondary means. At the time, the Mount Whitney was the only CINCLANTFLT ship equipped with a WSC-6 Super High Frequency (SHF) radio system. Although this system was not operated as part of the joint communications system, it did provide a transmission path to the CINCLANT WWMCCS host computer and access to the WWMCCS Intercomputer Network (WIN). An additional WSC-6 system and a suite of deployable WWMCCS equipment were temporarily installed aboard U.S.S. Eisenhower (CVN). The Joint Task Force (JTF) Commander and his staff were located aboard the Mount Whitney while the Naval Component Commander (NAVFOR) was located aboard Eisenhower. During the six month planning period leading up to Solid Shield, the other service components were able to obtain necessary equipment, to lease required commercial telephone lines, and to coordinate access to the WIN teleconference created for the Solid Shield JFACC.

Interoperability was achieved through the use of WWMCCS, however this didn't integrate the Navy into the joint communications system. The Navy's SHF links were terminated at the Communications Area Master Station in Norfolk rather than into the joint network. Although WWMCCS provided a rapid, interactive means of communications among the components, it did not satisfy the entire JFACC communications requirement. The Marine Component Commander (MARFOR) embarked aboard the U.S.S. Siapan (LHA) (part of the NAVFOR until established ashore) did not have WWMCCS connectivity while the Marine Aviation Combat Element (ACE) ashore did. Because of AUTODIN message backlogs, the MARFOR Commander was isolated from the air planning process until WWMCCS connectivity was established at his Command Post ashore. While WWMCCS connectivity worked well for NAVFOR, it is important to note that NAVFOR had only one Carrier Battle Group assigned. The NAVFOR had no requirement to retransmit air planning and tasking information beyond the single battle group.

During Solid Shield 89, communications support for the component JFACC liaison officers was marginal. Because the LCC, and therefore JFACC, had no means to access the joint telephone switching system, a legion of liaison officers arrived at the pier carrying portable satellite radios. These radios provided the only direct means of communication

between the liaison officers and their components. "Deck-mounted" aboard the LCC, these radios were of little use because their antennas had to be constantly realigned with the satellite as the ship maneuvered at sea. Because of this, the radios worked sporadically and the liaison officers were unable to function effectively.

The use of the WIN teleconference as the primary means of JFACC communications was considered a significant success. The key to this success was not the WWMCCS but rather it was the high capacity communications path provided by the WSC-6 radio system. The Navy recognized this and completed a contract for eight sytems in 1989. This issue would again become very prominent during Desert Storm.

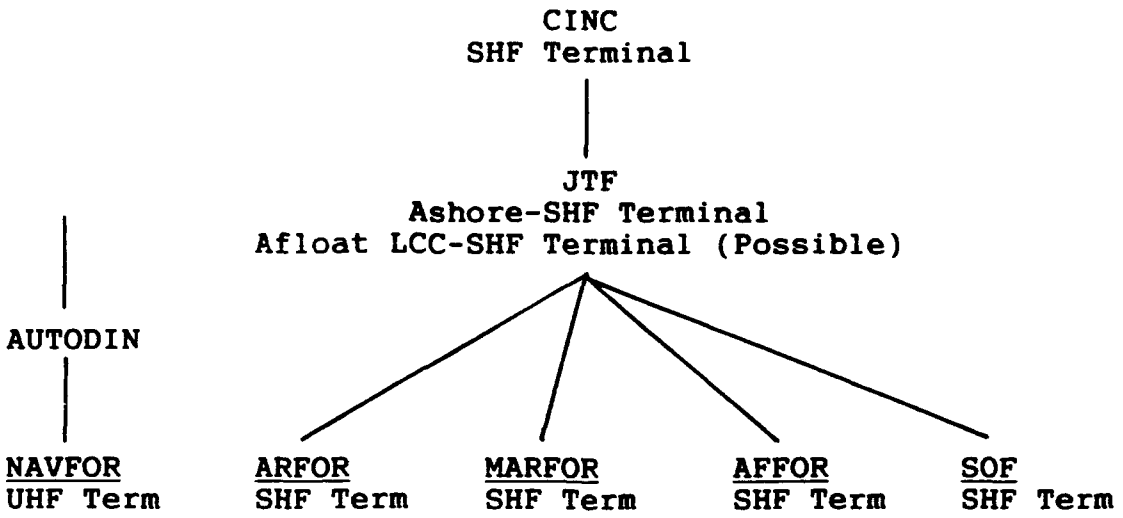
CHAPTER III

NAVY ACCESS TO THE JOINT COMMUNICATIONS SYSTEM

Joint Communications System. JCS Publication 6-05.1, System Manual For Employing TRI-TAC Equipment In Joint Operations, focuses on communications at the Joint Task Force level. The manual provides standards and procedures regarding the employment of TRI-TAC communications equipment. The term TRI-TAC refers to high capacity communications equipment developed by the Joint Tactical Communications Office. Although published in 1986, JCS Publication 6-05.1 is still relevant (although dated) because it details the communications requirements associated with joint operations and matches these requirements to specific types of equipment developed to satisfy them. Communications for joint operations require flexible, high volume transmission systems which can accomodate a wide variety of terminal and switching equipment. TRI-TAC Super High Frequency (SHF) satellite multichannel equipment was specifically designed to fill this need. The Navy was the only service that failed to participate in the SHF satellite system program. The CINCs and their designated JTF commanders are provided this type of communications support by the Joint Communications Support Element (JCSE), a joint communications organization specifically designed to support joint headquarters. JCSE

also provides communications support to the service components as directed by the CINC to ensure that all components are integrated into the joint communications system. JCSE SHF terminals are designed to be operated in a fixed (non-mobile) mode so the antenna can remain aligned with the satellite. Because of antenna limitations and the technical engineering requirements associated with installing such a system aboard ship, the JCSE equipment can not be temporarily installed aboard ship to support a Navy JTF commander or to support joint connectivity requirements such as WWMCCS or the JFACC. There is no practical means to compensate for the absence of SHF communications equipment aboard ship in joint operations. Although SHF equipment was later installed on the LCCs, this equipment is normally employed for WWMCCS connectivity and not as part of the joint communications system. The Navy's SHF requirement has expanded because of the use of the joint communications system for JFACC voice and record communications.

Where The Navy Stands. To better illustrate the Navy's current inability to enter the joint communications system, the following diagram depicts the SHF portion of the system and the NAVFOR's relationship to it.



The diagram demonstrates how SHF terminals provide common high capacity transmission paths to link the joint headquarters to its components with the exception of NAVFOR. The Common User Digital Information Exchange System (CUDIXS) which employs an Ultra High Frequency (UHF) satellite system and interfaces directly with AUTODIN, provides NAVFOR's only record traffic entry into the joint communications system. While it is true that NAVFOR could be located aboard the LCC and have potential access, this still does not satisfy the Battle Force/Battle Group's requirement for timely communications with the JFACC regardless of whether the JFACC is ashore or afloat. During Solid Sheild 89, there wasn't sufficient space or equipment aboard the Mount Whitney to accomodate the JTF headquarters, the JFACC, and NAVFOR. NAVFOR was successful in coordinating with JFACC because of the SHF terminal temporarily installed aboard the Eisenhower.

Where The Navy Is Going. In July 1989, the Navy completed a contract to procure eight of the WSC-6 radio systems however the expected delivery date isn't until late 1993. [1] The Navy recognized this significant interoperability problem prior to the start of Desert Storm and it borrowed five mobile SHF terminals from the Air Force.[2] The terminals were not installed because there was not sufficient time nor the opportunity to return the carriers and amphibious ships to port for modification before or during the hostilities. This forced the development of alternate means of effecting JFACC coordination and specifically the distribution of the joint air tasking order. Following Desert Storm, Vice Admiral Tuttle, the Navy's Director for Space and Electronic Warfare, stated that the procurement of WSC-6 radio systems is his highest priority.[3] The Navy is attenpting to locate the funding for the purchase of eighteen systems from the manufacturer and five additional systems from the Air Force. This action should at least solve the connectivity issue regarding JFACC operations.

CHAPTER IV

CONCLUSIONS

Desert Storm. Desert Storm was a unique operation which forced a number of significant joint issues to the forefront. It confirmed previously identified JFACC shortfalls in both doctrine and in equipment capabilities. It is important that the lessons derived from the Gulf War be analyzed from a joint perspective to accurately address inter-service issues in an objective manner. In retrospect, it is clear that joint doctrine regarding JFACC operations permitted the Navy and Air Force to develop and perpetuate dissimilar service philosophies and means of command and control. Although these differences were apparent in joint exercises, they were compensated for by ad hoc procedures and communications systems which if nothing else provided the JFACC with the marginal means to "make things work". The Air Force continued to utilize its Computer Aided Force Management System (CAFMS) for centralized mission planning, tasking, and coordination. It also possessed a high capacity SHF communications capability which provided communications connectivity into the joint communications system as well as digital terrestrial systems to connect components and air planning agencies located ashore. By providing liaison personnel and terminal equipment to the Army and Marine components during Desert Storm, AFCENT

(as JFACC) was able to integrate them into JFACC operations and to expedite the apportionment and tasking processes. The Army and Marine components were also included in the Joint Telephone Switching Network so they could coordinate directly with their representatives in the JFACC. The JFACC's location placed it at the hub of the intelligence network which provided rapid access to bomb damage assessment (BDA) information. AFCENT had the means and the information to effectively execute theater air operations.

The designation of AFCENT as JFACC placed the Navy in a particularly challenging situation. There was no time or opportunity for debating the issue. The Air Force philosophy would be utilized through the joint communications system. The Navy's command and control system was designed to support its decentralized concept for air operations. NAVFOR was without a means of record communications except for AUTODIN which, consistent with previous experience, was over-saturated and thus not timely or flexible enough to satisfy the requirement. Because NAVFOR remained afloat, coordination with JFACC and the CENTCOM headquarters was very restricted. The Navy created an ad hoc system to distribute the CAFMS-produced joint ATO. Once NAVFOR received the ATO, it was necessary to review it, to separate the information which applied to Navy missions,

and then to rapidly disseminate this information within NAVFOR. This cumbersome process made it difficult for JFACC to quickly adjust the ATO in response to current intelligence.

Identifying The Problem. Since the conclusion of the Gulf War, military professional journals have contained numerous articles with titles such as "U.S. Navy Seeks to Bolster Communication Weak Link"[1], and "Fighting to communicate - the USN's biggest problem".[2] These articles suggest that the difficulties regarding air operations planning during Desert Storm were largely communications problems. This appears to be a case of identifying and treating the symptoms and not the disease. The core issue (disease) is doctrine regarding theater air operations. While it may be possible for either the Air Force or the Navy to function as JFACC, it is clear that this task can not be effectively accomplished in an ad hoc manner. Communications systems support requirements are based on doctrine. The absence of definitive joint doctrine regarding theater air operations and the latitude afforded the service components produced interoperability problems. It should not have been a surprise when communications interoperability became a problem during Desert Storm. The Navy's efforts to procure SHF terminals should alleviate the symptoms but they won't cure the disease.

NOTES

Chapter II

1. John E. Valliere, "Stop Quibbling: Win the War," Proceedings, Vol. 116/12/1, December 1990, p. 38.

2. Dennis Palzkill, "Making Interoperability Work," Proceedings, September 1991, p. 51.

3. Ibid., p. 51.

4. Ibid., p. 51.

Chapter III

1. Neil Munro, "Navy Seeks Funds to Buy SHF Shipboard Terminal," Defense News, 22 April 1991, p. 15.

2. Ibid., p. 15.

3. Ibid., p. 15.

Chapter IV

1. "U.S. Navy Seeks to Bolster Communication Weak Link," Signal, August 1991, p. 69.

2. "Fighting to communicate - the USN's biggest problem," Jane's Defense Weekly, 13 April 1991, p. 586.

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