



## A CONCEPT FOR DIRECTING COMBAT AIR OPERATIONS\*

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As early as 1946, Lieutenant General Hoyt S. Vandenberg, speaking of the capabilities which modern tactical air forces had demonstrated during the European air war, observed that flexibility in the application of air forces was necessary in order to achieve maximum results. Flexibility, he stated, enabled air forces to achieve maximum responsiveness and effectiveness in coordinated efforts with other military forces and permitted the diversion of tactical air power to meet critical situations on the ground rapidly. He further observed that, to achieve the degree of flexibility required, direct control of all available air power should be centralized under a single air force commander.

The validity of the concept of “centralized control/single management” of air resources within tactical areas of responsibility was demonstrated in World War II and in the Korean conflict. Unfortunately, the concept and the organization developed to administer it lost substantial support at the conclusion of each of those wars, and significant time and effort were required to re-establish an adequate system during subsequent conflicts.

### *doctrine in the sixties*

Current doctrine remains in basic agreement with General Vandenberg. Tactical air forces are organized, equipped, and trained to conduct sustained air operations against enemy military forces at any level of conflict which national policy may require.

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To fully exploit the flexibility of air power, a highly mobile complex of forces is required. If tactical air forces are to maximize their potential, they must be capable of responding quickly and selectively, be versatile, and be able to concentrate precise striking power against selected targets. Air Force Manual 2-7 warns that:

Precautions must be taken to avoid operational demands of a divisive nature which segment the forces concerned and diffuse their effort in unrelated, infeasible or excessively costly undertakings. When forces are segmented, the full advantages of flexibility are lost, the unity of air forces involved destroyed, and their strength dissipated in a fragmented effort.

*an air control system*

An effective tactical air control system is an integral and basic part of the concept of single management of air resources. Such a system should provide a single manager with the organization, equipment, and trained personnel necessary to plan, direct, and control tactical air operations and coordinate joint operations with components of other military services. Utilizing such an air control system, a commander can shift, deploy, and concentrate his forces to cope with rapidly changing situations in the most efficient and economical manner.

Since a tactical air control system is a basic part of the concept of single management of air resources, an effective control system should be maintained in readiness for rapid deployment to any combat zone where air forces are required. The maintenance and improvement of the system should be supported with the same vigor given any weapon system. The system, comprising equipment, proven procedures, and trained personnel, should be an in-





being, viable organization and fully subscribed to by all services and their participants.

*single air management*

The concept of placing all air resources in a combat zone under the direction of a single air manager is not new. As indicated earlier, the concept surfaced during World War II and again during the Korean conflict. Late in the Korean War the air resources of the Fifth Air Force, Seventh Fleet, and 1st Marine Air Wing were placed under the direction of the Joint Operations Center of the Fifth Air Force. The commanders of Fifth Air Force and Seventh Fleet determined that air combat operations of the two services had to be integrated in order to inflict maximum damage upon the enemy with greater efficiency and economy of forces. The Seventh Fleet accordingly granted the Fifth Air Force Joint Operations Center positive control of close air support assignments. Although integration of Navy resources came very late in the course of the war, it was considered the final step in creating the centralized control so necessary to efficient tactical air operations. At the end of hostilities a joint board, including Army, Air Force, Marine, and Navy officers, recommended the establishment of an approved official joint doctrine for air-ground operations that would facilitate the training, organizing, and equipping of all three military services.

Although single air management proved to be a valuable and effective concept during the Korean conflict, the concept was not established in an approved joint doctrine during the ensuing period of peace. Consequently single management of fixed-wing tactical forces was not an accepted joint concept at the start of the Vietnam



conflict. It was only after five years of active U.S. involvement in Southeast Asia (SEA) that single management became a reality.

Prior to March 1968 there were two independently controlled tactical air control systems in-being in South Vietnam: one operated by 7AF throughout the country and another operated in I Corps by the Marines. The resultant overlapping control arrangements in I Corps were operationally inefficient, and there was no central agency responsible for determining target priorities. Over-kill and/or target omission were often the result. The duplicate systems did not provide a coordinated plan for the flow of tactical air, the result being periods of excessive congestion followed by periods of little or no coverage. Tasking responsibilities for supplementary roles of tactical air (e.g., airlift, escort, herbicide, etc.) were not clearly defined, and there was no single source of information to assist in determining the adequacy or inadequacy of tactical air operations. However, the most significant weakness of the dual system was the inability to allocate air resources in support of all allied ground forces in an optimum manner to meet changing enemy tactics and threats.

The initial impetus that led to the establishment of a single air manager in South Vietnam stemmed from a sharp increase in enemy offensives during the early months of 1968. In February, during the Tet offensive, the enemy waged major offensive operations throughout South Vietnam, the most intensive pressure being brought to bear on free world forces just south of the Demilitarized Zone (DMZ) in I Corps. Friendly reinforcements quickly moved into that area, and the battle of Khe Sanh ensued. Planning and application of air resources during the first few weeks of the defense of Khe Sanh were not adequately centralized. The resultant prob-





lems were a product of the sheer magnitude of air support directed into an extremely small geographic area. The overwhelming need for effective air allocation and cycling, airspace control, targeting, bomb assessment, and overall responsibility pointed to a major problem in the management and control of air resources. Commitment of USAF, U.S. Marine, U.S. Navy, and VNAF air resources to support multinational ground force operations on a high-density basis firmly identified the immediate need for management by a single authority, to integrate the air effort, prevent mutual interference, and provide the needed air support for all ground and support units operating in the area.

On 8 March 1968, the Commander, U.S. Military Assistance Command, Vietnam (COMUSMACV) designated the Commander, Seventh Air Force (his Deputy for Air Operations), as the single manager of fixed-wing tactical fighter and reconnaissance air operations in South Vietnam and charged him with the responsibility for coordinating and directing the entire fixed-wing tactical fighter and reconnaissance air effort. This decision made it possible for the Deputy for Air Operations to apply the total force in the most effective manner in support of the MACV mission, distributing force application as the ground situation dictated.

The change to a single air manager for fixed-wing tactical fighter and reconnaissance aircraft in South Vietnam provided COMUSMACV with a method of allocating and controlling air resources that permitted the inherent flexibility of tactical air power to be fully exploited. It provided centralized control and decentralized execution of operations. It also fostered rapid coordination, close integration of operations, and flexibility in force allocation.



Once again the validity of the concept of centralized control/single management of air resources in a combat zone was proven.

The single air manager system developed in Vietnam provides a significant steppingstone toward our ultimate goal of an in-being single air manager concept. We should not let this progress falter. We must aggressively work toward establishing joint doctrine, subscribed to by all services, which will allow the immediate implementation of the single air manager concept in future conflicts. In addition, during peacetime the concept should be exercised through its supporting tactical air control system, so that all users understand completely the flexibility and potential of air power when properly controlled and applied.

*Air Force tactical air control units*

Regardless of how worthy or how acceptable the single manager concept is, it cannot be implemented without the physical facilities, equipment, and personnel necessary to administer the system. Tactical air control units of this type have functioned as the Air Force commanders' primary control agency for operational air activities during the last two wars. Unfortunately, the tactical air control organizations and their equipment and personnel were not maintained at the conclusion of each war—primarily because of budgetary considerations—at the levels subsequently required for deployment at the onset of each succeeding conflict. The tactical air control equipment available for a war has more often than not been that remaining from the previous conflict. Expansion and improvements were initiated after combat had begun. Personnel were taken out of other critical positions to man the Tactical Air Control System. Bits and pieces were scraped together from equipment-





short Air Force squadrons or even from our sister services. The results, as might be expected, have been less than optimum, and the commander often was seriously handicapped for lack of an adequate control system.

*trained personnel a major problem*

Failure to maintain a fully manned cadre of experienced tactical air control personnel between the wars has been a major factor in the initial performance of the Tactical Air Control System (TACS). For example, the end of the Korean War saw the immediate dispersion of most of the trained personnel, leaving only a relatively small cadre that had so efficiently operated the control system in the latter phases of the war. We did not adequately maintain the identity of either the operators or the technicians who had manned the tactical operations centers within the Fifth Air Force.

Likewise, insufficient effort was expended during the intervening years between the Korean and Vietnamese conflicts to train Air Force personnel not previously assigned to the TACS in the intricacies of tactical air control. With the exception of a short academic course presented by the Joint Air Ground Operations School and some joint air-ground exercises, there were few opportunities for training service personnel in tactical air control concepts, procedures, and techniques.

U.S. involvement in Southeast Asia brought out once again the pressing need for trained personnel to operate a Tactical Air Control System. The first TACS elements were deployed in 1961, manned with hastily indoctrinated replacement personnel. Meanwhile, in the United States, tactical units were being stripped of



highly qualified pilots and technicians to train and man the new TACS elements, particularly the Tactical Air Control Parties.

Southeast Asia has provided us with the opportunity to gain valuable experience in the techniques of tactical control. Literally thousands of Air Force people have been involved in the daily TACS operations and have become expert in the system. But once again, as happened after Korea, the talent is being absorbed into other units. Although manning authorizations have been established for our post-SEA system, adequate, skilled TACS personnel will not be available for the next conflict unless the Air Force continues to maintain fully manned Tactical Air Control Systems as a portion of the combat-ready general-purpose forces. It is also essential that individuals who have had experience in the TACS be permanently identified so that any future expansion of the systems can be accomplished with a minimum of additional training.

*TACS aircraft discarded*

As in the historic lack of emphasis given to TACS personnel requirements, little priority was given to retention of an inventory of TACS aircraft. Throughout World War II and into the Korean conflict, the basic philosophy behind a forward air controller (FAC) centered in his function as adviser to ground force commanders and in the direction of air strikes from the ground. The utility of an airborne vantage point for controlling air came to light only in the latter stages of the European war when artillery spotters in light observation aircraft found it advantageous to assist the ground controller in sorting out enemy and friendly troops and pinpointing the target for air strikes. Unfortunately, with subsequent demobilization, the airborne FAC concept was submerged.





The outbreak of the Korean War saw the FAC again directing strikes from the ground. It was not until the war was well under way that the idea of an airborne FAC re-emerged, and T-6 aircraft were modified to carry white phosphorous rockets for target marking. These “Mosquito” aircraft again proved the value of an airborne forward air controller and provided the basis for today’s doctrine and procedures. As in the past, however, the airborne FAC concept was given a low priority in the demobilization which began in 1953, and the T-6 aircraft were phased out of the USAF inventory.

Ten years later military activity in South Vietnam increased, and the idea of an airborne FAC was rekindled. Because little interest had been generated in retaining an airborne FAC capability, it is not surprising that the Air Force was unable to find a suitable FAC aircraft within its inventory to meet this new requirement. However, by borrowing from the U.S. Army, a force of O-1 aircraft was assembled at Bien Hoa in July 1963.

The remainder of the FAC aircraft story is common knowledge. The O-1 Bird Dog continued to be the only FAC aircraft in service until early 1967, when an off-the-shelf commercial aircraft, the O-2, began service. Five years after the activation of the Bien Hoa O-1 squadron, and roughly a quarter of a century after the airborne artillery spotter began his unofficial control of air strikes, the first aircraft designed for the FAC role, the OV-10 Bronco, entered combat. From that time the OV-10 has repeatedly justified its worth as a specially designed combat aircraft.

The airborne FAC concept has proved to be an integral, necessary part of the Tactical Air Control System. However, the FAC aircraft force has historically disappeared from the inventory between wars and has not reappeared until the next conflict forced us



to reequip. Until the Bronco arrived, the aircraft which filled the requirement had been hand-me-down or off-the-shelf commercial aircraft needing modification to meet exacting performance requirements. We can ill afford to discard our FAC aircraft again as we have done after each of the past wars. The day is past when it is practical to buy a commercial, liaison-type aircraft to perform the mission and satisfy the needs of the commander for strike control. In future conflicts we may not be permitted the extended development time that we have been allowed in past conflicts.

*retention of facilities and  
equipment also critical*

The requirement for facilities and equipment associated with the TACS also lost significant support soon after termination of the Korean War. An effort was made during the nonwar years to develop portions of a total TACS facility, but many of the programs failed or were discarded almost as soon as they were introduced. For example, the 412L Air Weapons Control System, which was to be an air-mobile control system, failed to meet specifications, and the project was abandoned.\* In any event, our development efforts and buy programs were marginal, and as a result early TACS facilities and equipment available for Vietnam were limited in number and provided less than satisfactory service. Extraordinary initiative and an unrelenting determination by the pioneers of the USAF TACS in Vietnam combined to overcome most of the handicaps, and a workable system has been developed.

Again we must not let support for the system die when the aggression in SEA stops. It is essential that we continue to emphasize the requirement to provide our new tactical air control units with

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\*The equipment for the single 412L system that was produced before the project was abandoned eventually became a portion of the fixed control system currently in use in USAFE.





the best equipment available if we are to retain a state of readiness for future conflicts.

*R&D support for the TACS*

The decisive nature of modern warfare may deny us the time to improve the equipment of our TACS after hostilities have begun. Therefore, system capabilities must be continuously improved if we are to enhance our ability to exploit effectively the inherent flexibility of tactical air power. The dynamic pace of technological development makes it imperative that R&D support for the TACS not be de-emphasized after a Vietnam settlement as it was after World War II and the Korean War. For example, as a result of the low priority given research and development support for the TACS after World War II, command and control communication capabilities in Korea were inadequate. A makeshift U.S. Army radio-teletype system, in conjunction with a radio relay capability improvised by airborne forward air controllers, served as the only means by which air support could be requested. The inflexibility of this system prevented the optimum utilization of tactical air resources.

R&D efforts, resulting from experience in SEA, have already provided numerous improvements to the current Tactical Air Control System. These include more sophisticated FAC aircraft, improved communication vehicles and radios for use by the forward air controllers, new lightweight radar and ancillary support equipment, and compact air-ground communication facilities. These improvements have significantly increased present tactical air control capabilities.

Other projects under way are designed to improve the current TACS. For example, the 407L program provides a significant im-



provement in the mobility and quality of the TACS ground elements. This program is evolutionary and requires continued support for the development of improved equipment. Equally important is the requirement for an airborne warning and control capability for the TACS to deploy worldwide on a moment's notice in support of any contingency. To meet this need we have under development a Tactical Airborne Warning and Control System (AWACS) which will be an integral part of the TACS. Housed in a jet airframe, the Tactical AWACS will be an integrated and self-contained control element equipped with sophisticated sensor and communications capabilities that will provide surveillance and control deep into enemy territory, far beyond the line-of-sight capability provided by present ground-based elements of the TACS. The requirement for continued support and development of these capabilities will not end with the onset of a ceasefire.

The premise of a future TACS is that it be a system with built-in growth potential. Automation must be emphasized so that future needs can be met by merely adapting the anticipated expansions of technology to the current requirement. It should be mobile enough to provide an immediate capability to control tactical air power in any area of the world. The hardware to be utilized by sub-components of the TACS should be easily transportable by either surface or air vehicle. Operations centers should be developed that are lightweight and quickly erectable, yet which can be hardened sufficiently to withstand ground attack. Other foreseeable improvements should include an improved three-dimensional radar, compact processors for message centers, and electronic direct-dialing systems to replace switchboards. Powerful yet easily transportable radios for use throughout the system are a basic necessity.





Finally, a new FAC aircraft is needed to operate in the more hostile defense environments of the future.

R&D support for the TACS must be maintained and emphasized after the end of the Vietnam conflict. The consequences of our failure to ensure adequate R&D support for TACS development after World War II and Korea provide ample incentive to emphasize this support beyond Vietnam.

*challenge for the future*

The requirement for an effective in-being system at the onset of any future conflict is reflected in the current Air Force Programming Documents. We have provided for five post-SEA TACS, which will include air liaison officers/forward air controllers and FAC aircraft. These requirements should be aggressively supported. The shortcomings of the past must not be repeated if the concept of single air management within a joint centralized system is to be realized. If the single manager concept can provide both economy and efficiency to air operations at all levels of warfare, its effectiveness must be protected and expanded with the same vigor given any weapon system or developmental project.

The single air management concept and the tactical air control system selected for retention should be actively supported by all services and should be available, viable, and responsive to the needs of the highest national authorities. Developmental tasks should be identified that will provide significant R&D improvements to tactical equipment and operating capabilities across the entire air control spectrum. Above all, TACS capabilities must not be subordinated in the future as they were after World War II and Korea. Today's requirement is to add to the knowledge we have



gained in this and previous conflicts and to ensure that a system and a capability for the integrated direction of all combat air are available for tomorrow.

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