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PROJECT
CHECO
SOUTHEAST ASIA
REPORT

**AIR DEFENSE IN SOUTHEAST ASIA
1945 - 1971**

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PROJECT
Contemporary
Historical
Examination of
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REPORT

AIR DEFENSE IN SOUTHEAST ASIA

1945 - 1971

17 JAN 73

HQ PACAF

Directorate of Operations Analysis
CHECO / CORONA HARVEST DIVISION

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14. ABSTRACT Project CHECO was established in 1962 to document and analyze air operations in Southeast Asia. Over the years the meaning of the acronym changed several times to reflect the escalation of operations: Current Historical Evaluation of Counterinsurgency Operations, Contemporary Historical Evaluation of Combat Operations and Contemporary Historical Examination of Current Operations. Project CHECO and other U. S. Air Force Historical study programs provided the Air Force with timely and lasting corporate insights into operational, conceptual and doctrinal lessons from the war in SEA.					
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PROJECT CHECO REPORTS

The counterinsurgency and unconventional warfare environment of Southeast Asia has resulted in the employment of USAF airpower to meet a multitude of requirements. The varied applications of airpower have involved the full spectrum of USAF aerospace vehicles, support equipment, and manpower. As a result, there has been an accumulation of operational data and experiences that, as a priority, must be collected, documented, and analyzed as to current and future impact upon USAF policies, concepts, and doctrine.

Fortunately, the value of collecting and documenting our SEA experiences was recognized at an early date. In 1962, Hq USAF directed CINCPACAF to establish an activity that would be primarily responsive to Air Staff requirements and direction, and would provide timely and analytical studies of USAF combat operations in SEA.

Project CHECO, an acronym for Contemporary Historical Examination of Current Operations, was established to meet this Air Staff requirement. Managed by Hq PACAF, with elements at Hq 7AF and 7/13AF, Project CHECO provides a scholarly, "on-going" historical examination, documentation, and reporting on USAF policies, concepts, and doctrine in PACOM. This CHECO report is part of the overall documentation and examination which is being accomplished. It is an authentic source for an assessment of the effectiveness of USAF airpower in PACOM when used in proper context. The reader must view the study in relation to the events and circumstances at the time of its preparation--recognizing that it was prepared on a contemporary basis which restricted perspective and that the author's research was limited to records available within his local headquarters area.

A handwritten signature in cursive script, reading "Robert E. Hiller", is positioned above the typed name.

ROBERT E. HILLER
Director of Operations Analysis
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ALFRED A. PICINICH, Colonel, USAF
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FOREWORD

This is the first CHECO Report devoted exclusively to the topic of Air Defense in Southeast Asia (SEA) although a great number of CHECO reports deal with the subject to some extent. This report does not attempt to usurp the areas covered by other reports, but they are referenced to point the reader to areas where amplification or greater detail may be found.

The achievement of air superiority is one of the first tasks of tactical air forces in any theater of operations. Although there had been no demonstrated opposition to the U.S. assuming air superiority in South Vietnam, the protection of ground, naval, and air forces required a continuous air defense alert.

This report covers the development of the SEA Air Defense capability-- U.S. and indigenous forces--including a consideration of command and control, the Aircraft Control and Warning (AC&W) subsystem of the Tactical Air Control System (TACS), the alert commitments, and counter-air defense for special air missions and out-of-country operations.

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CHAPTER I

EVOLUTION OF ALLIED AIR DEFENSE IN SOUTHEAST ASIA, 1945-1961

The end of World War II, with the unconditional surrender of Japan in 1945, left the United States the task of providing defense in the Western Pacific. To develop this capability, the United States created the Pacific Command (PACOM), which was later consolidated into a unified command with three major service component commanders.^{1/}

The USAF component, under the Commander-in-Chief Pacific Air Forces (CINCPACAF), was given the responsibility for the conduct of Air Defense of all land areas of the PACOM and exercised operational control over all air defense weapons systems assigned, attached, or otherwise made available.^{2/} The 13th Air Force assumed the responsibility for the mission as it pertained to mainland Southeast Asia (MSEA).

Flight A (AF Section MAAG Indochina), 1175 USAF Foreign Missions Squadron was designated and organized on 8 November 1950.^{3/} Six officers and 12 airmen assigned to this unit in Saigon, Vietnam, formed the nucleus of what was to become the growing military force MSEA.

The United States formally initiated military assistance to all of French Indochina by signing the Pentalateral Agreement on 23 December 1950.^{4/} Signatories included the U.S., France, Cambodia, Laos and Vietnam, with the U.S. committing itself to furnish military materiel and equipment to combat the spread of communism in SEA through the Mutual

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Defense Assistance Program. From 1950 to 1955, the MAAG Indochina was primarily a small logistics group tasked to administer the transfer of equipment to the French and through them to the indigenous forces of the area.^{5/} As the possibility of a war which would test the French resolve and capability to retain their position in Indochina increased, the U.S. expanded its assistance with various aircraft and logistic support. For example:^{6/}

5 February 1954--(S) Located at Clark AB, Philippines the 6424th Air Depot Wing of the Far East Logistic force is committed to support Air Force operating locations that are established in Indochina for maintenance and supply support of aircraft owned by the French or on loan to them by the American Government.

20 March--(U) Admiral Radford assures General Ely that U.S. aircraft will intervene to counter Chinese communist air intrusion into Indochina. Repeatedly, Admiral Radford also makes an offer that the United States will consider, if so requested by the French Government, a strike by about 60 B-29's from Clark Field on the Viet Minh in the vicinity of Dien Bien Phu.

Following the defeat of the French at Dien Bien Phu on 7 May 1954, and the signing of the "Geneva Accords" 20-21 July, it was hoped that the emerging nations of Indochina would be allowed to develop under the policy of self-determination. The French immediately began to withdraw their combat forces, and at the same time, MAAG Indochina was split into MAAG Vietnam (MAAGV) and MAAG Cambodia. MAAGV's mission, the more important of the two, was to assist the Vietnamese government in raising the military capabilities of its armed forces through the Military Assistance

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Program (MAP).^{7/} It is the MAP, and the development of allied air defense forces in Thailand, Laos, and Vietnam, which is the focal point of this study.

Thailand and the United States had signed a formal military assistance agreement on 17 October 1950, and shipments of supplies and equipment under the U.S. Military Assistance Program began to arrive in Bangkok in 1951. Aircraft included F-8F Bearcats, T-6s, L-5s, L-18s, Cessna O-1 Birddogs, Cessna 170s, and Beach C-45s. The first T-33s arrived in 1957 and the first combat jet aircraft in 1958. During the first decade of MAP support, the RTAF received 368 aircraft.^{8/} The assistance agreement provided for training of Thai personnel both in-country and in the U.S. under the auspices of the MAP, with initial construction of an AC&W system beginning in 1959.^{9/} A Control and Reporting Center (CRC) was operational at Don Muang Air Base in April 1961.

Motivated by an increasing communist threat internally and a deteriorating military situation in Laos, Thai officials requested some augmentation for air defense. In "Operation Belltone" four F-102s of the 405th Fighter Wing, Clark AFB in the Philippines deployed to Don Muang Air Base, Thailand, on 27 August 1961.^{10/} Although there were many operational problems associated with these deployments, an air defense system was in its initial building stage.

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American economic assistance to the Royal Laotian Government had begun in 1950 with the signing of the Pentilateral agreement. After the Geneva agreement of 1954, the U.S. began increasing direct military support to the anti-communist Laotian forces. A Program Evaluation Office was set up in 1955 to advise the ambassador on requirements for and use of military equipment. By the end of 1959, of the total of 239 U.S. military personnel there, 17 were assigned to the Army aviation branch of the Royal Lao Forces Armees Royale (FAR).^{11/}

To counter the increasing assistance provided by North Vietnam and the Soviet Union to the leftist forces in Laos, the U.S. gave six T-6s to the Royal Laotian Government (RLG) in January 1961. The motivation behind U.S. support for Laos changed from one of militarily defeating the Pathet Lao to one of keeping the Mekong Valley out of Pathet Lao control, thus easing the pressure on Thailand.^{12/}

Shortly thereafter the U.S. announced it would furnish a Joint United States Military Assistance Group (JUSMAG) to Laos. Personnel strength reached 1220 advisors. Although the Geneva accords of 23 July 1962 stressed the neutrality of Laos and required the withdrawal of all foreign military personnel except a French contingent of instructors,^{13/} it was soon apparent that communist pressure on the Laos military could not be countered with French assistance alone.^{14/}

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As early as 5 September 1962, CINCPAC stated that U.S. objectives required continued support to the FAR as an autonomous anti-communist fighting force until such time as it was consolidated into the forces of a truly neutral Laotian government.

In 1963 an office of Deputy Chief Joint United States Military Advisory Group Thailand (DEPCHJUSMAGTHAI) was established to provide continued support to the RLG. The U.S. furnished T-28 and C-47 aircraft, H-34 helicopters, instructors, and training programs to the Royal Laotian Air Force (RLAF), both in-country and in Thailand. The requirement was to build an effective Laotian air force while simultaneously supporting active combat operations within Laos. Although the RLAF T-28s represented a small air defense capability, there had been no concerted effort made toward developing an integrated air defense capability in the RLAF.

The Armed Forces of Vietnam had been officially established in 1950.^{15/} What was later to become the Vietnamese Air Force (VNAF) was called the Air Department of the Joint General Staff, and had been initiated by the French to supplement the French Air Force in the battle for Indochina.^{16/} Specific roles, however, were restricted to observation and liaison duties. The French Air Force flew the B-26s and F-8Fs in the actual strike sorties, leaving only support flights to the VNAF. In 1954 the French gave the VNAF the twin engine Marcel Dassault 312 light bomber, thus creating the first VNAF combat arm.^{17/} Before it could test its capabilities, however, Dien Bien Phu fell, ending French control in Indochina. French combat units began immediate withdrawal, leaving only training advisors.

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On 1 July 1955, the VNAF separated completely from the French Air Force and was redesignated the "Air Force Staff." This date marks the official founding of the VNAF. In June 1956, the VNAF 1st Fighter Squadron, located at Bien Hoa AB, received 28 F-8F Bearcat fighters as the first step toward air defense. The transition from the French to the U.S. manner of doing things was a difficult task, but gradually accomplished.^{18/} Responsibilities increased in spite of an acute shortage of personnel. Training programs encompassed improvement of the Republic of Vietnam Armed Forces (RVNAF) command and staff organization and procedures as well as the training of units and individuals.^{19/}

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CHAPTER II

AIRCRAFT CONTROL AND WARNING IN SEA

Increasing insurgent actions in SEA in the late 1950s brought a series of U.S. official visitors to Vietnam--including Vice President Lyndon B. Johnson, Presidential Military Advisor General Maxwell D. Taylor, and General Lyman L. Lemnitzer, Chairman of the JCS. In part as a result of these visits, President Kennedy decided to give additional U.S. military aid to RVN, including U.S. forces "if necessary."^{20/} Thus the United States deployed additional aid in the form of training units, operational units, supplies, equipment, and augmented advisory teams to SEA.

The first steps toward air defense assistance were modest. At the request of Thai officials the U.S. established a radar-equipped Control and Reporting Center (CRC) at Don Muang Air Base, Thailand in April 1961. Personnel of the 507th Tactical Control Group (TCG) from Shaw AFB, South Carolina manned the center on a TDY basis.^{21/} On 27 August, in "Operation Belltone," four F-102 interceptors from the 509th Fighter Interceptor Squadron, Clark AFB, R.P. deployed to Don Muang AB. Many ensuing operational problems raised questions as to the capability of these units to perform the air defense mission. No adjoining Ground Control Interceptor (GCI) sites existed to provide early warning and interceptor control. In addition, operational procedures had not been developed and rapid rotation of personnel created a lack of continuity in training and operations.^{22/} The protection was principally psychological, but the nucleus of an air defense system in Thailand had been born.

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In Vietnam, the USAF moved to increase the inventory, train more pilots, and start a Tactical Air Control System (TACS). The Control and Warning, as well as the control of tactical air strike functions, required integrated communications, radar detection and control capabilities, and a system to enable identification of air traffic. Only a rudimentary air traffic control system existed in MSEA using high frequency radio for communications and low frequency beacons for navigational aids. While this had been sufficient to handle the existing commercial traffic with minimum military involvement, it could not support a TACS. Again mobile communications units were deployed to establish communications facilities and to develop plans to meet rapidly expanding requirements.^{23/} For example, a mobile radar equipped Control and Reporting Post (CRP) from the 507th TCG, Shaw AFB, manned by TDY personnel, became operational at Tan Son Nhut AB on 5 October 1961^{24/} as Det 2, 5th TCG.^{25/} On 26 October, with the addition of a Movement and Identification Section, it became a Control and Reporting Center (CRC).

With the greatly expanding number of units being established in MSEA, it became apparent that a local coordinating headquarters was necessary. Detachment 7, 13th AF Second Advanced Echelon (Det 7, 2 ADVON)^{26/} was organized at TSN Airport, with Brigadier General Rollen H. Anthis, Deputy Commander 13th Air Force, assuming command on 20 November 1961. On 1 December, Anthis was also appointed Chief, MAAG Air Force Vietnam, in effect the Air Force component commander.^{27/} He was responsible for:^{28/}

- [REDACTED]
1. Exercising operational control over all PACAF forces deployed on the MSEA in support of PACAF/13AF OPORD/PLAN. . . .
 2. Coordinating air defense requirements with air section JUSMAGTHAI.
 3. Arranging with the Commander 405th Ftr Wg for all enroute flight requirements of tactical aircraft deployed to Don Muang Airport, Thailand.
 4. Conducting air defense training.
 5. Assisting in the training of RTAF personnel in the Thailand Air Defense System.
 6. Assisting in the training of VNAF personnel in the Vietnamese Air Defense System.

The staff and support personnel arrived in TDY status from PACAF resources and set up operations in temporary facilities and tents. Among their primary tasks were to establish a TACS and to determine the communication and logistic requirements.

The air defense problems in Vietnam were similar to those which had been encountered in Thailand, but were of even greater magnitude. Inadequate communications, minimum radar coverage, the lack of an Air Defense Identification Zone, and the fact that many pilots just didn't file flight plans, made air defense virtually impossible. Of the 592 flight plans received from 1-15 November 1961, only 280 could be correlated. ^{29/} The need for greater coordination of all activities and equipment became increasingly evident.

A study of the overall TACS problem conducted at Hq PACAF resulted in publication of 13th AF Operation Plan 226-61 (BARN DOOR) dated 30 December

[REDACTED]

1961 which set forth the particulars for the institution of the TACS.^{30/}
This was an attempt to establish a complete system with full radar coverage of South Vietnam. Numerous steps followed to bring this to fruition.

On 2 January 1972 adjacent to the CRC an Air Operation Center (AOC) was established at Tan Son Nhut Air Base. Air Support Operations Centers (ASOC) in each of the military regions followed. The AOC was an action agency which served as the Command Post for the Commander VNAF and the Commander 2d ADVON. Jointly manned by personnel of the VNAF and USAF, it provided the opportunity to train VNAF personnel toward self-sufficiency. However, USAF personnel controlled only U.S. aircraft while VNAF personnel controlled only VNAF aircraft.

The AOC controlled every facet of the USAF/VNAF tactical air activity in SVN including air defense functions. This was the nucleus of the Tactical Air Control Center (TACC) which developed and expanded through many changes and augmentations.^{31/} The 7th AF Control Center was separated from the joint operations to control the unique and expanded USAF operations. Under Operation BARN DOOR, a CRP operated by Det 3, 5th TCG, became operational 14 January 1962 at DaNang AB.^{32/} Also, a light radar used by the VNAF at TSN was moved to Pleiku to be manned and operated as a CRP by the VNAF.

On the night of 19-20 March, this CRP detected low altitude unidentified tracks over RVN in an area believed to contain concentrations of VC forces. It was possible that these were communist aircraft resupplying

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the VC in areas shielded from radar by mountains. The 2d ADVON stated a requirement for radar coverage of these areas of Thailand and Laos on the northwestern approaches to RVN.^{33/} In addition, on 22 March 1962, the 509th Fighter Interceptor Squadron deployed three F-102s and one TF-102 from Clark AFB to TSN to provide the first quick reaction air defense capability and to develop tactics against low-slow aircraft. This flight returned to Clark 30 March, but under operation "WATER GLASS," later to be changed to "CANDY MACHINE," the air defense alert commitment continued, first on an "as deemed advisable" basis, and later full time.^{34/}

In order to provide better radar coverage in the approaches to South Vietnam from northeastern Cambodia and southern Laos, as well as providing better air defense radar coverage of Thailand, PACAF directed the relocation of the mobile USAF CRC from Don Muang AB to Ubon. This raised some questions of probable political consequences. SEATO had scheduled an exercise (AIR COBRA) which would have required a CRC at Don Muang AB. Doubt existed as to whether a Thai CRC at Don Muang could satisfy the exercise requirements, and the Thai officials had to be convinced that the Ubon CRP was a requirement for Thai air defenses.

These considerations delayed the move, but the CRP did become operational at Ubon on 10 May 1962, as Det 4, 5th TCG.^{35/} Although not specifically planned that way, this CRP would tie together the existing, though meager, air defense systems of Thailand and Vietnam into one MSEA coordinated air defense system. It provided Forward Tell, Cross Tell

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and Command and Control circuits, plus secure teletype circuits from Ubon to adjacent CRPs in Thailand, and to the Royal Thai Air Force AOC/CRC at Don Muang and the USAF/VNAF AOC/CRC at Tan Son Nhut.^{36/} The installation of another mobile CRP (MAP) at Ban Me Thout by the VNAF, using a radar originally provided to the French under MAP-Indochina, helped fill "holes" in the South Vietnamese radar coverage and improve surveillance capability.^{37/}

Increased activity by friendly aircraft in the RVN delta area underscored the requirement for low-level radar coverage in MR IV. At the direction of CINCPAC, PACAF deployed a CRP to Can Tho, RVN in the spring of 1964. This CRP, and one at Ca Mau in the delta, was moved from time to time. The final location of a heavy radar covering the Delta area was at Binh Thuy. Another heavy radar site, at Monkey Mountain near DaNang AB, also became operational in February 1964.^{38/}

Thus the planning and building of the TACS in MSEA continued. Optimally, such a system would be designed and installed on an integrated basis; but the needs of the particular area at the moment, plus political considerations, dictated where available resources were to be used. In some cases radars were placed at sites selected for security rather than for performance.

It was not until 1966 that the JCS approved plans for a completely Integrated Tactical Air Control System (SEAITACS) for MSEA.^{39/} Even after approval of the system, considerations such as security, radar coverage needs, political constraints and financing dictated activations and deactivations of radars at different locations and at different times.

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In a dynamic war situation such as that in RVN, flexibility and versatility were the watch words. Although the original planning under "Operation BARN DOOR" was primarily for a system to meet South Vietnam's anticipated requirements for military and civil traffic under the MAP, the SEAITACS program had to meet the requirements for the tremendous build-up of U.S. forces in all of MSEA.

The primary function of a TACS is to provide the Air Component Commander with efficient control of all the assets within his area of responsibility. The TACS in Vietnam had been in operation in each region since the establishment of the Air Support Operation Centers. The installation of more and more radars enhanced the monitoring of tactical air strikes. Of equal importance, and a requirement for an effective air defense system, was area radar surveillance coverage. (See Figure 1 for CRC/CRP areas of responsibility.)

In addition to the radars already operational, the SEAITACS plan included the installation of two more heavy radars along the coast, one at Qui Nhon and one at Hon Tre Island. However, on 18 September 1965, tactical requirements led to one CRP being placed atop a small, nearly inaccessible mountain (Nui Ba Don) at Trang Sup in Tay Ninh province. After a stormy history of enemy attacks, it was completely removed in April 1968.^{40/}

Another CRP was installed at a Marine facility at Dong Ha in November 1965 to provide better radar surveillance in the DMZ area. Again, following

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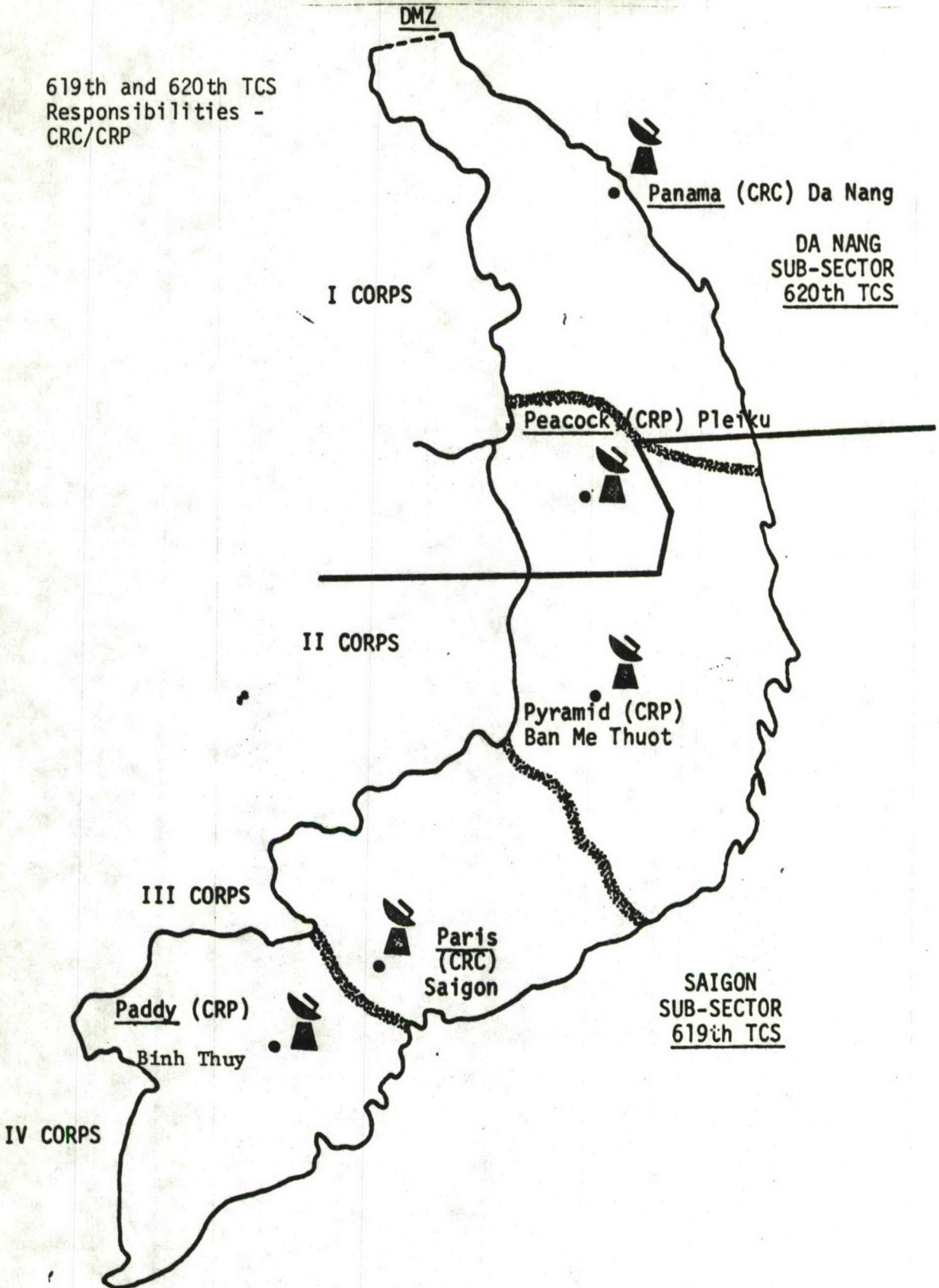
heavy damage from enemy attacks and virtual destruction by a typhoon on 2 September 1969, it was deactivated.^{41/}

Still another CRP was established at Quang Tri to fill the radar void left when the USMC redeployed out of country in 1970. It was later moved to Camp Evans in the same general area, and was operational until February 1972 under the control of the Monkey Mountain CRC.^{42/}

The plan for a site at Qui Nhon was abandoned because of logistics problems, but the CRP at Hon Tre Island became operational in February 1967.^{43/} Because of logistics and security problems, it was later moved to Cam Ranh Bay AFB where, after being virtually destroyed by an enemy attack, coupled with a decrease in its mission requirement, it was later deactivated.^{44/} Another radar equipped FACP was to have a short existence at Duong Dong Airport on Phu Quoc Island covering southern Cambodia, the Gulf of Thailand area, and linking the Binh Thuy radar with "Green Hill" in Thailand. It became operational 15 August 1967 and closed operations 8 December 1968, primarily because of security problems.^{45/}

In Thailand, the CRP at Udorn RTAFB became operational 26 July 1964, and was later upgraded to a CRC. The MAP site under the RTAF was an operational CRC at "Green Hill". In February 1965, the USAF CRP at Nakhon Phanom (NKP) became operation, followed by the USAF CRP at Mukdahan on 21 May 1966. (The latter CRP was deactivated on 19 November 1969.) These were followed by the CRP at Phitsanulok becoming operational on 27 July 1966.^{46/} The RTAF established light gap-filler radars on a temporary

619th and 620th TCS
Responsibilities -
CRC/CRP



Areas of Control Responsibility

FIGURE 1

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basis, two being operational at the close of this report at Ban Pratandee,^{47/} northeast of Udorn RTAFB and Ban Kantuat Ramuan, southeast of Green Hill.

The creation of a more permanent net led to more stable manning and organizational policies. The USAF and MAP sites had been originally established with radars furnished and manned by personnel on TDY from the 507th TCG, Shaw AFB, South Carolina and the 5th TCG in the Philippines. The 619th TCSq had been organized at TSN to be the parent unit of the radar sites-detachments.^{48/} The 505th Tactical Control Group was designated at TSN on 8 November 1965, and to it were assigned the 619th, 620th Tactical Control Squadrons (TCS) at Tan Son Nhut AB and DaNang AB respectively and the 621st at Udorn RTAFB.^{49/} The 505th TCG was subordinate to Headquarters 2d Air Division (later 7AF) with command, administrative and logistic responsibility for the three assigned squadrons and their detachments (CRC-CRP) as well as for a Tactical Control Maintenance Squadron. The 7AF Director of Combat Operations, through the TACC, maintained operational control of the CRC and their CRPs.

When the College Eye Task Force (CETF) was deployed to SEA, it likewise came under the operational control of the TACC. Although airborne, it was an additional CRC or CRP, depending on how employed, but it was not attached to nor made a part of the 505th TCG. It was in-country on a TDY basis, and various offices in Hq 7AF monitored its activities; however, no clear lines of command existed. Of the relationship between CETF and 7AF Col Davidson, CETF Commander said that^{50/}

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without any criticism whatever of 7th AF Staff I would have to say that it has been somewhat hazy. We, as a unique organization in SEA, are somewhat different from other organizations. There is not a great deal of knowledge on the part of individual staff people at any headquarters concerning the employment of EC-121D type aircraft. Also contributing to this haziness is the fact that never have we been clearly placed in the 7th Air Force organization. It is generally agreed that we are under the operational control of the Director of Combat Operations at 7th Air Force but, subordinate to the Director of Combat Operations, there is no one within any of the branches or divisions which is clearly, in my judgment, the OPR for College Eye.

As the 505th TCG developed its capabilities and potential, Headquarters 7th Air Force began to rely more on the 505th for its expertise, particularly in the radar sensor spectrum. In addition to its command responsibilities, the TACS called upon it for many staff functions.^{51/} Incidentally, when the CETF was deployed back to SEA in 1971, it was attached to the 505th TCG for administration, logistics, and staff supervision. This alleviated many of the problems CETF previously experienced, and again brought all of the radar surveillance functions into one coordinating agency.

The 2d ADVON had been redesignated the 2d Air Division on 8 October 1962 and on 1 April 1966 it became the 7th Air Force.^{52/} While still under 2d Air Division organization, the Commander 2d Air Division became the AF Component Commander (AFCC) for both MACV and MACTHAI. Thus he gained operational control of all USAF units in MSEA except the advisory units which remained with the Military Assistance Advisory Groups (MAAGs). The USAF units in Thailand were under the 13AF for command, administration, and

[REDACTED]

logistics support. Thai officials demanded that the Commander of the Free World Military Forces located in Thailand be physically present in Thailand. This was accomplished by organizing a joint 2d/13AF Hq at Udorn RTAFB. The commander at this headquarters was the Deputy Commander, 2d Air Division, nominally with operational control over USAF tactical resources. He also served as Deputy Commander 13AF for command logistics responsibilities for USAF tactical forces in Thailand. This arrangement satisfied the Royal Thai Government and made this Deputy Command 2AD/13AF (later 7AF/13AF) the central point of contact between the USAF tactical forces and the Thai officials.^{53/} (See Figure 2.)

The Commander 2d Air Division was responsible for the air defense of MSEA and, when it was officially designated a new air defense region, it was divided into sub-regions consistent with international considerations.^{54/} The Deputy Commander 7AF/13AF was given primary responsibility for air defense of the western portion (Thailand) and the Commander 7AF the eastern portion (Vietnam) of the MSEA Region. These were further divided into the Udorn and Bangkok subsectors of the western sector, and the DaNang AB and Saigon subsectors of the eastern sector. The Battle Commander TACC-NS was responsible for air defense in the DaNang AB subsector and was further given responsibility for air defense north of 16°N latitude because of his unique capabilities. (See Figure 3.) These divisions of the MSEA were based upon a variety of requirements including political, national, personal, and psychological factors. Designed to allow unilateral or Joint U.S./Host country operations, this enabled the systems of the three countries involved to complement each other in air defense functions.^{55/}

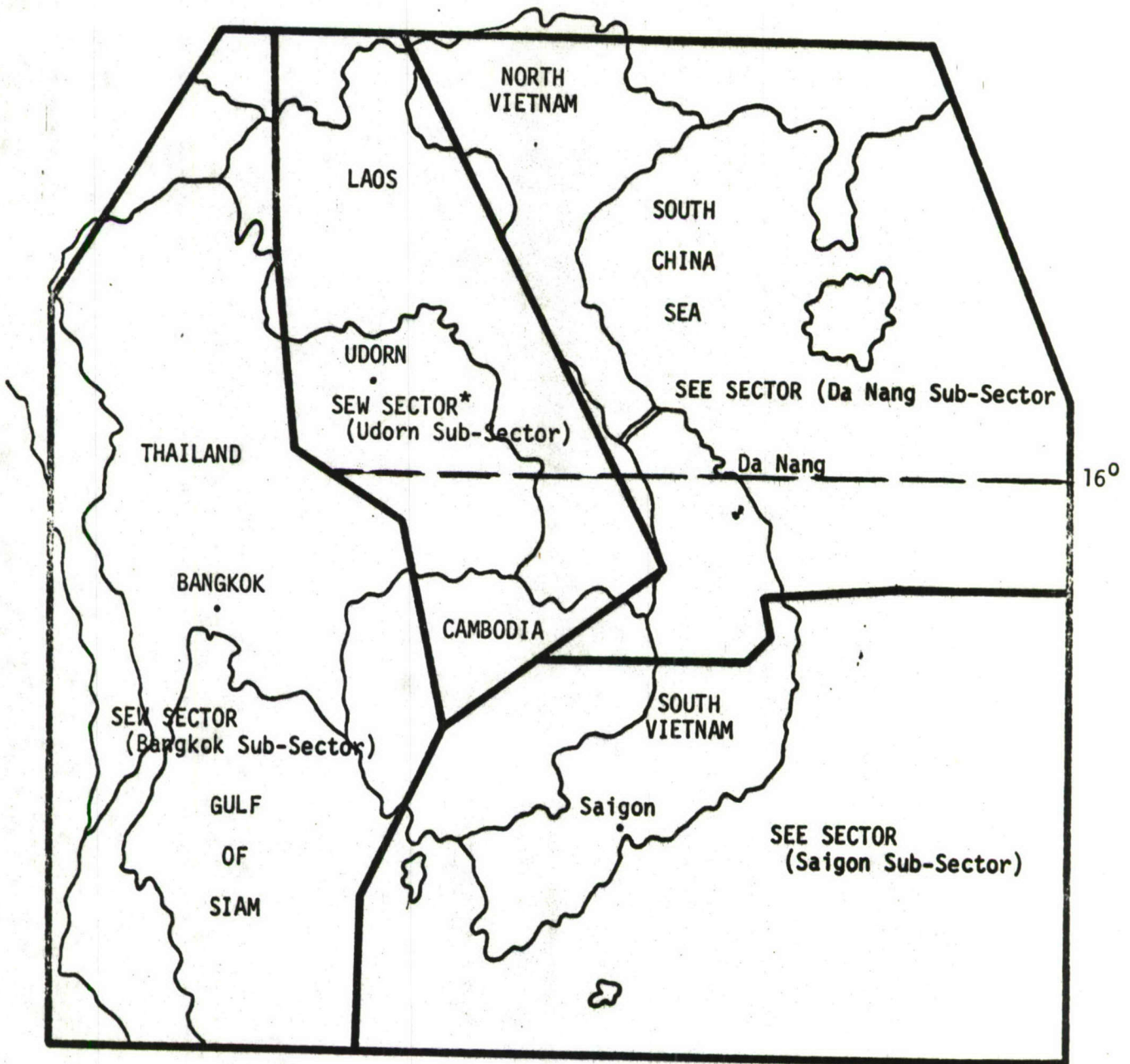
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The "out-of-country" tactical air strikes, the politically imposed stringent Rules of Engagement, and the possibility of international border violations made surveillance and aircraft control over NVN and Laos an urgent requirement. Many studies were conducted and radar siting teams made surveys for possible radar sites in Laos; however, because of security and logistics considerations, none was installed. One possible solution was airborne radar.

By using airborne radars, the Air Defense Command had maintained extended radar coverage along both coasts of the U.S. for many years. Because of a reduction of mission requirements, the 552d AEW&C Wing, located at McClellan AFB, California had been reduced to manning stations around Florida and to random manning of some west coast stations. The idea of giving this unit a mission in the war zone was welcomed. Later this move was to prove of great benefit to the USAF by providing extensive experience toward meeting requirements for the planned Airborne Warning and Control System (AWACS).^{56/}

On 14 April 1966 a detachment of the 552d AEW&C Wg, known first as the Big Eye Task Force and later the College Eye Task Force, started flying surveillance orbits over the Gulf of Tonkin from TSN. With the increasing aggressiveness of the NVN MIGs, CETF's primary mission was to warn striking forces of MIG activity. The mission later included issuing warnings to strike forces to help prevent violations of the Chinese communist border.^{57/} The capability of the airborne search radar system (AN/APS 95) was limited: designed for overwater reflective propagation, its overland

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LEGEND

SEE = Southeast Asia East
SEW = Southeast Asia West

Air Defense Boundaries (MSEA)

FIGURE 3

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capabilities were not so good. While beacon tracking (SIF/IFF) was good, many strike pilots had to be convinced to keep their sets turned "on".

Newly developed equipment greatly expanded the CETF's capability to perform its mission. That which had the greatest impact on mission effectiveness was installation of the enemy IFF interrogation system (QRC-248). One assessment of the system follows: ^{58/}

With the advent of the QRC-248, we were able to detect aircraft which we had not previously seen. It was somewhat frightening to us to realize that in the past there had been many aircraft we had not seen. In fact it so far increased the ability of "College Eye" to detect enemy aircraft that we later recommended to 7th AF and received approval to discontinue the low altitude radar platform in favor of two and later three sorties making exclusive use of the enemy IFF (the QRC-248).

The CETF was another of those surveillance units which performed its duties in SEA on a TDY basis. ^{59/} While moving its operating base from TSN AB, to Ubon RTAFB, then to Udorn RTAFB and finally settling at Korat RTAFB, it continued flying scheduled surveillance orbits. In April 1969, CETF deployed two aircraft to Korea for two weeks while continuing to fly its full commitments in Laos. With its continuing and enlarging capabilities, the CETF was additionally given Air Traffic Regulating Center (ATRC) responsibilities in Laos and NVN on 13 September 1969. ^{60/} With the cessation of bombing in NVN, the requirement for the CETF diminished. It was allowed to redeploy to the U.S. and to support 5th AF requirements in Korea.

[REDACTED]

More aggressive MIG incursions into Laos and attempted engagements of USAF aircraft stressed the need for extended surveillance and control capability. Three EC-121s deployed back to SEA and began flying orbits on 10 December 1971.^{61/} Again CETF was integrated into the SEATACS to extend surveillance and UHF communications capability, and to provide threat information to friendly aircraft via the SEA tactical data system.^{62/} The CETF Intercept Director (IND) was delegated the same air defense/counter-air authorities as those delegated to CRC Senior Directors, including Scramble Authority for his area of responsibility.^{63/}

The 7th AF Battle Commander at the CRC on Monkey Mountain had been located there as a designated representative of the Commander 7AF to assume Battle Commander responsibility of the Da Nang Air Defense subsector.^{64/} To enable him to perform his duty, he had direct access to the radar data at the CRC and Forward-Tell data from the CRP at Dong Ha. In addition, of course, he had Cross-Tell data from other CRCs and coordinating information from the Naval CTF-77 in the Tonkin Gulf. Additionally, special reconnaissance information was available to him in his classified operations center. In September, the JCS directed PACAF to deploy to TACC to "Monkey Mountain" under Project COMBAT LIGHTING. It was later to be designated the Tactical Air Control Center--North Sector (TACC-NS).^{65/}

The TACC-NS became operational in November 1966 as a manual system to receive and correlate the daily "fraggged" strike missions with surveillance track data and intelligence inputs from its variety of sources. This correlation plus near real-time inputs added another improvement in defense against the MIG threat.^{66/}

[REDACTED]

Continuing to draw upon many varied inputs, under Project SEEK DAWN, the TACC-NS became operational in the automated mode on 1 November 1967.^{67/} (See Figure 4.) This consisted of two modified Back-up Interceptor Control Centers, computerized displays located at Monkey Mountain and at Udorn RTAFB, interconnected by digital data ties. This information would also be provided to the TACC "Blue Chip" at TSN.^{68/} Of the information available to him, General Momyer stated that^{69/}

it has long been my desire to centralize air resources management, tasking and decision making at my command center. This will soon be a reality with the assistance of automatic systems which will permit me and my staff to selectively monitor all air operations.

However, because of the decrease in mission requirements, plus as an economy measure, the link between TACC-NS and the TACC "Blue Chip" was cancelled.^{70/}

The ATACC-NS, Udorn RTAFB, ceased operation on 31 December 1970 and consideration was given to reverting the TACC-NS to a manual operations.^{71/} Increased MIG incursions in 1971 delayed this proposal. The TACC-NS was back into heavy operation following the extensive communist invasions into SVN and the return to air strikes in NVN in 1972.

In any event, with near instantaneous communications between the TACC-NS Battle Commander and the TACC "Blue Chip," the Air Force Commander received information on the air environment situation and at least had immediate indirect control of commitments and air-to-air combat.

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The TACC-NS had no direct weapons control capability, but based upon sensitive inputs did provide additional movements and identification capabilities not available to the CRCs. The CRCs throughout the system, with their subordinate CRP's Forward Telling track data, were responsible for maintaining a current picture of aircraft movement and identification of air traffic within their areas of responsibility. They were provided flight plans and "fragged" air strike plans with which correlation of track data was made. Tracks of objects that the CRC or TACC-NS could not correlate they declared "unknowns." The CRC had been delegated operational control of air defense weapons and had authority to scramble fighter-interceptor aircraft for visual identification of "unknowns." They also had commitment authority on declared "hostiles" within the established Rules of Engagement.^{72/}

Although this was to complete the picture for radar surveillance for air defense within Vietnam and Thailand, there were other radar and air defense systems in the area. The Navy Carrier Task Force 77 (CTG-77) in the Gulf of Tonkin and off the coast in the South China Sea maintained radar surveillance over the Task Force, maintained aircraft on scramble alert and Barrier Combat Air Patrol (BAR-CAP), and operated the Navy Tactical Data System (NTFD)--a semi-automatic air defense system. The Marines also had radar surveillance in MR-I, maintained aircraft on alert and operated their Marine Tactical Data System (MTDS). Although coordination and cooperation were achieved, it was late in the operation before these systems were effectively tied together under Project "SEEK DAWN."^{73/}

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SEEK DAWN INPUTS
TACC-NS

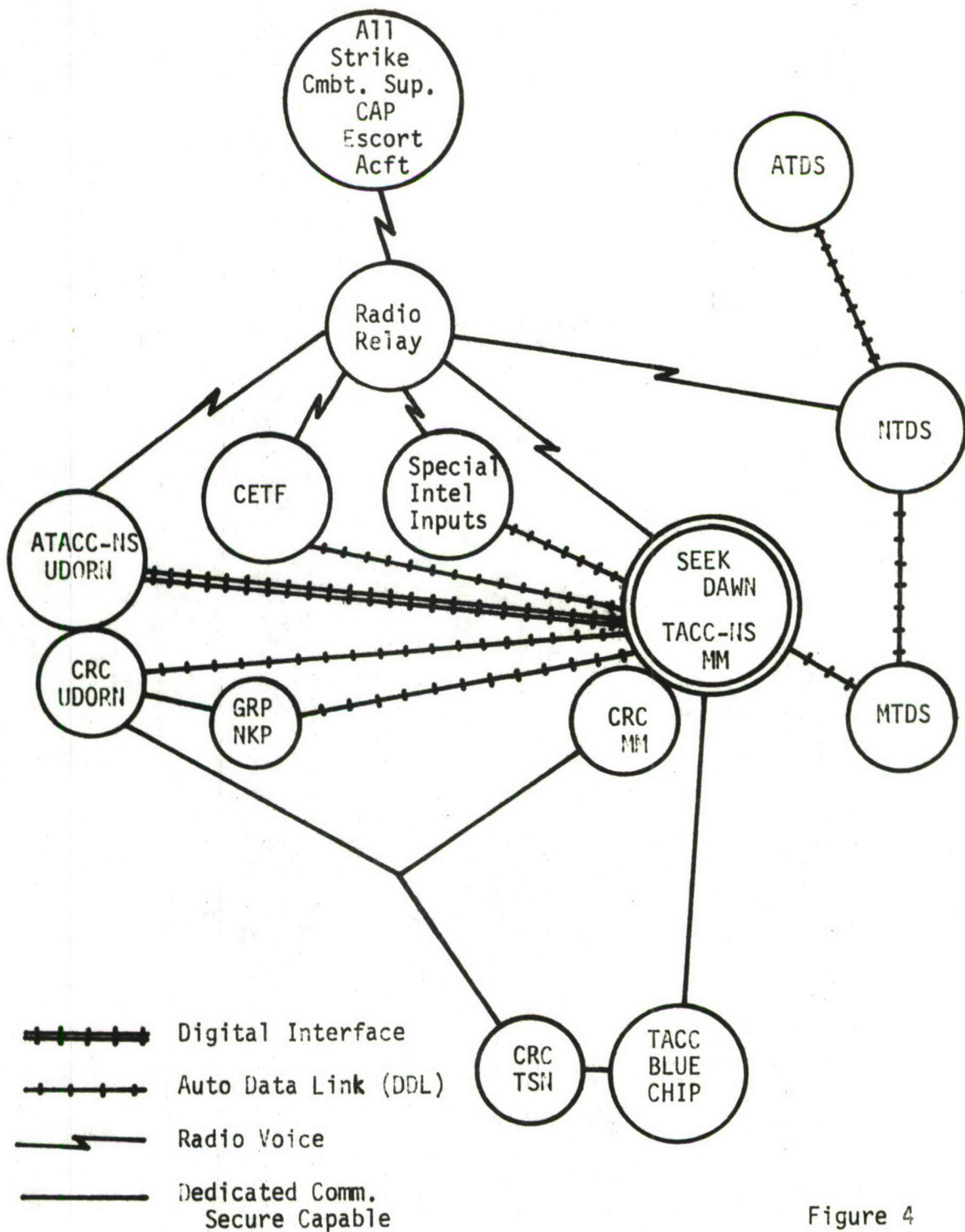


Figure 4

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In the area of air traffic control, the problem of commercial traffic had to be solved. In theory, in an area of armed conflict, commercial traffic would be indisputably under control of the component commander; however, this was not the situation in MSEA. For example, Thailand was not at war and all air traffic control there was a responsibility of the Thai government.^{74/}

In theory the control of all air traffic in South Vietnam rested with the Vietnamese Director of Civil Aviation under the Ministry of Transportation and Communications. He was unable to meet the demands of this task. The Air Force had many of its own navigational aids and air to ground radio nets. The Navy, Marines and the Army also had systems to control their aircraft, as did the VNAF. Under combat conditions the control of civilian and military air traffic became a joint Vietnamese-American operation. Tactical traffic alone sometimes saturated the airspace, and its control imposed imponderable tasks on the traffic control system. In 1966 a PACAF/PACOM area committee studying air traffic control problems in the Western Pacific found Vietnamese "opposition" to U.S. military requests for airspace control authority, and augmentation of control facilities. In summary this committee stated that:^{75/}

Contributing to the mounting opposition and slowdown of support are: National pride and reluctance to admit to an inferior system; a general lack of compliance in technical fields sufficient to keep pace with the accelerated demands imposed by U.S. requirements; generally poor controller morale resulting in decreased efficiency; reluctance on the part of the Vietnamese government to relinquish control of sovereign air space to a foreign agency and a

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feeling of being overwhelmed by a technically superior culture. Added to this the fact that the military attitude is keyed, and rightly so, to a wartime environment with the corollary assumption that the military aircraft take absolute precedence over all others.

In 1967 a committee of FAA air traffic controllers investigating Air Traffic Control in Vietnam for the Air Force observed^{76/}

a duplication of effort, misuse and mismanagement of personnel resources, personality conflicts, duplicate use of similar types of equipment, uncoordinated programmed actions, overlapping of mission mismanagement of airspace, duplicating and incompatible communications systems.

The committee went on to say that with no integrated traffic control system, the control--even the monitoring--of tactical aircraft was a "sometimes" thing. The committee said that U.S. controllers were assigned a responsibility they could not fulfill and had no prerogative of refusing. The result was a substandard service and a false sense of security for pilots.^{77/}

Although PACAF Oplan 151/66 had been approved by the Chief of Staff USAF, diplomatic problems and the low priority accorded the project left it dormant.^{78/} The general control situation culminating in mid-air collisions caused the Vice Commander 7AF to recommend strongly that the project get started. He said that^{79/}

unless and until a single integrated Air Traffic control system is established, the ever present danger of mid-air collisions exists . . . to have an effective Air Traffic control system in SEA that is responsive to military requirements and can provide radar control it is recommended that a strong

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position be taken on implementing the ATRC function of the SEAITACS Plan with sufficient priority established to acquire the necessary equipment and personnel.

A plan for the integrated improvement of the entire Air Traffic Control System was activated under Project COMMANDO INDIAN, and much improvement was made through 1967-1968.^{80/} Air Traffic Regulating Centers (ATRC) were integrated as component parts of the TACS and located in the CRCs, but continuing personnel and training problems demanded major attention.^{81/}

The cessation of bombing in NVN and the redeployment of U.S. forces from SEAsia relieved the oversaturation of airspace, enabling the closure of some of the ATRCs. Reduced need for traffic controllers led to lowered morale of personnel in this critical career field. Studies and trial periods for practice and evaluation showed that Weapons Controllers could now satisfactorily assume these reduced ATRC functions. Thus Seventh Air Force directed the 505th TCG to begin a trial period for complete phase out of all ATRCs.^{82/}

As a result, there was a continuing problem of training weapons controllers (particularly VNAF and RTAF personnel) and maintaining air defense proficiency training. Practice scrambles of interceptors on alert provided air defense training for interceptor crews and weapons directors, but there were never enough intercepts, actual and training combined, to satisfy continuing training requirements. The control of fighter-tanker intercept "join-ups" counted partially toward meeting established intercept

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training requirements.^{83/} While use of fighters returning from strike missions by GCI controllers to practice intercepts was considered, the psychological letdown of the pilots after a mission would be detractive. At this writing, the installation of synthetic trainers was nearing completion, and promised additional valuable training opportunities.

As the VNAF and RTAF AC&W units were declared "self-sufficient," the USAF collocated units directed their efforts toward the release of control and deactivations.^{84/} The retention of the capability to perform unique USAF missions required the retention of some equipment as well as maintenance and operations personnel. Normal operations were manned only with advisory personnel, placed under MAAG.

Vietnam and Thailand were well on their way toward meeting the AC&W requirements for self-sustained air defense. Efforts had been made on a continuing basis to build coordination and cooperation between the two countries for joint air defense operations in anticipation of the withdrawal of U.S. forces from SEA. Joint meetings had been conducted and agreements negotiated on communications requirements and the type of coordination and mutual assistance to be provided.^{85/}

CHAPTER III

SEA AIR DEFENSE: WEAPONS DEPLOYMENTS

The increasing communist insurgency in SEA multiplied the threat of aerial intervention by the NVN. Successful aerial resupply drops to the Pathet Lao heightened the concern for air defense. In a "show of force," as assurance of intent to support mutual defense agreements, the U.S. deployed four F-102 fighter interceptors to Don Muang RTAFB in August 1961. Although these aircraft were deployed on TDY rotational basis it marked the first time U.S. military forces were moved to MSEA for an indefinite duration.^{86/} A minimum of four F-102s remained on alert status on this rotational basis almost continuously at Don Muang RTAFB until the summer of 1970.^{87/}

The year 1961 saw decisions to provide more military forces and equipment to the RVN, presaging a decade of ever increasing involvement. General Lyman L. Lemnitzer, Chairman of the JCS stated that most of the estimated 12,000 communist Viet Cong guerillas in South Vietnam had come "from North Vietnam down through the Pathet Lao held portions of Laos and then across the western border of Vietnam."^{88/}

The RVN border control became a major problem. Twenty-five AC-6 aircraft were delivered to the RVN in May 1961. Next, PACAF deployed four RF-101s to TSN in "Operation Pipe Stem" in October for target intelligence reconnaissance. In November the "Able Mable" reconnaissance task force was established at Don Muang RTAFB and in the same month the "Farm Gate" detachment

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SC-47s, B-26s, and T-28s arrived at Bien Hoa AB. The first 15 of 20 T-28C aircraft to be loaned to the VNAF arrived in Saigon on 11 December. On 28 December the first T-28 strike missions of "Farm Gate" aircraft flew under the control of the TACS. On 29 January 1962 all operationally ready strike aircraft of the VNAF and "Farm Gate" simultaneously struck 14 Viet Cong interdiction targets fully demonstrating the growing capability of the developing forces for strikes, intelligence gathering, defense, command and coordination and control by the TACS.^{89/} With the newly installed radars tracking low flying unidentified aircraft over South Vietnam in areas believed to contain strong VC forces, the Air Force moved to strengthen defenses. On 22 March four F-102 fighter interceptors from the 509th FIS 405th Fighter Wing (FTRWG) in the Philippines were deployed to TSN AB under "Project WATER GLASS."^{90/} After flying 21 sorties in active air defense, training, and tactics experimentation these aircraft returned to Clark AFB. This deployment was the start of a long effort to develop and teach tactics and techniques to combat low altitude, slow flying aircraft in both daylight and darkness.^{91/}

On 10 April two Fifth AF TF-102s teamed up with two TF-102s from Clark AFB to form a WATERGLASS detachment. It was believed that the two pilots in a TF-102 would be more effective against low speed, very low altitude targets. This detachment deployed to TSN on 24 June. PACAF directed its return to Clark on 31 July and specified the required alert in RVN would be assumed by AD-5Q intercept teams from PACFLT.^{92/}

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This was not completely satisfactory and WATERGLASS deployments resumed in November. In May 1963 PACAF directed the WATERGLASS F-102s to return to Clark, but charged 13th AF to insure that they could be redeployed on 12 hours notice. Late in 1963 more rotational F-102 deployments occurred under the new name CANDY MACHINE. These aircraft were to stand active air defense alerts and to continue development of specialized tactics.^{93/} These rotational deployments continued through the first half of 1964 to both TSN AB and DaNang AB for training and to demonstrate PACAF's deployment and air defense capability. Although there was still no demonstrated extensive enemy air activity there were continued sporadic radar tracking and on occasion MIG jets appeared out of Cambodia to violate the RVN airspace.^{94/}

In June 1964 two USN RF-8As were shot down by ground fire in Laos. Reaction to this was direction "at the Washington level" to provide armed escorts for all reconnaissance flights.^{95/} Six F-100s of the 510th Tactical Fighter Squadron were deployed to Takhli RTAFB in June to fly escort for Search and Rescue (SAR) missions. In July they flew from DaNang AB escorting RF-101 reconnaissance flights. In August the 602d Air Commando Squadron began rotating A-1E aircraft (Sandy's) to Udorn RTAFB for SAR escort.^{96/}

Although the original escort fighters were primarily to defend against and to attack ground anti-aircraft targets, they also provided defense against air attacks. In this report, no attempt has been made to make differentiations in any USAF sortie statistics considered. Air Defense sorties included

[REDACTED]

all types of active air defense including escort, CAP, and MIG CAP. Attack sorties included strike, reconnaissance, close air support, interdiction, special missions and other combat support, excluding airlift, training and noncombat support sorties.

The enemy attack on the destroyer Maddox in the Gulf of Tonkin on 2 August 1964 brought about increased air defense measures. On 6 August, the 36th TFS deployed from Yokota, Japan to Korat RTAFB and by 9 August had eight F-105s standing air defense alert.^{97/} Also, on the 9th, the 522d TFS with F-100s deployed from Clark AFB to DaNang AB and Takhli RTAFB for escort duty; six F-102s at DaNang AB stood basic air defense alert. In September, the entire 614th TFS flew escort duty from DaNang AB, and by October "SAWBUCK 12," a detachment of the 416th TFS, was at Takhli flying CAP in Thailand.^{98/} In addition, eight F-86F fighters of the Royal Australian Air Force (RAAF) serving SEATO at Udorn RTAFB and under operational control of the Commander of the Second Air Division stood air defense alert.^{99/} This RAAF half squadron of fighters was stationed there for air defense from 1962 to mid 1968.

In 1965, F-102 fighter interceptors were standing air defense alert at Don Muang RTAFB, and at TSN AB and Da Nang AB in the RVN. In November a rotational TFS, the 390th, with F-4C aircraft took over the escort and air defense duties at Da Nang AB. The F-102s there were released to Clark AFB for later (16 April 1966) deployment to Udorn RTAFB.^{100/}

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In April, the 476th TFS had arrived at Da Nang AB with 14 F-104 Starfighters, for escort and MIG CAP. A year later, they were moved to Udorn RTAFB continuing the same mission but were also used on some interdiction strike missions. ^{101/} They were replaced by F-4s in July 1967. Supporting the USAF in the air defense system were Army and Marine missile battalions. ^{102/}

Although no communist attack aircraft ventured forth to threaten the standing alert, air defenders were engaging in air-to-air combat over NVN. As early as 28 May 1965, CINCPACFLT had warned that 63 operational MIG fighters and five IL-28 (Beagle) light bombers stood on airfields in NVN and that NVN for the first time must be considered to have a limited offensive capability against ships in the South China Sea and other U.S. Forces in SEAsia. ^{103/} On 4 April 1965, the first two F-105 aircraft were shot down by NVN MIG fighters. The USAF did not confirm the destruction of its first MIG until 10 July. The USN had downed its first MIG on 17 June. ^{104/}

There was no question about the U.S. forces having air superiority; however, some enemy counter air capability continued to exist. The Rules of Engagement (ROE) contributed partially to this situation. For instance, in the beginning, fighters and bombers were not authorized to attack airfields, render them unuseable and destroy aircraft on the ground. ^{105/} The ROE did not authorize attacking enemy fighters unless they were first endangering U.S. forces. ^{106/}

[REDACTED]

The NVN MIG fighter aircraft while posing considerable potential threat, didn't become an actual threat before the last half of 1966. The MIG 15s and 17s were augmented by MIG 21s, some modified and equipped with infrared homing missiles, but NVN was apparently reluctant to commit this jet fighter force to other than defensive patrols.^{107/} In the first six months of 1966 11 MIGs were shot down with the loss of only three USAF aircraft. One CHECO writer noted that^{108/}

they were primarily engaged in combat training purposes with the GCI controllers positioning the interceptors for stern attacks. The MIGs completed a dry firing pass and usually broke off before engaging in combat. This operational training, however facilitated the integration of the GCI/MIG system into a mature interceptor capability.

The big threat throughout this period was the active antiaircraft artillery and automatic weapons (AAA/AW) defenses which were later integrated with the Surface to Air Missile (SAM) and MIG defenses. In the beginning, the extensive deployment of AAA/AW guns forced the strike forces to fly at medium altitudes. Although this helped enemy radar tracking, it enabled better target identification and allowed the strike forces to remain away from defending firepower except for the bomb runs below 5000 feet.^{109/} Then on 5 April a drone reconnaissance photo revealed the first observed construction of a surface to air missile site. On 24 July the first USAF aircraft was lost to a SAM.^{110/} The NVN defenses soon employed^{111/}

equipment of varying power/beam width/function/polarization/number/geographical distribution. Because it combined this resource with SAMs, AAA

[REDACTED]

*and MIGs--plus integration of the entire system--
it was recognized as one of the most complex
electromagnetic defense threats ever to be com-
bated by USAF tactical forces.*

But, while the effects of countering ECM equipment by attacking forces led to a decrease in the NVN defensive capability, MIG aggressiveness increased in the latter part of 1966. From 4 September, with the exception of four days until January 1967, the MIGs were flown every day marking the first continuous use of these aircraft as active air defense weapons. ^{112/}

It was clear that the NVNAF intended to use its MIGs to decrease the effectiveness of USAF strike aircraft. On 7 August seven American aircraft were lost over NVN; on 2 December eight aircraft were downed. ^{113/} On another occasion U.S. pilots encountered a six MIG formation believed to have been flown by North Korean pilots. ^{114/} MIG confrontations necessitated the jettisoning of ordnance as strike flights prepared for defensive maneuvers.

On 2 January 1967 in "Operation Bolo" USAF F-4s successfully challenged the MIG activity resulting in the "downing of seven MIG 21s--nearly half of Hanoi's force, without a single USAF loss." ^{115/} In May, 26 MIGs were downed while only two F-4s were lost. By the end of June 1967, the U.S. kill ratio was 5 to 1 over the NVN MIGs. ^{116/}

While the air war in the north intensified, requiring more effort devoted to defense of the strike forces, increased air defenses were also being maintained in SVN. F-102 fighter interceptors were standing basic

[REDACTED]

air defense alert with a minimum of two aircraft on five minute scramble status and another two or four on 30 minute to one hour readiness status. These were maintained at Tan Son Nhut AB, Da Nang AB, Don Muang RTAFB, and after April 1966 at Udorn, RTAFB Thailand. In addition, two RTAF F-86s were on five minute status at Don Muang RTAFB with two more on five minute status and four on one hour status at Takhli RTAFB.^{117/} RAAF F-86s were also on five minute alert status at Ubon RTAFB during daylight hours.^{118/} The USM maintained fighters on scramble alert status as well as on BAR CAP over the fleet. The U.S. Marines maintained two F-4Bs on 15 minute call at Chu Lai. There were approximately 200 U.S. fighter aircraft in SEA that could be configured for air defense should a threat indicate the need.

The VNAF had received its first F-5 aircraft in June 1967 and 33 VNAF pilots had completed F-5 advanced training at Williams AFB, Arizona. A USAF Training Command Mobile Training Unit had been operating at Bien Hoa since February 1967.^{119/} The VNAF was developing a strike and day fighter capability in the F-5A, building toward an intercept capability upon receipt of the F-5Es.^{120/}

An intelligence warning on 3 December 1967 of a possible NVN air attack on SVN on 7 December caused an extensive increase in the air defense posture. COCKED PISTOL (exercise increased alert condition) was declared at 031000H for MSEA air defense region. At Da Nang, Don Muang, and Udorn, all F-102 interceptors were brought to five minute alert status. The 8th, 12th and 366th FTR Wgs uploaded four aircraft each to air defense configuration.

[REDACTED]

However, within a few hours the Commander, 7AF declared "Fadeout."^{121/} Then, on 6 December without increasing the Defense Readiness Condition (DEFCON), all F-102s were again brought to five minute alert status, along with four F-5Bs from the 13 Marine Air Group (MAG). Four fighters each from the 8th, 12th and 366th TFWgs were air defense configured and placed on five minute alert. The Marine and Army Hawk Missile Batteries were placed on "Battle Stations."

The F-4s were relieved on 8 December, the USMC Hawks on the 9th, the Army Hawks and one half of the F-102s on 12 December. All air defense forces returned to normal readiness on 21 December.^{122/} No attacks came, but the warning provided a good coordinated exercise of the air defense forces.

The first months of 1968 saw the continued intensification of the war. On 12 January four NVN AN-2 Colt aircraft from Ngoc Nham airfield northeast of Hanoi attacked "Lima Site" in northern Laos. Two of the aircraft were shot down.^{123/} These were the first NVN aircraft shot down outside their national boundaries and raised the question as to whether or not it was the prelude to increased air incursions. However, the TET offensive was winding down and the President directed a cessation of bombing in NVN above 20° N Latitude effective 31 March. Under the President's policy of withdrawal, planned Hawk missile redeployments and deactivations were implemented on 24 August 1968 and continued during the following year.^{124/}

[REDACTED]

On 11 September 1968 the F-102 detachment that had been moved from TSN AB to Bien Hoa AB in Nov 1966 to relieve aircraft congestion at TSN AB was relieved of air defense responsibility and returned to Clark.^{125/} However, again 13th AF was required to maintain the capability to resume the air defense alert on 12 hours notice.^{126/}

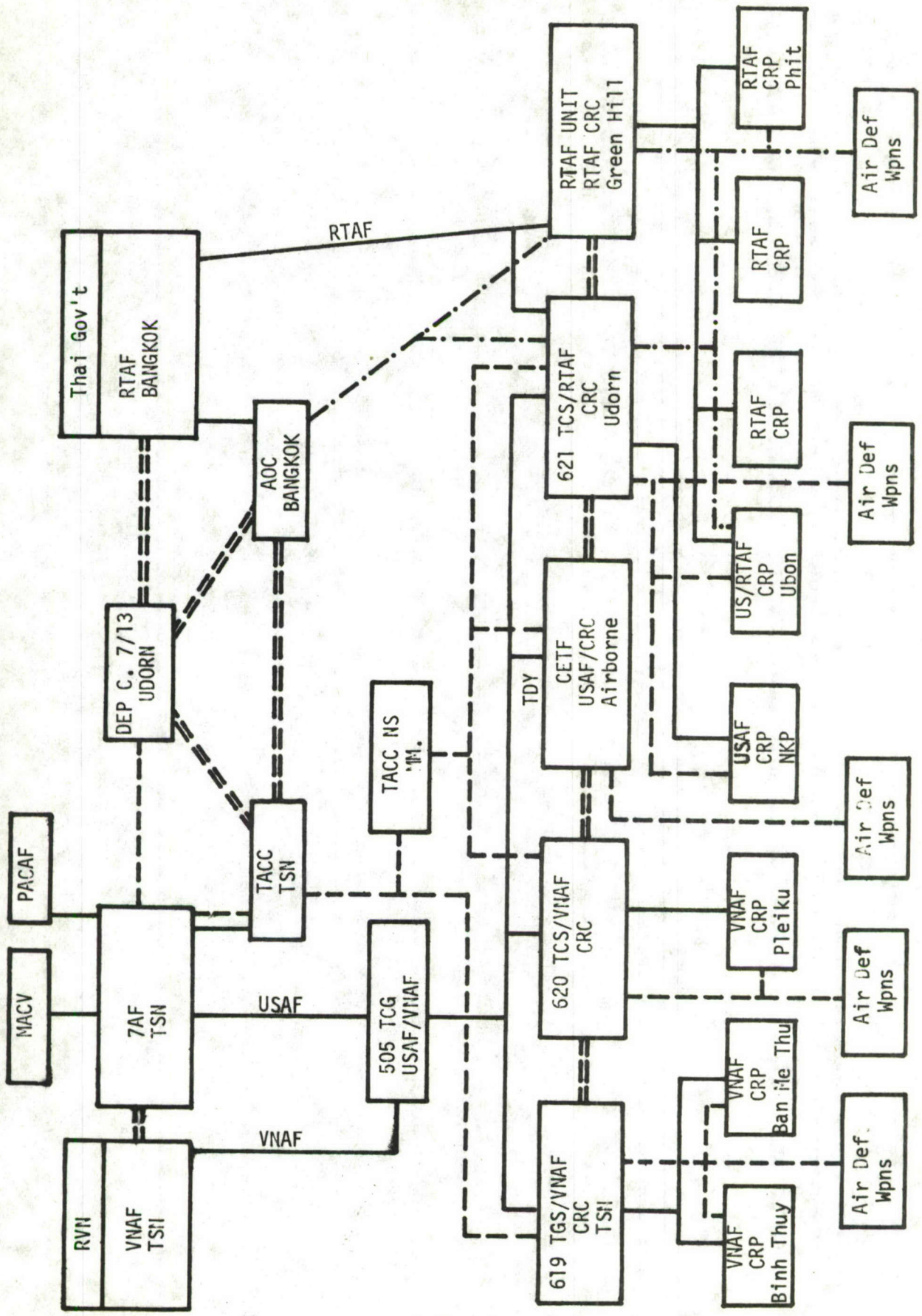
Emphasis had been placed on securing new model F-4s to provide improved air to air "dog fight" capability. These were on the way. But also as an added capability new AIM-7E missiles had arrived in Thailand on 1 June 1968^{127/} and AIM-9E, Sidewinder, missiles were introduced there on 30 November.^{128/} These provided the F-4s improved "dog-fight" missile capability. They provided greater maneuverability, smaller minimum range to arm, a wider sensor look angle, improved target identification capability, and could be launched at higher "G" loads.^{129/}

With the cessation of all bombing in NVN and the introduction of B-52 sorties to COMMANDO HUNT I in Fall of 1968 (Laos Panhandle Interdiction Campaign), a large increase in the MIG CAP was required. Additional out-of-country tactical fighters and an increased use of F-102 interceptors were directed to meet this requirement. The potential for enemy attack was there and special missions defense assurance was imperative. In November and December, these MIG CAP sorties increased to approximately 580 per month.^{130/}

Although there continued to be MIG sightings and MIG calls from the TACC-NS, CETF, and specialized sources (see Figure 5), 7AF History reporting

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COMMAND AND CONTROL: AIR DEFENSE FORCES--SEA



OPERATIONAL CONTROL Thai Forces

OPERATIONAL CONTROL

COMMAND

Figure 5

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at the end of 1968 from strike and escort forces stated that "there were no MIG sighting or engagements reported in December. Since March 1968 there had been only one MIG sighting--in August--and no MIG engagements."^{131/}

The new F-4E aircraft with internal guns and improved engines were deployed from Eglin AFB to Da Nang AB. The 4th TFS with 20 F-4E "Gunfighters" arrived in April 1969. In June, the 421st TFS closed at Da Nang AB with 20 more.^{132/} The Thailand-based F-4s were already employing the improved air to air missiles. With these added capabilities COMUSMACV had on 28 February concurred in the redeployment of the F-102 detachment from Da Nang AB.^{133/} Due to a delay in the arrival of the F-4Es and the reduction of F-4Ds, however, the release of the F-102s was delayed until late 1969. It was argued that the commitment of the F-4Es to air defense would divert more than one third of a squadron from the strike force.^{134/} It was also pointed out that the requirements for the F-102 detachment at Udorn RTAFB and Don Muang RTAFB remained valid. These included the political and psychological aspects of the Thai air defense mission, the impact on the F-4 strike force if it were committed to air defense, and the need for a dedicated trained force of aircraft and crews coordinated with GCI weapons controllers to constitute effective air defense.^{135/}

However, with the overall U.S. military fund curtailment and with President Nixon's assurance on 28 July to Thailand and RVN that the U.S. would "stand by in the face of the communist threat," American force withdrawals continued.^{136/} On 15 November 1969, the F-102s "stood down" from

~~SECRET~~

TACC-NS MIG CALLS

	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>
1968				30	93	106	55	111	68	74	137	202
1969	106	59	69	70	57	59	155	133	104	147	201	178
1970	361	262	210	193	111	33	37	31	32	56	56	28
1971	79	80	96	99	57	1	1	26	42	43	91	228
1972	426	112	100	92								

Source: Briefing Room Display Board TACC-NS.

Figure 6

[REDACTED]

alert commitments and returned to Clark AFB on 17 November. This ended a long and tedious air defense development operation of small detachments throughout MSEA. Finally, on 15 December the F-102 squadron was deactivated at Clark AFB and the aircraft resources were returned to CONUS. ^{137/}

On 15 November 1969 the 366th TFWg at DaNang AB and the 432d TRWg at Udorn assumed the basic air defense alert commitment for MSEA. This required two aircraft on five minute scramble alert and two on one hour alert at each base. ^{138/} The commitment was usually levied on the fighter squadrons on a rotational basis. The two aircraft on scramble alert were maintained at the alert facility with the crews on immediate standby. Generally, the squadrons believed the "one hour" aircraft could be made ready within the required time from squadron resources. Also the practice of flying the "one hour" aircraft on "fragged" escort sorties for ARC LIGHT and other special missions detracted from the maintenance of the "one hour" aircraft at the alert facility. By this minimum relaxation of the alert, a greater potential for maintaining the full squadron strike capability ensued. Another factor detracting from the maintenance of the static one hour alert was the lack of a demonstrated intent by the NVNAF to exploit its potential air threat.

In addition to all these considerations was the lack of emphasis on the air defense portion of the mission in tactical fighter training programs versus emphasizing enthusiasm to put bombs, bullets and missiles on the target plus air to air offensive air superiority activity. Pilots

[REDACTED]

considered the commitment to static air defense alert as relegating them to a secondary mission. Many accepted the air defense mission with an adverse attitude. ^{139/}

Intercept training under GCI control, although seldom meeting established minimum intercept requirements, did increase proficiency for both the aircraft crews and Intercept Directors (IND) Weapons Controllers. Air to air radar received more emphasis to assure "peaked" performance. ^{140/}

Still, each of the tactical fighter squadrons compared themselves to each of the others, both by unit and individuals, on the tactical strike sorties flown and accomplishments achieved. In this light they considered the static alert a deterrent to their comparative mission accomplishments. This led to the 432d TRWg and the 366th TFWg asking for "additional aircraft and aircrews on a one for one basis to stand the air defense alert." Seventh Air Force agreed to try to get relief and to consider the proposal but stated that the units would in the meantime meet the reestablished commitments. ^{141/}

Within this philosophical framework and mission requirements the weapons portion of the air defense function was maintained. It was a loose operation, but the actual threat to challenge its viability did not materialize. The rotational nature of the commitment detracted from the development of standardized air defense operational procedures. The development of qualification criteria for selecting personnel for air defense alert became a problem. Alert regulations, plans, directives,

[REDACTED]

orders and Rules of Engagement, some with higher security classification than some of the crews possessed, were scattered through a variety of publications making it most difficult for coordinating training and briefing of crews. Some alert facilities did not meet the criteria to enable crews the relaxation necessary to meet immediate reaction responses required. Physical location of some facilities virtually insured that crews could not meet the established five minute scramble. No restricted climb corridors were established to provide immediate clearances to climb toward the potential threat.^{142/}

Special mission escort sorties were "fragged" to both units. Because of its location the 366th TFWg alert aircraft were seldom scrambled to MIG alerts. The squadron commander stated that "basically it was a 24 hour commitment for aircrews to go out there and expect not to fly."^{143/} In 1971 actual scrambles to MIG alerts by the 432d TRWg were:

<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>
10	20	14	26	18	2

Then only 14 total occurred for the rest of the year.^{144/} However, there was a difference. The MIGs showed greater aggressiveness, ventured outside their national boundaries and attempted attacks on ARC LIGHT sorties in the Laotian Panhandle during the interdiction campaign in 1971 (COMMANDO HUNT VI).

This intensified threat dictated a change from the relatively loose operation with a lack of centralized control, to one of assuring positive

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reaction capabilities.^{145/} Each wing took a different approach to the problem. The 366th TFWg assigned the alert commitment to the 4th TFS to become a dedicated air defense unit. The unit continued to receive strike missions, but these came over and above its primary commitment to air defense. The 432d TRWg, on the other hand, assigned the responsibility for the supervision of the air defense alert to the Tactical Operations Division (DOT) under the Deputy Commander for Operations (DCO). The DCO then appointed an officer, whose "official duty title will be Alert Force Commander," to be operational commander of the alert crews, maintenance crews, and aircraft and alert facilities committed to air defense.^{146/}

The decision as to which of the approaches was best had yet to be made. Each had advantages and personnel in each wing stated they thought the other was the better approach.^{147/}

On the one hand, the dedicated unit could devote the majority of its effort to training crews for and performing this as its primary mission. The crews could work closely with the GCI personnel and gain the coordinated team work considered mandatory for effective air defense operations. The aircraft with specialized equipment for air defense and air to air operations could be kept "peaked" on a priority basis. The remaining units performed the strike missions with the number of sorties available somewhat reduced. This system had an adverse affect on the morale of some aircrew members. These men felt that the strike function was the key mission in a war zone. A policy statement to these men that defense was also a primary mission did

[REDACTED]

little to help the crews overcome the feeling that they were second class citizens in an offensive unit.^{148/} The policy continued in the air defense dedicated unit, that when assigned to the unit, the aircrews had to become operationally ready (O/R) as strike crews before O/R as air defense crews. The 4th TFS squadron commander stated that it was his belief that the dedicated squadron was not the best option; he believed air defense to be secondary. Squadron personnel assigned to the air defense function wondered what personal or professional failing had caused their relegation to what they assumed to be inferior duty. In spite of this problem the unit had developed effective air defense operations. The 366th TFW had been tasked in June 1971 under 7AF OPORD 71-10 to maintain four F-4s on alert at NKP on an "as directed basis."^{149/} In January 1972 the 4th TFS, now dedicated to air defense, was specifically tasked for this commitment to counter the increasing MIG activity which took the squadron further out of the tactical strike work.^{150/}

On the other hand, the 432 TRWg tasked assigned fighter squadrons to provide air crews, maintenance crews, and aircraft for operational control by the Alert Force Commander. This emphasized air defense as a definite part of a tactical fighter unit's mission. The maintenance personnel of all units gained experience in maintenance peculiar to air defense operations and all aircrews within the wing had an opportunity for air defense experience. The qualification requirements specified certain time and experience strictly as strike crews before upgrading to include air defense O/R status. This provided a more progressive training program throughout a crew's SEA duty tour. All fighter units and crews within the

[REDACTED]

wing shared alike in all portions of the overall tactical fighter mission. On the negative side, providing alert crews, maintenance crews, and aircraft for operational control under another activity diluted unity of command. It also required that a portion of resources be committed to air defense, thereby reducing the number of possible strike sorties. However, the alert force commander appointed had had extensive experience in air defense operations; he was an enthusiastic leader, and had developed an effective air defense operation. The specified training program, qualification and testing criteria, duty requirements, and alert procedures were published.^{151/} He believed the best approach was a unit dedicated to air defense, devoting its entire effort to this mission, and centralizing responsibility for its accomplishment.


Training for the air defense mission was a continuing heavy burden. The GCI weapons controllers generally had had little or no recent controlling experience in the manual control environment.^{152/} Their experience had been primarily in the ADC SAGE or BUIC semi-automatic control systems. The fighter crews had virtually no training in air-to-air interceptor activity under GCI control.^{153/} No effective coordination and control over operating air defense systems had been established. The mission was performed in a "spur of the moment" atmosphere more than through tried and proven procedures.^{154/} This lack of training was magnified in an active theater of operations where there were never enough training scrambles and intercept sorties to achieve the desired proficiency. As a result, all types of training were attempted on escort missions and on flights returning from missions.^{155/} Interestingly

[REDACTED]

enough, neither the dedicated air defense unit nor the rotation system within tactical wings satisfied the commanders responsible for these missions. Each felt the method used by the other to be superior. Based on this admittedly small example, it would seem that a morale problem will always exist in a war zone when tactical pilots and units are asked to perform a more passive mission.

During 1971 MIG activity increased significantly. The second quarter of 1971 saw four active intercept attempts on MIGs with close chase penetrations into NVN. However, no firings occurred due either to a lack of target acquisition or to no clearance to fire.^{156/} Then in the last quarter of the year MIG incursions into the Laos panhandle increased in numbers and boldness. On 20 November there was an attempted MIG attack on an escorted ARC LIGHT mission. The increased MIG aggressiveness had resulted in F-4s having fired at MIGs without success. Some had tried to fire but didn't have all systems "set up" properly. On some, missiles were fired out of design capability parameters. Many questions were raised and deficiencies recognized. These included but were not limited to:^{157/}

1. The low probability of detecting low flying enemy aircraft in these high threat areas because of a lack of radar coverage.
2. The need for increased use of secure voice transmissions--even though cumbersome.
3. The adequacy of the ARC LIGHT divert code dissemination and understanding.
4. The recognition of the extremely limited ECCM capability of MSEA TACS radars.

- 
5. The problem of friendly ECM interference with TACS radars.
 6. A lack of aircrew interceptor experience and proficiency.
 7. A need for constantly evolving new tactics to meet a changing threat.
 8. The lack of understanding of capabilities, limitations and operational procedures used by the great variety and number of forces in the crowded airspace battle area.
 9. Brevity code understanding.
 10. Guard channel clutter.

The impact of these problems on air defense missions prompted the 432d TRWg Air Defense Alert Force Commander to initiate a request for a conference of representatives of units concerned to coordinate on and attempt to alleviate these operational deterrents. The conference was approved and conferees met at the 432d TRWg, Udorn RTAFB on 7-8 December 1971. Conferees included representatives from 7AF DOXF, 7/13 TACC "Blue Chip," TACC-NS, 7AF Intelligence, the tactical fighter units, SAC, and the Airborne Battlefield Command and Control Centers (ABCCC). Many stated the opinion that such a conference should have been conducted upon the departure of the F-102 Fighter Interceptors. ^{158/}

Briefings were conducted for the general education of all conferees by representatives of the various areas of command, control, tactical, and strategic endeavor on requirements as well as their capabilities and limitations. The conferees then broke up into working groups to study area problems in detail. These committees made many valuable recommendations for procedures to solve many of the operational problems as listed above. ^{159/}

[REDACTED]

A 7AF DO conference followed concerning the SEA air defense system. It was conducted in the same pattern with working committees on warning/dissemination; tactics/procedures/ROE; and communications. In his report on the conference to the Vice Commander, Major General Slay stated that ^{160/}

the results of the conference revealed that numerous improvements have been made in all areas by Seventh Air Force to improve the air defense system. In addition numerous actions are underway to improve the system within 7AF resources.

The air defense system that had been a "loose" operation was getting the emphasis needed to build it into an effective viable, air defense system. There were still problems, but a coordinated cooperative approach had been developed. The sporadic nature of the actual threat had decreased emphasis on air defense. Some deficiencies existed in both air and GCI crew proficiency as well as in radar coverage. ^{161/}

Added emphasis and improvements as referenced above, plus dedicated crews and aircraft maintaining a true alert, began to improve air defense attitudes. A successful engagement resulted in a downed MIG on 24 February 1972--the first since 1968. Following that, confidential returned--"they have let us go after them. This has helped a lot." ^{162/}

[REDACTED]

CHAPTER IV

EPILOGUE

At the beginning of the involvement of the United States in SEA, only American air power was available to provide air defense in MSEA. At the close of this report, April 1972, the same was true. The Commander 7th Air Force was specifically responsible for air defense in SEA. He had at his disposal ample air defense capability to perform this mission successfully against any known threat.

Thailand was threatened internally with communist insurgency. Her F-86 day fighters for air defense were rapidly being phased out of service because of obsolescence and expense of operations vs. actual air defense provided.^{163/} The RTAF purchased a squadron of F-5A (Freedom Fighters) and were again developing a strike capability, together with a day-VFR air defense capability. A squadron of A-37 strike aircraft provided a secondary role of day VFR intercept capability. The RTAF was scheduled to get a squadron of F-5E aircraft for all weather intercept capability, but based primarily on financial considerations, the actual acquisition was still in doubt. The fleet of RTAF T-28 aircraft provided some air defense potential but could not compete with more modern aircraft. The RTAF TACS/AC&W system was in being with the Thai capability considered satisfactory to operate and maintain it.^{164/} An artillery battery of Hawk missiles was scheduled for the Bangkok area but was cancelled because of the high cost relative to the air defense provided. It was clear that

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the USAF would have to continue to provide air defense for Thailand against any sizeable external threat.

At the close of this report virtually all American ground forces had left SVN. The SVN government and its military forces were being put to extreme tests; NVN had made extensive incursions into the territory of SVN. American air power remained to provide air defense, interdiction, and close air support for the ARVN. With the NVN invasions came the redeployment of more American air units back into MSEA to provide both the necessary air strike capability and all-weather air defense.

For air defense the ARVN had one battalion of AAA/AW with two batteries of M-42 40mm cannon and two batteries of quad 50 caliber machine guns deployed in MR I. They were scheduled for another similar battalion by mid-1972. The VNAF had one squadron of F-5As fully combat ready, flying strike sorties and standing VFR air defense alert at DaNang, with two aircraft on five minute scramble status and two more on one hour. An A-37 squadron would provide additional residual air defense and SVN was scheduled for an F-5E squadron in FY 74 at this writing.^{165/} Thus SVN was building a viable air defense capability.

Any future considerations of experiences gained and lessons learned must be tempered by the realization that no opposing air forces hindered the freedom of ground or air operations outside of NVN. General George S. Brown former 7AF Commander said that^{166/}

[REDACTED]

in regard to this war influencing doctrine, we must be careful that we don't draw lessons from here that are out of context. We must realize that the enemy has no air capability outside of North Vietnam. This gives us some extra freedom to operate, letting us, for example fly our tankers and ABCCCs with relative ease. This may not be the case in another war. If we had air opposition, the war would be far different in many ways.

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LETTER OF AGREEMENT

FOR THE TRANSFER AND ASSUMPTION OF ACW RESPONSIBILITY

/o/

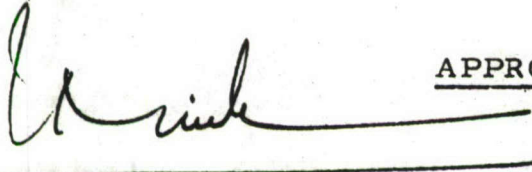
1. - This letter of Agreement is prepared between the VNAF ACW Group and the USAF 505th Tactical Control Group and under the provisions of the Self-Sufficiency Plan 69-20, and based on the joint recommendation of the joint VNAF/USAF Evaluation Team dated 25 May 1971.

2. Effective this date, 1 June 1971, VNAF ACW Group personnel accept full responsibility for the following functions at the Military Assistance Program radar sites in the Republic of Vietnam ACW System.

- a. Air Surveillance
- b. Movements and Identification (CRC)
- c. Artillery Coordination
- d. Tactical (Category III) Control of all VNAF Aircraft
- e. VNAF ACW Group Operational Evaluations
- f. Operator Quality Control

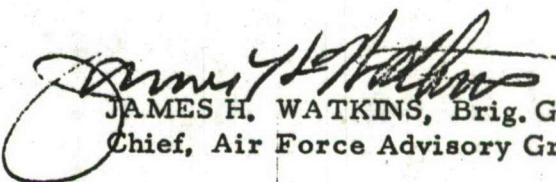

PHAM DUY THAN, Lt Col, VNAF
Commander, ACW Group


WILLIAM P. LEHMAN, Colonel, USAF
Commander, 505th Tac Con Group


TRAN VAN MINH, Major General
VNAF Commander

APPROVED


L. D. CLAY, JR., General, USAF
Commander, 7th Air Force


JAMES H. WATKINS, Brig. Gen., USAF
Chief, Air Force Advisory Group

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AGREEMENT
between the
UNITED STATES AIR FORCE
and the
VIETNAMESE AIR FORCE

PURPOSE: The purpose of this agreement is to formally declare the Vietnamese Air Force (VNAF) Aircraft Control and Warning (ACW) system self-sufficient and to terminate the formal United States Air Force (USAF) ACW training requirements. It also provides for continued USAF use of VNAF ACW facilities to support the USAF unilateral mission.

SCOPE: The conditions of this agreement acknowledge the progress made by the VNAF ACW system towards self-sufficiency and provide for transfer of the 505th Tactical Control Group advisory function to the Air Force Advisory Group (AFGP) at the termination of the unilateral mission.

GENERAL: This agreement establishes procedures and policies governing the transfer of ACW responsibilities to the VNAF. It establishes standards to be maintained in the support of the unilateral mission and provides for transfer of ACW advisory responsibilities at the Military Assistance Program (MAP) radar sites in the Republic of Vietnam (RVN).

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CRITERIA: a. PACAF standards will be those maintenance standards as outlined in PACAF Supplement 2, AFM 66-1.

b. Termination of the unilateral mission will be determined by the appropriate United States authorities.

DEFINITIONS: a. Unilateral mission is that USAF mission required to support and conduct United States air operations in Southeast Asia.

b. Self-sufficiency is the capability to maintain and operate a viable ACW system under a single manager and is based on the present condition of organization, manning, and operating capability of the VNAF ACW system.

ARTICLE I: The signatories agree in principle that the VNAF ACW system became self-sufficient in all functional categories as of 31 December 1971.

ARTICLE II: This agreement terminates VNAF Self-Sufficiency Plan 69-20, dated 5 February 1970, and Joint VNAF/AFGP/7AF Programmed Action Directive 70-105, Annex AD, dated 15 February 1970.

ARTICLE III: The VNAF will:

- a. Provide USAF personnel access to, and use of, that ACW MAP equipment required to support the unilateral mission.
- b. Maintain to PACAF standards all ACW MAP equipment required to support the unilateral mission.
- c. Permit the USAF re-access to those MAP radar sites where the unilateral mission was terminated if, in the opinion of USAF

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authorities, requirements dictate a reinstatement of the unilateral mission.

ARTICLE IV: The USAF will:

- a. Provide USAF maintenance personnel to maintain all USAF owned equipment.
- b. Withdraw USAF personnel and equipment on a site by site basis as the unilateral mission permits.
- c. Provide four personnel per ACW MAP site (1 ea AFSCs 1744, 3044, 64570 and 303X2) for the Improvement and Modernization Program when the unilateral mission permits. In addition 1 ea 304X4 will be provided at the two CRCs.
- d. Provide technical assistance when operational or maintenance problems exist that are beyond the capability of the VNAF ACW system. USAF authorities will determine when this assistance is required.

ARTICLE V: The AFGP will:

- a. Assume the advisory role at MAP radar sites as the unilateral mission is terminated.
- b. Transfer personnel in Article IVc above from the USAF UDL to Improvement and Modernization Program positions.
- c. Provide the assistance required in Article IVd above when the unilateral mission is terminated.

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ARTICLE VI: The effective date of this agreement is the date of the last signature.

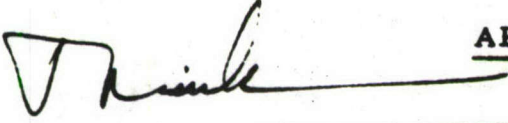
ARTICLE VII: This agreement will be reviewed annually.

ARTICLE VIII: This agreement becomes immediately null and void if in conflict with any treaty, declaration, or agreement subsequently negotiated between the respective governments of the United States of America and the Republic of Vietnam.

ARTICLE IX: Distribution - VNAF Hq, VNAF ACW Gp, MACV/
MACJA, 7AF, 7AF/JA, AFGP, 505TCG.

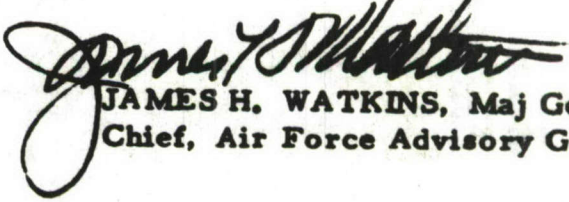

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DEPARTMENT OF THE AIR FORCE
432 Tactical Recon Wing (PAC F)
APO San Francisco 96237

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WING MANUAL 55-4

4 February 1972

Operations

AIR DEFENSE ALERT OPERATIONS

This manual establishes the procedures for the operation of the Air Defense Alert commitment for the 432TRWg. It applies to the local operation of the Air Defense Alert Facility located at Udorn Royal Thai Air Force Base.

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Supersedes 432TRWM 55-4, 19 April 1971. (For summary of revised, deleted, or added material, see signature page).

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Chapter 1

GENERAL

1-1. General:

a. The Deputy Commander for Operations (DO) is responsible for the execution of the Air Defense commitment. The Air Defense commitment is shared jointly by the 13AFS and 555TFS aircrews.

1-2. Command and Control:

a. The Alert Force Commander will be appointed in writing and will be the DO's direct representative for the alert facility. The Alert Force Commander commands alert facility, the alert aircraft, and all maintenance crews and aircrews on alert. No maintenance will be performed on the aircraft, and no changes will be made in the alert status of aircraft/aircrews without the consent of the Alert Force Commander or his designated representative. The Wing Command Post is responsible for monitoring the status of alert and aircrews, for maintaining required reports, for advising Brigham of aircraft and aircrew status, and for relaying any requirements of the Alert Force Commander to affected agencies. The Alert Force NCOIC, Alert Force NCOIC for maintenance, or maintenance shift chief will coordinate with Maintenance Control directly to insure the expeditious tasking of whatever specialist support is required. The Wing Command Post will be kept informed of all aircraft status changes.

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Chapter 2

AIRCREW QUALIFICATION AND TRAINING REQUIREMENTS

2-1. Aircrew Qualifications:

a. Before assuming alert:

(1) Aircraft Commander and Pilot/Weapons Systems Officer must have completed 25 combat missions and be night qualified.

(2) The 432TRWg written test covering all subjects in the ground training phase will be given by the Squadron Weapons Officer.

2-2. Ground Training Requirements:

a. The following squadron ground training will be accomplished as a minimum:

(1) Aircrews must be thoroughly familiar with the Air Defense role of this wing prior to being scheduled for Papa Alert. This will be accomplished by a briefing of all Papa procedures, an Air Defense Weapons Test, and a tour of the alert facility prior to their first alert duty. The facility tour will familiarize crews with the methods of being alerted, operation of the scramble signals, and security procedures.

(2) A briefing will be given by either the Squadron Air Defense Officer or the Squadron Weapons Officer. Items covered should include:

(a) Practice Scramble procedures.

(b) Active Scramble procedures.

(c) Weapons and their employment.

(d) Flight tactics for the various missions. The Papa briefing guide will be used as an aid.

(3) Must be current on the Rules of Engagement and satisfactorily tested.

(4) Be familiar with the current Strategic Orbit Points (STOPS).

2-3. Alert Flight leads will complete a minimum of two alert tours as a wingman prior to being scheduled to pull alert as flight lead, plus meet normal flight lead requirements.

2-4. Prior to the first tour on alert it is advisable, if possible, for new crews to fly at least one special mission escort.

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2-5. The squadron commanders of the 13 Tac Ftr Sq and 555 Tac Ftr Sq will submit a list of the best qualified aircrews for Air Defense Alert to the Deputy Commander for Operations (DO) for his approval. The number of aircrews will be directed by the DO. These aircrews and only these crews will be scheduled for Air Defense Alert.

Chapter 3

AIRCREW CHANGEOVER

3-1. Scheduling of Aircrews:

a. Aircrews scheduled for air defense alert duty will be notified as early as possible and scheduled on the daily squadron flying schedule. Squadron Operations Officers will insure that scheduled crews are properly qualified for alert duty.

3-2. Aircrew Changeover:

a. At the designated brief time aircrews will report to the Wing Intelligence Division for the alert mission briefing. The briefing will include current SAR sheets, Maps, Rules of Engagement and Brevity Code.

b. Forty-five minutes after the intelligence brief, new crews will report to the alert facility with their personal equipment. The Senior Alert Pilot will brief the new crews on aircraft status, crew assignment, and the security number for the day. Crews will review and sign off the aircraft forms before going to the aircraft.

c. One crew member of the new one hour crews will be designated by the Senior Alert Pilot to remain in the alert facility to monitor the phones and initiate the scramble signals in the event of an active scramble.

d. All other crews will proceed to the revetments, check in with the guard, and go to their assigned aircraft.

e. New crews will preflight the aircraft before the old crews remove their equipment. Once equipment has been removed, the old crews are released from status.

f. When the changeover is complete and aircrews have returned to the building, the remaining crewmember will proceed to the aircraft and position his equipment.

g. New crews will change the names on the status boards. This board must be kept current.

h. The Senior Alert Pilot will insure that crew chiefs know the status of each aircraft since there are normally only two power units available (they will be positioned on the Echo aircraft). Set up the lights on the control panel indicating which are the Echo aircraft and notify the crew chiefs anytime there is a change.

i. Alert flight leads will brief scramble procedures and tactics to be used.

Chapter 4

ALERT CREW DUTIES

- 4-1. Alert Force Commander: His duties are outlined in Chapter 1. In addition he will keep the Wing Command Post advised at all times of his location.
- 4-2. Senior Alert Pilot: Will be the senior ranking pilot on alert. He is responsible for insuring that all directives pertaining to the alert status are carried out. In addition, he will:
- a. Insure that at night all controlled items are in the sleeping quarters area.
 - b. Monitor crew rest.
 - c. Insure that aircrew quarters are clean and orderly.
 - d. Insure aircraft handbooks and aircrew checklist are up to date.
 - e. Insure that the Alert Force Commander Log is maintained at the duty desk, containing; scrambles, cart malfunctions, backups, etc., and discrepancies that could affect mission success.
 - f. Insure all doors are locked prior to retiring for the night.
 - g. Insure all outdated SAR sheets go into the classified waste folder in the safe and are returned to the classified waste in Wing Intell, upon the end of the alert tour.
 - h. Monitor personnel requiring access to aircraft and assure proper escort.
 - i. Be aware of the maintenance status of all alert aircraft and inform the Alert Force Commander and the Command Post of any changes or problems.
 - j. During periods of high threat all crews will stay at the pad.
- 4-3. Alert Duty Officer: The Senior Alert Pilot will designate one of the alert aircrew members to be the Alert Duty Officer. He is responsible for monitoring the telephones, actuating the visual/audio scramble signal upon receipt of the scramble order from Brigham, and posting the aircraft status board, NOTAM changes, and current weather. The Alert Duty Officer will conduct a communications check of all primary and backup scramble system daily. He will also coordinate with Brigham for a daily check of the scramble line.
- 4-4. Five-Minute Alert Crews: Five-minute alert crews will remain in the alert area at all times. Five-minute crews will wear flying gear (boots, gun, flight suits, and G-suit) at all times while on alert. EXCEPTION: All alert crews may remove their gear when sleeping at night.

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4-5. Fifteen Minute Alert Crews: Fifteen minute alert crews will set up their aircraft in the same manner as the 5 minute alert aircraft. These alert crews will remain in the alert area however, they need not wear their "G-suit and gun". They must be able to respond within 15 minutes.

4-6. Thirty Minute Alert Crews: Thirty minute alert crews will set up their aircraft in the same manner as the 5 minute alert aircraft. They will be permitted to expand within the base perimeter providing they have received permission of the Senior Alert Pilot. Crews will advise the Wing Command Post by telephone of their destination and a phone number at which they may be reached. When arriving at their destination and again prior to departing, crews will call the Wing Command Post and advise them of their next intended destination. Crew integrity must be maintained when departing the alert area. The Wing Command Post will initiate a recall of the expanded alert crews whenever necessary. Crews will immediately return to the alert area when notified. Crews may not expand to any area which is not immediately accessible by telephone. Thirty minute alert crews will sleep in the alert facility.

4-7. One-Hour Alert Crews: One-hour alert crews will set up their aircraft in the same manner as the five-minute alert aircraft. The one-hour alert crew may go to other facilities within the base perimeter provided they have the permission of the Senior Alert Pilot. Crews will advise the Wing Command Post by telephone of their destination and a phone number at which they may be reached. When arriving at their destination and again prior to departing, crews will call the Wing Command Post and advise them of their next intended destination. Crew integrity must be maintained when departing the alert area. The Wing Command Post will initiate a recall of the expanded alert crews whenever necessary. Crews will immediately return to the alert area when notified. Crews may not expand to any area which is not immediately accessible by telephone. One-hour crews will sleep in the alert facility.

Chapter 5

COCKING OF AIRCRAFT

5-1. Pre-Flight and Cocking of the Aircraft:

- a. A new aircraft brought on alert will be run when setting it up.
- b. A minimum of two starting units will be positioned for use in cocking aircraft and will be immediately available for use in the event of a cartridge start failure during a scramble.
- c. Cartridges will be installed in the starter breeches and a heat shield will be in place if a centerline tank or gun is on the aircraft.
- d. Aircrews will pre-flight and check out their aircraft with "power-on". The INS will be aligned and placed in "HDG MFM". The intercom will be checked to include the ground member. If the aircraft is not pre-flighted (engine started), weapons will be safetied, the gunsight will be checked for air-to-air operation and then placed in standby. Radar BIT checks will be performed and the missiles checked in accordance with -34 checklist (Armament Override must be depressed). A radio check will be made, the altimeter setting obtained from Ground Control, and finally a check in with the CP with on status time.
- e. After all checklist items are completed, external power will be disconnected. The aircraft commander will place the generator switches "external" and complete the cocking checklist.
- f. The UHF radio will be set on tower frequency, the TACAN on channel 70, and the IFF/SIF will be pre-set with proper codes for all three modes.
- g. Parachute harness and helmet may be placed inside the aircraft and connected as much as possible. Helmets and other personal flying gear will not be placed on canopy rails. Survival vests may be left in the aircraft.
- h. Armorers will remove all safety pins and devices except the two missile launcher safety pins in the ADM-9, AERO-3B Launcher. A complete set of safety pins (including AERO-3B missile launcher safety pins) will be stowed in the aircraft and the access panels closed. These pins will be needed for dearming, particularly if a divert occurs. The aircraft commander will observe the removal and storage of armament pins. The SUU-23 will be armed.
- i. Aircraft intake covers and ground wires will be installed.

Chapter 6

SCRAMBLE PROCEDURES

- 6-1. Active Scramble: Scramble authority for 432TRWg alert aircraft rests with TACC HOTEL. Scramble orders will be passed to the alert facility by Brigham. This will normally be of the no-notice type.
- 6-2. Practice Scramble: Practice scrambles and runway exercises will be initiated by subordinate agencies only if previously coordinated with TACC. Procedures for practice scrambles are as follows:
- a. The Alert Force Commander will contact the DO or his assistant for approval of the desired practice scramble.
 - b. The Supervisor of Flying will check with the 432TRWg Command Post Duty controller for slack time periods in normal mission launches and recoveries. From this the Alert Force Commander will determine a scramble time.
 - c. The Senior Alert Pilot will be notified of a vulnerability period a minimum of one hour before the period begins.
 - d. The designated aircrews for the scramble will brief the CRC before vulnerability period. The crews will not tell CRC when they want to be launched.
 - e. CRC will initiate the scramble at the appropriate time.
- 6-3. Aircrew/Ground Crew Scramble Procedures: The aircrew and maintenance personnel assigned to the 5-minute aircraft will remain within earshot of the scramble notification system. Upon activation of the scramble signal, the following procedures will apply:
- a. All five-minute crews will go to their aircraft fully dressed.
 - b. A crew chief will help the aircraft commander into his harness (and insure that the shoulder straps are connected). He will then pull the seat pins and place them in the aircraft commander's lap. He will do the same for the pilot/weapon system officer.
 - c. Power units will be used for electrical power during cartridge starts.
 - d. The crew chiefs will prepare the aircraft for launch. All other personnel will avoid the area directly in front of and behind the missiles when electrical power is first applied to the aircraft.
 - e. The Aircraft Commander will insure that the crew chiefs are clear prior to starting.
 - (1) Both aircrew members will be on 100% oxygen during a cartridge start.

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(2) If a cartridge fired normally but the start did not "catch", then air will be used for the start.

(3) If a hangfire occurs, wait five minutes before removing the cartridge.

(4) If a misfire occurs, then wait 5 minutes before using air.

g. The pilot/weapons system officer will contact the tower for scramble instructions and runway/take-off clearance.

6-4. Take-off Scramble Procedures: Alert aircraft will take-off on Runway 30 unless the tail wind component exceeds 35 knots. A rolling take-off will be initiated once lined up on the runway. The lead aircraft will not delay his launch for #2 aircraft, if it appears that #2 will be delayed, or vice versa. Normal spacing on departure will be 30 seconds. Initial turn out of traffic will not be accomplished until clear of field boundaries and airspeed is above 300 knots CAS.

6-5. Abort/Spare Procedures:

a. Active Air Defense Scrambles: If one aircraft ground aborts, the other will hold in position for take-off till joined by a second aircraft launched by a crew of one-hour status as soon as possible.

b. Practice Air Defense Scrambles:

(1) If one aircraft ground aborts, before the other gets airborne, then both aircraft will abort. If one aircraft is already airborne, he will accomplish as much training as possible.

(2) If one aircraft air-aborts, the mission is aborted and the "good" aircraft will escort the aborting aircraft to a safe recovery, IAW local procedures.

6-6. Mandatory Status: Whenever field conditions, weather, or other factors indicate that the alert aircraft should be scrambled only if absolutely necessary, the SOF will inform CRC (Brigham), Tower, DO, the Alert Pad, and the Wing Command Post of his decision. Aircraft will remain on mandatory alert status until placed back on normal status by the SOF.

6-7. Battle Stations: Crews may be placed on battle stations whenever a scramble appears imminent. When the alert pad is notified, the five-minute crews will go to their aircraft, accomplish all procedures up to start engines. Prior to starting engines, they will check in with the Command Post for further instructions. If it is anticipated that crews will be on battle stations for an extended period, the UHF radio will be turned off and scramble lights on top of the revetments will be monitored for scramble notification.

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6-8. Recovery Procedures: Recovery of alert aircraft will be as prescribed in Section C of Chapter 8. The Wing Command Post will pass maintenance code information to the Alert Force Commander, and Maintenance Control. The Alert Force Commander will coordinate any maintenance activities that may be required. If the Alert Force Commander is flying, the Senior Alert Pilot will be notified and will accomplish whatever actions are necessary.

6-9. Recocking Alert Aircraft: After landing, aircrews will park their aircraft as directed by the crew chief. Crews will expedite maintenance, intelligence and squadron debriefings in accordance with current procedures. Crews will then expedite debriefing to get their aircraft back in a "cocked" status. When the aircraft are back on a "cocked status, the Alert Force Commander will notify the Wing Command Post.

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Chapter 7

SECURITY OF THE ALERT AREA

7-1. Sentries: Sentries for the entire alert area will be provided in accordance with 432TRWg Oplan 207-XX.

7-2. Entry Control Procedures: For purposes of circulation control, the alert area is divided into two separate controlled areas. These areas are the Alert Aircraft Parking Area and the Alert Crew Billets.

a. Entry to the Alert Aircraft Area. Unescorted entry to the alert aircraft parking area will be granted to personnel in possession of PACAF Form 67 (Controlled Area Badge) with the number 9 open. Personnel entering a revetment containing an alert aircraft must also be listed on the Alert Personnel Status Board as a member of the crew of that aircraft. All other personnel entering the area must be escorted.

b. Alert Aircraft Entry Control Point. The entry control point located at the northeast end of Alpha revetment will be the only point of entry into the area. All personnel will report to the entry controller prior to crossing the red line painted on the ramp surface.

c. Entry to the Alert Crew Billets. Unescorted entry to the alert crew billets will be granted to personnel in possession of PACAF Form 67 (Controlled Area Badge) with the number 10 open. Local national personnel employed within the facility will be granted entry by use of an access list provided by the Alert Force Commander and authenticated by the Base Defense Officer.

d. Alert Crew Billets Entry Control Point. The entry control point located on the north side of the crew billets will be the only point of entry into the billets.

7-3. Code of the Day: All alert personnel will be required to have knowledge of the code of the day. This code may be used as an additional authentication system and/or to indicate duress to the entry controller. The code will be prepared by the Base Defense Officer and forwarded to the Alert Force Commander five (5) days prior to the end of each month.

7-4. Alert Personnel Status Board: The Alert Force Commander will insure that the Alert Personnel Status Board, located at the alert aircraft entry point, is accurate at all times.

7-5. Launch of Alert Aircraft: In the event of a scramble, the senior maintenance NCO on alert will vouch for all air and ground crew members entering the area using personal recognition.

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Chapter 8

AIR DEFENSE ALERT MAINTENANCE

8-1. Air Defense Alert Maintenance: The two fighter squadrons are charged with the responsibility to share the alert commitment alternately on a daily basis; team changeover will be as directed by the Alert Force Commander.

a. Each Maintenance Alert Team will consist of:

(1) One qualified 43171C, designated as Shift Supervisor and authorized to clear Red Cross discrepancies.

(2) Four qualified 43151C's or higher, designated as crew chiefs.

These personnel will be detailed to the alert facility for a two week period or longer. Parent squadrons will furnish replacements as necessary. Maintenance Officers will insure that personnel detailed to alert duties have current AFTO Forms 35 and are qualified for the operation of AGE, towing, and servicing of aircraft.

8-2. Alert Aircraft:

a. Alert aircraft will be selected from Wing assets by Maintenance Control. Whenever possible an equal number of aircraft will be selected from each squadron. Aircraft selected will meet minimum ordnance and ECM capabilities. ECM 2147 and LORAN equipped aircraft will be selected on a last choice basis. Aircraft selected will be configured to the requirements outlined in Annex D 432TRW₆/OPORD 71-4. All aircraft placed on alert will be both ECM and RHAW capable.

(1) Once selected for alert, Priority 1 will be assigned to all maintenance and supply actions.

(2) Aircraft will not remain on alert status for more than 30 days.

b. Aircraft will be prepared as follows prior to movement from the squadron area:

(1) Perform a thorough pre-flight of all systems.

(2) Service LOX to 8 liters minimum.

(3) Perform a AWM-20 check.

(4) Perform a continuity check of the cartridge starter system.

(5) Check aircraft forms to insure no special inspections will come due within (7) days .

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(6) Insure that wing and centerline jettison safety switch covers are safetied.

c. Upon completion of preparation and loading, an Alert Aircrew will be called to perform a power-on pre-flight, taxi to the alert area and "Cock" the aircraft. When no aircrew is available, flight line personnel will tow the aircraft to the alert area and position it in its parking spot. After completion of the pre-flight check, the aircraft will be considered cocked and all safety equipment will be removed except for the following:
(Ref. MOI 66-83)

- (1) Ejection seat face curtain pin.
- (2) Intake covers.
- (3) Ground wire.
- (4) Fuel drip containers.

On alert aircraft with AIM-7 and AIM-4 missiles installed the safety pins will be pulled as part of aircraft cocking. Alert aircraft loaded with AIM-9 missiles will have the rail pin installed until actual launch of the aircraft.

d. Upon recovery of Air Defense Alert aircraft all ground safety equipment outlined below will be installed until all maintenance actions are complete and the aircrew has completed the required flight crew pre-flight. Procedures outlined in paragraph c above will then be followed during re-cocking.

(1) All ground safety equipment will be installed immediately upon recovery and prior to any maintenance being accomplished.

(2) Ground safety devices and covers required on the aircraft when not on flight status include the following:

- *(a) Engine Intake Covers/Plugs.
- (b) Pitot Tube and Stab Feel Probe Covers.
- *(c) Both Main Landing Gear Wheels Chocked.
- *(d) Nose and Main Landing Gear Down Locks.
- *(e) Aircraft Statically Grounded.
- *(f) Arresting Gear Safety Device.
- (g) Auxiliary Air Door Safety Locks.
- *(h) External Stores Rack and Pylon Safety Pins.

NOTE: "Items required for refuel only of Code I aircraft: Only the front seat and canopys need be safed.

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e. Aircraft returning from flight which are Code 3 or have a code 3 discrepancy in one of the required systems will normally be recovered in the squadron revetments. Deviations from this policy will be as directed by Maintenance Control, with the approval of the Alert Force Commander. Non-scheduled replacement aircraft will be selected using the same selection criteria as scheduled replacements.

(1) A replacement aircraft will be generated to pull alert configurations whenever the required maintenance time on an alert aircraft exceeds the time required for generation of a replacement.

(2) Spare aircraft will be selected and prepared when a primary alert aircraft is undergoing maintenance which would preclude a launch within prescribed reaction time or as directed in case of any increased alert posture.

(3) Spare aircraft selected for alert force backup will meet the minimum configuration requirements as outlined in Annex D 432TFWg/OPORD 71-4.

(4) The Shift Supervisor will insure that Maintenance Control and the Alert Force Commander are informed of an aircraft status change.

f. Alert aircraft will have a complete set of current check lists and procedures and will be followed. Pre-flight currency will be maintained by performing a daily pre-flight inspection. Tires will be rotated and engines run every three days (if not flown). Shift supervisors will review aircraft forms paying particular attention to calendar and hourly inspection requirements. They will take any actions necessary to insure a safe operation.

8-3. Support Equipment: The following support equipment will be pre-positioned in the alert area. (For Specifics See Attachment #1).

- a. Two sets of serviceable wing tanks.
- b. Two serviceable spider junction boxes and cables.
- c. Two serviceable AM 324A-60 units.
- d. All ground safety devices for each aircraft.
- e. One entrance ladder for each aircraft.
- f. One oil cart.
- g. One tow bar.
- h. One heat shield blanket for each aircraft.
- i. One portable radio.
- j. Two aircraft, rain shelters.

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- k. Two built up nose tires and wheels.
- l. Two built up main gear tires and wheels.
- m. One axle jack.
- n. One torque wrench (100-500 inch lbs.).
- o. One set of chocks per each aircraft.
- p. One tool box for each ground crew member.
- q. One cord and headset per aircraft on alert plus one spare set.
- r. Ear protective devices as required.
- s. One serviced LOX Cart and required protective gear.
- t. Minimum of 20 starter cartridges.
- u. One L-1 and one B-4 maintenance stand.

*One additional -60 or MD-3 power unit will be provided at aircrew changeover time or whenever an alert aircraft is undergoing maintenance.

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Chapter 9

AIR DEFENSE ALERT PROPERTY

9-1. Air Defense Property: The property of the facility includes the aircrew quarters, ground crew quarters, cartridge storage shack, a small maintenance shack, a covered patio, and the aircraft revetments.

a. The custodial responsibility for the real property (buildings and attached item) is the Alert Force Commander.

b. The responsibility for management of work orders on the upkeep of the facility will be the AFC. AFC will monitor work order progress and approve new work order requests.

OFFICIAL

CHARLES A. GABRIEL, Colonel, USAF
Commander

P. L. Tye
P. L. TYE, Major, USAF
Chief of Administration

- 5 Attachments
- 1. Positioning of Equipment
- 2. Ground Procedures For Scramble
- 3. Start - After Start
- 4. Starting Malfunctions
- 5. Responsibilities of Alert Force NCOIC

Summary of Revised, Deleted, or Added Material

Generally updates the entire text

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432MMS.....	4
621TCS (Brigham).....	3
432CSGp/DAP.....	2
HQ 13AF/DAP.....	2
HQ 13AF/DDOT.....	2
HQ 7AF/DA.....	3

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GROUND PROCEDURES FOR SCRAMBLE

Before Start

Upon scramble alarm, the aircrews and maintenance crew will run to aircraft. The Alert Shift Supervisor will position himself at a point where he can supervise the starting of both aircraft. Each aircraft will be assigned two maintenance men whose duties are:

Member # 1

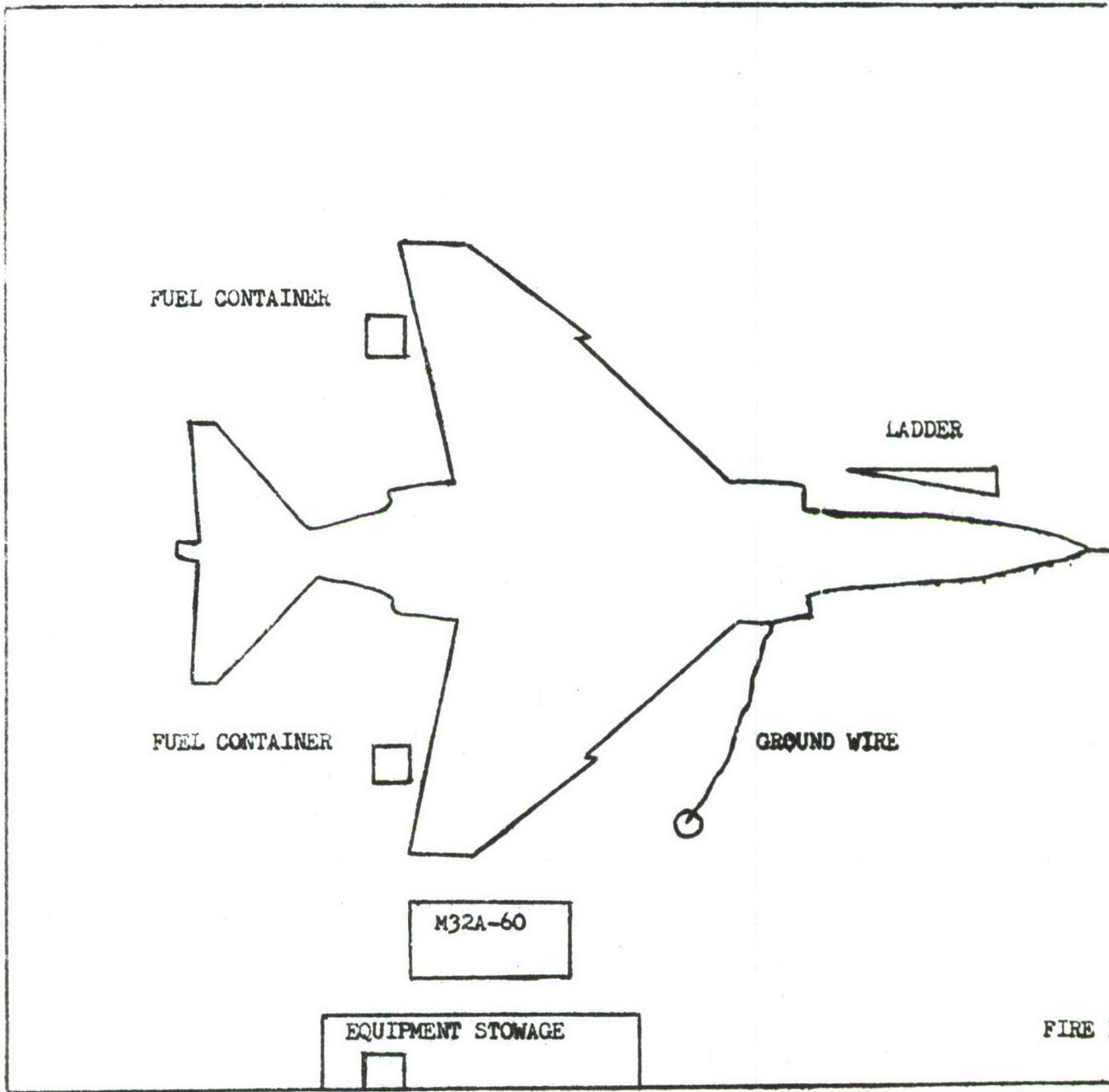
1. Start M32-60 unit
Apply electrical power.
2. Remove fuel overflow buckets to right side of revetment.
3. Turn CNI on
4. Remove left and right intake covers ground wire and left wheel chock secure on right side of revetment.
5. Proceed to front of aircraft for cart start, or to M32-60 for air start, and don headset.

Member # 2

1. Follow aircrew up ladder.
Help AC into harness. Pull his seat pins and place in lap.
2. Help WSO into harness. Pull his seat pins and place in lap.
3. Remove ladder and secure on right side of revetment.
4. Proceed to front of aircraft.

Attachment #2

POSITIONING OF EQUIPMENT



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START

Upon clearance of crew chief, the Pilot will start right engine, turn on generator, and start left engine while both maintenance members are in front of aircraft. He will recycle right generator and give electrical power unplug signal.

AFTER START

Maintenance members will proceed as follows:

Member #1

1. Turn off electrical power and give unplug signal to Member #2.
2. Proceed to front of aircraft and co-ordinate with AC for control cycling and flap lowering. Help Member #2 to button up, conditions permit.
3. Disconnect interphone and check transfer pumps. Proceed to front of aircraft.
4. Give pilot thumbs up when all personnel clear of aircraft.
5. Give chocks out signal and signal pilot to taxi.

Member #2

1. Unplug electrical cord upon signal from Member #1 and button door.
2. Secure LT doors and panels.
3. Proceed around rear of gun, button right side doors and panels.
4. Remove blanket from gun and proceed to checks under right wheel.
5. On signal from Member #1, remove chocks and secure chocks and blanket on right side of revetment.

Upon the unplugging of the electrical cord on the first aircraft ready, the Alert Shift Supervisor will insure that the rail pins are removed from the AIM-9 missiles. Proceed to next aircraft.

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STARTING MALFUNCTIONS

1. Hang-fires will be handled as follows:

a. In the event of a hang-fire of the right engine cartridge the aircraft commander will signal both ground crew members with a "Thumbs Down" signal. Upon receipt of this signal crew member #2 will proceed under right side of aircraft, open door 139 and connect starter air hose. Crew member #1 will remain at front of aircraft to insure aircraft commander's hands remain outside cockpit and to man fire bottle if necessary. Crew member #2 will wait five minutes after all evidence of cartridge burning has ceased and using asbestos gloves, remove the cartridge and breech assembly thru the right aux air door and place expended cartridge in a suitable container located at the right side of the revetment. Crew member #1 will then move to the M-32A-60 and initiate right engine start. After initiating start crew member #1 will move to the front of the aircraft for left engine start. Crew member #2 will complete right engine start, disconnect the starter air hose and, after left engine start, secure all panels.

b. In the event of a hang-fire of the left engine cartridge, the aircraft Commander will signal both crew members with a "Thumbs Down" signal. Upon receipt of this signal crew member #2 will proceed under the aircraft from the right side pass behind the centerline pod, open door 138 and connect starter air hose. Crew member #1 will remain at the front of the aircraft to insure aircraft commanders hands remain outside the cockpit and to man the fire bottle if necessary. Crew member #2 will wait five minutes after all evidence of burning has ceased and using asbestos gloves, remove the cartridge and breech assembly thru door 140 and place in a suitable container located at the right side of the revetment. Crew member #1 will then move to the M32A-60 and initiate left engine start. After initiating start crew member #1 will move to front of aircraft for marshalling. Crew member #2 will complete left engine start, disconnect the starter air hose and secure all panels.

2. Mis-fires will be handled as follows:

a. In the event of a mis-fire of the right engine starter cartridge, the aircraft commander will signal both ground crew members with a "Thumbs Down" signal after he has terminated the start and turned the engine master switches off. Upon receipt of the signal crew member #2 will proceed under the aircraft from the right side, open door 139 and connect starter air hose. Crew member #1 will remain at the front of the aircraft to insure aircraft commanders hands remain outside cockpit and to man fire bottle if necessary. Crew member #2 will wait five minutes after termination of start attempt and using asbestos gloves remove the cartridge and breech assembly thru the right aux air door and place in a suitable container located at the right side of the revetment. Crew member #1 will then move to the M32A-60 and initiate right engine start. After initiating start crew member #1 will move to the front of the aircraft for left engine start. Crew member #2 will complete right engine start, disconnect the starter air hose and, after left engine

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start, secure all panels.

b. In the event of a mis-fire of the left engine cartridge, the aircraft commander will signal both ground crew members with a "Thumbs Down" signal, after he has terminated the start attempt and turned the left engine master switch off. Upon receipt of the signal crew member #2 will proceed under the aircraft from the right side pass behind the centerline pod, open door 138 and connect the starter air hose. Crew member #1 will remain at the front of the aircraft to insure the aircraft commanders hands remain outside the cockpit and to man the fire bottle if necessary. After connecting the starter air hose crew member #2 will wait five minutes and, using asbestos gloves, remove the cartridge and breech assembly thru door 140 and place in a suitable container located at the right side of the revetment. Crew members #1 will then move to the M32A-60 and initiate the left engine start. After initiating the start crew member #1 will move to the front of the aircraft for marshalling. Crew member #2 will complete left engine start disconnect the starter air hose and secure all panels.

c. The alert shift supervisor will insure that all malfunctioned cartridges are tagged with an AFTC Form 350 and EOD called for pick-up.

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RESPONSIBILITIES OF THE ALERT FORCE NCOIC

1. The Alert Force NCOIC for Maintenance is permanently assigned to and is directly responsible to the Alert Force Commander.
2. The following minimum responsibilities are established:
 - a. Co-ordinate all maintenance actions (scheduled and/or unscheduled) for the Alert Force Commander.
 - b. Monitor all maintenance actions to insure expeditious and proper repair.
 - c. Under no circumstances will an aircraft be changed or requested to be changed without prior approval of Maintenance Control in coordination with the Alert Force Commander.
 - d. Conduct, or cause to be conducted, an hourly check of the Alert revetments, except from 2400 hours to 0800 hours. Emphasis will be placed on housekeeping (FOD, improper placement of equipment and accessories), safety (installation of grounding wires, fuel spillage containers, fuel overflow, security of loose equipment, etc.), and security.
 - e. The Alert Force NCOIC for Maintenance will transport all paperwork, oil samples, and conduct maintenance debriefings for alert aircraft.
 - f. The Maintenance NCOIC will monitor all "scrambles" and conduct critiques with the Alert Force Commander.

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REVETMENTS

1. All six (6) revetments and taxiways directly in front will be inspected for foreign objects every hour on the hour. (Except from 2400 hours to 0800 hours). A log sheet for this inspection will be signed off by the Maintenance Shift Supervisor.
2. All equipment not in use will be stored along the left wall.
3. M32A-60 starting units will be positioned outboard of the right wing tip as far as possible and still allow easy access of the air hose to the #1 engine.
4. FOD cans and contaminated fuel containers will be emptied daily, or as needed due to spillage.
5. Revetments #5 and #6, when not in use, will contain extra AGE equipment and rain covers. All items will be checked, hand braked and/or tied down when applicable.
6. All revetments occupied by aircraft will be maintained in a neat and uniform manner.

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FOOTNOTES

1. (S) CHECO Report, "Command Control 1966-1968," 1 Aug 69, pp. 1-3.
2. (S) CINCPAC Instruction 003320.2, Subj: "Air Defense of the PACOM," 8 Feb 69.
3. (U) ASI Form 0-7, "Unit Lineage and Honors" Det 1, USAF Section (MAAG-VN) 1173d USAF Foreign Missions Squadron, 16 Dec 69. U.S. History Division. Aerospace Studies Institute, Maxwell AFB, Ala.
4. (S/NF) Corona Harvest Report, "A Chronology of Significant Air Power Events in SEA, 1950-1968," 1 May 69. Hereafter referred to as, "Corona Harvest Chronology. (U) entry, p. 1.
5. (U) A Summary History of MACV. AFGPVN Tan Son Nhut AB, Saigon, VN. 21 Nov 68.
6. (S) Corona Harvest Chronology, p. 2.
7. (U) A Summary History of MACV. AFGP. VN.
8. (S) CHECO Report, "The Royal Thai Air Force," 3 Sep 71, p. 2.
9. (S) Ibid., Chap II & III.
10. (S) 2d Advon History 1 Jul-31 Dec 61.
11. (S) CHECO Report, "The Royal Laotian Air Force 1954-1970," 15 Sep 70, p. xv.
12. (S) Ibid., p. xvi.
13. (S) Ibid., p. xvi.
14. (S) Ibid.
15. (U) Welcome to the Air Training Center, VNAF Air Training Center Pamphlet.
16. (S) 13 AF History 1963.
17. (S) Ibid.

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18. (S/NF) Corona Harvest Chronology, p. 5. (U) entry.
19. (U) A Summary History of MACV, AFAG, Hq History Branch, 21 Nov 68.
20. (S/NF) Corona Harvest Chronology. (U) entry, p. 12.
21. (S) 2d Advon History 15 Nov 61-8 Oct 62, p. xvii, xviii.
22. (S) 2d Advon History 1 Jul 61-31 Dec 61, p. 39.
23. (S) CHECO Report, "Tactical Control Squadron Operations in SEASIA," 15 Oct 69. p. x, xi. Hereafter referred to as "TCS Operations."
24. (S/NF) Corona Harvest Chronology. (S) entry, p. 2.
25. (S) PACAF S.O. G-85, 15 Nov 61.
26. (S) Ibid. Note the name. 2d Advon having no correlation to any regular military unit designation was a ploy to detract from the fact that a headquarters was being developed.
27. (S/NF) Corona Harvest Chronology. (S) entry, p. 16.
28. (S) 2d Advon History, 1 Jul 61-31 Dec 61, p. 39.
29. (S) 2d Advon History 15 Nov 61-8 Oct 62, pp. 38-40, 118.
30. (S) Ibid., pp. 89, 121.
31. (S) Ibid., pp. 91-96, (S) 13 AF History Jul-Dec 63.
32. (S) Ibid., p. 89.
33. (S) Ibid., p. 121.
34. (S) Ibid., p. 120.
35. (S) Ibid., pp. 123, 124.
36. (S) Ibid., p. 122.
37. (S) History AFAG Vietnam, 1 Jun-31 Dec 65, p. 9.
38. (S) 13 AF History 1 Jul-31 Dec 63, p. 98.

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- ✓ 39. (S) PACAF Oplan 151-66 "SEAITACS," 1 Apr 66.
40. (S/NF) 7AF History 1 Jan-30 Jun 68 "Chronology."
41. (S) 505th TCGP History 1 Jan-31 Mar 69, "Chronology."
42. (S) Ibid.
43. (S) TACS Operations, p. 13.
44. (S) 505th TCG History 1 Jul-31 Dec 69, "Chronology."
45. (S) PACAF SO G-120, 6 Jul 67. (S) 7AF Secret Msg 081050 Dec 1968, Chief of Staff to MACV: Subj: Det 1, 619 TCS.
46. (S) TACS Operations, p. 10.
47. (S) 505 TCG Radar Display Chart 1971.
48. (S) TACS Operations, p. 4.
49. (S) Ibid., p. 8.
50. (TS) CHECO Report, "College Eye," 1 Nov 68. (S) p. 29. Hereafter referred to as "College Eye."
51. (U) 7AF Reg 55-2.
52. (S/NF) Corona Harvest Chronology (U), entry, p. 171.
53. (S) 2d Advon History, 15 Nov 61-8 Oct 62, p. 324.
- ✓ 54. (S) 7th AF Operations Order 427-66 effective 1 July 66. (S)
CHECO Report Command & Control 1966-1968, pp. 19, 26. (S)
CINCPAC Instruction 003320.2, "Air Defense of the PACOM:
Responsibility and Authority," 8 Feb 69.
55. (S) 7AF Manual 55-1, Chapter 13.
56. (TS) College Eye, (S), p. viii.
57. (TS) Ibid., (S), p. vii.
58. (TS) Ibid., (S), p. 18.

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59. (TS) Ibid., (S), p. 29.
60. (S/NF) 7AF History 1 July-31 Dec 69, p. 29.
61. (S) JCS Message 071329Z Dec 71, CETF PACAF Message 080101Z Dec 71, CETF.
62. (S) 7AF Message 230400Z Dec 71, "Concept of Operations."
63. (S) CINCPACAF Message 282140Z Dec 71, "Delegation of Authority."
- ✓ 64. (S) 7AF Operations Order 427-66 effective 1 July 66.
65. (S) 5th TCG History 1 July-31 Dec 66.
66. (S) Ibid.
67. (S) CHECO Report: "Command and Control 1966-1968." pp. 33-35, (S/NF) Corona Harvest Chronology (S) entry, p. 252.
68. (S) CHECO Report: "Command & Control 1966-1968," p. 35.
69. (S) Ltr, General William W. Momyer to Secretary of the AF, Harold Brown, 1 May 68.
70. (S) 7AF Message to PACAF 15 Aug 1971 concurred as cost matter in eventual manual system for TACC-NS estimate FY 4/72.
71. (S) Ibid.
72. (S) CHECO Report: "Command & Control 1966-1968," pp. 33-35.
74. (S/NF) 7AF History 1 Jan 66-30 June 67.
75. (S/NF) Ibid., (S), p. 193.
76. (S/NF) Ibid., (S), p. 196.
77. (S/NF) Ibid., (S), p. 199.
78. (S) CHECO Report: "Air Traffic Control in SEA." (S) TCS Operations, 14 Feb 1969, p. 22. Note: This is a thorough report on the problems and growth of the Air Traffic Control in SEA.

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79. (S) End of Tour Report, Vice Commander 7AF. Maj Gen, Gordon M. Graham, 1 Aug 67.
80. (S) TCS Operations. Chapter III.
81. (S) CHECO Report: "Air Traffic Control in SEA," pp. 12, 29.
82. (S) 7AF Letter, "ATRC Phase Out," 17 June 71.
83. (S) 7AF Message 220002Z Jan 71, (U) Air Defense Training Intercepts.
84. (S) 7AF Program Action Directive 72-7-16, "Transfer of Facilities."
85. (S) 505 TCG ltr, Joint VNAF/USAF/RTAF Permanent Coordinating Committee Meeting," 19 Oct 71.
86. (S/NF) Corona Harvest Chronology (S), p. 11.
87. (S) CHECO Report: "The RAAF in SEA," 30 Sep 70, p. 2.
88. (S/NF) Corona Harvest Chronology (U), p. 13.
89. (S/NF) Ibid., and (S) 2d Advon History 15 Nov 61-8 Oct 62, Vol I.
90. (S) 13 AF OPORD 207-62 and (S) 2d Advon History 15 Nov 61-8 Oct 62, p. 120.
91. (S) 13AF History 1 July-31 Dec 63.
92. (S/NF) Corona Harvest Chronology (S), p. 26.
93. (S) 13AF History 1 Jul-31 Dec 63.
94. (S/NF) Corona Harvest Chronology (S), p. 49.
95. (TS) MACV Command History 1964, Vol I (S), p. 107.
96. (S/NF) Corona Harvest Chronology (S), p. 46.
97. (S/NF) Ibid., (S), p. 58.
98. (S/NF) Ibid., (S), p. 63.
99. (S) 2d Advon History 1 Jul-31 Dec 64, Vol II, p. 2. (S) CHECO Report: "The RAAF in SEA," 30 Sep 70, p. 2.

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100. (S/NF) Corona Harvest Chronology (S), p. 179.
101. (S/NF) Ibid. (S), p. 84.
102. (TS) "The Overview and Wrap Up Operations of U.S. Marine Forces Vietnam." CHECO Microfilm Roll 573. 1804; and (TS) MACV Command History 1965, Vol I (S), p. 37.
103. (S/NF) Corona Harvest Chronology. (S), p. 99.
104. (S/NF) Ibid. (S), pp. 103, 109.
105. (S) CHECO Report "Air to Air Encounters over NVN 1 Jan-30 June 1967, 30 Nov 67, Chapter I, p. 2.
106. (TS) Rules of engagement are national policy translated to the battlefield. In the Vietnamese conflict, they were constantly changing. They evolved and were changed by each change or threat of change to the U.S. political relations with other nations whether allies, enemies, or potential enemies. Because they were **ever** changing, no attempt was made in this report to follow their changing effect on air defense (counter air). 2d Air Division and 7th AF Histories; CHECO Reports: (1) 20-1 (TS) "History of War in Vietnam" dated 1 May 1964 (2) 20-10 (TSNF) "Evolution of the Rules of Engagement for SEAsia 1960-1965," dated 30 Sep 66; (3) 20-17 (TSNF) "Air Tactics Against NVN Air/Ground Defenses," dated 27 Feb 1967; (4) 20-38 (TSNF) "ECM & USAF Penetrations of NVN Air/Ground Defenses 1966-1968," dated 7 Dec 68; (5) 20-40 (TS) "Rules of Engagement (1 Jan 66-1 Nov 69)" dated 31 Aug 69; and (6) 20-51 (TS) "Evolution of the Rules of Engagement Nov 69-Sep 72," are recommended for a more detailed study on Rules of Engagement.
107. (S) CHECO Report: "Air to Air Encounters over NVN, 1 Jan-30 Jun 1967, 30 Nov 1967." Chapter I, p. 2.
108. (S) Ibid.
109. (S/AFEO) CHECO Report: "Tactical Electronic Warfare Operations in SEA 1962-1968," 10 Feb 69. (S), p. 15.
110. (S/NF) Corona Harvest Chronology (U), p. 112.

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111. (TS/NF) CHECO Report: "Tactical Electronic Warfare Operations in SEA 1962-1968," 10 Feb 69. (S), p. 16. This report does not attempt any detailed coverage of tactics, techniques, and equipment development for defending tactical strike forces. For deeper information in these areas, the following CHECO Reports are recommended for review: (S) (TSNF) "Air Tactics Against NVN Air/Ground Defenses," dated 27 Feb 67; (2) (TS) "Selected Notes Pertaining to Air Operations," dated 15 Aug 67; (3) (TS) "College Eye," 1 Nov 68; (4) (TSNF) "ECM & USAF Penetrations of NVN Air/Ground Defenses 1966-1968," dated 7 Dec 68; (5) (S/NF) "Blue Bells Singing" dated 10 Aug 65; (6) (S) "Air to Air Encounter over North Vietnam 1 Jan-30 Jun 67," dated 30 Nov 67; (7) (S) "EB-66 Operations in SEA 1967; (8) (S) "RIVET TOP 1 Jan 67-30 June 68," dated 14 Nov 68; (9) (SNF) "Tactical Electronic Warfare Operations in SEA (1962-1968)" dated 10 Feb 1969; (10) (SNF) "Air to Air Encounters over NVN 1 July 67-31 Dec 68" dated 30 Aug 69; (11) (S) "USAF Air Tactics against NVN Air/Ground Defense Dec 66-1 Nov 68," dated 30 Aug 69.
112. (S) CHECO Report: "Air to Air Encounters over NVN," 30 Nov 67.
113. (S/NF) Corona Harvest
114. (TS) MACV Command History 1966, Chronology (S).
115. (S) CHECO Report: "Air to Air Encounters over NVA," 30 Nov 67, p. 9.
116. (S) Ibid., pp. 39, 50.
117. (S) CHECO Report: "USAF Posture in Thailand 19666," 28 Aug 67.
118. (S) CHECO Report: "RAAF in SEA," 30 Sep 70.
119. (S) Historical Background USAF Advisory Group in Vietnam.
120. (S) CHECO Report "Organization, Mission and Growth, of the VNAF 1949-1968," 8 Oct 68, p. 49.
121. (S/NF) 7AF History, 1 July-31 Dec 67, p. 45.
122. (S/NF) Ibid., p. xxi.
123. (S/NF) 7AF History, 1 Jan-30 Jun 68, p. 159.

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124. (S/NF) History 7AF 1 July-31 Dec 68, Vol I Part 1, pp. 189,89.
(S) JCS (S) Message to CINCPACOM & COMUSMACV 082258Z Aug 68.
(S) MACV FY 69 Force Structure.
125. (S/NF) 7AF History 1 Jan 66-30 Jun 67, p. 35.
126. (S) CINCPACAF Message, F-102 Detachment Bien Hoa, 112116Z Sep 68.
127. (S/NF) 7AF History, 1 Jan-30 June 68, p. xxvi.
128. (S/NF) 7AF History 1 Jul-31 Dec 68 Chronology.
129. (S/NF) Ibid.
130. (S/NF) Ibid., Vol I, p. 191.
131. (S/NF) Ibid., Vol I, p. 5.
132. (S/NF) 7AF History 1 Jan-30 Jun 69, Vol I, p. 118.
133. (S/NF) Ibid., p. 233.
134. (S/NF) Ibid., p. 233.
135. (S/NF) Ibid.
136. (S/NF) 7AF History 1 Jul-31 Dec 69, Chronology.
137. (S/NF) Ibid.
138. (S) 7AFM 55-1, Chapter XIII, 15 Dec 71.
139. (S) Intvw: Lt Col Penix with: a. SMSgt Kenneth J. Parr NCOIC alert Facility 432d TRWg, Udorn, Thailand. 6 Apr 1972, hereafter referred to as "Parr Interview." b. Discussion with Maj Robert A. Lodte, Staff Fighter Officer 432d TRWg DOT, Udorn Thailand, on 5 Apr 72, hereafter referred to as "Lodge Discussion." c. Major Luan H. Harriet, Alert Force Commander, 432d TRWg Udorn, Thailand, 8 Apr 72, hereafter referred to as "Harriet Interview." d. Major Charles M. Cole, Operations Officer, 612 TCSq, Udorn, Thailand, 6 Apr 72, hereafter referred to as "Cole Interview." e. Lt Col Paul R. Craw, Commander 4th TFS DaNang AB, RVN. 11 Apr 1972, hereafter referred to as "Craw Interview."

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140. (S) 432d TRW History 1 Apr-30 Jun 71, p. 5.
141. (S) 432d TRW History 1 Oc5-31 Dec 69.
142. (S) All five interviews and discussions (Footnote 139).
143. (S) Craw Interview.
144. (S) 432d TRW History 1 Jan-31 Dec 71.
145. (S) All five Interviews and discussions (Footnote 139).
146. (U) 432d TRW. DO ltr, "Papa Alert Force Commander," 11 Oct 71.
147. (S) Harriet Interview.
(S) Lodge Discussion.
(S) Craw Interview.
148. (S) Craw Interview.
149. (S) 7AF Summary of Air Operation - June 1971.
150. (S) Craw Interview.
151. (U) 432d TRW Manual 55-4, 4 Feb 72.
152. (S) Cole Interview.
153. (S) All five interviews and discussions (Footnote 139).
154. (S) Ibid.
155. (S) 7AF Message 220002Z Jan 71, (U) "Air Defense Training Intercepts."
156. (S) 432d TRW History 1 Apr-30 Jun 71, p. 5.
157. (S) 505th TCG History 1 Oct-31 Dec 71.
(S) All five interviews and discussions (Footnote 139).
158. (S) Harriet Interview.
159. (S) 432d CC ltr, "Final Report on FIR/GCI Conference with 1 Attachment: 432 FIR/GCI Working Conference Reports," p. 11.
160. (S) 7AF DO ltr to VC, "SEA Air Defense System," Dec 71.

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- 161. (S) Lodge Discussion.
- 162. (S) Ibid.
- 163. (S) CHECO Report, "The Royal Thai Air Force," 3 Sep 71, p. 90.
- 164. (S) 505 TCG Histories 1 Jan-31 Dec 71.
- 165. (S) MACV Force Structure Document FY 73.
- 166. (S) Interview with General George S. Brown, Commander 7AF, by Mr. Kenneth Sams and Lt Colonel Richard Kott, 30 Mar 70.

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GLOSSARY

AAA/AW	Anti-Aircraft Artillery/Automatic Weapons
AB	Air Base
ABCCC	Airborne Command and Control Center
AC&W	Aircraft Control and Warning
ADA	Air Defense Artillery
ADIZ	Air Defense Identification Zone
ADVON	Advanced Echelon
AEW&C	Airborne Early Warning and Control
AFB	Air Force Base
AFCC	Air Force Component Commander
AOC	Air Operations Center
ASOC	Air Support Operations Center
ATACC-NS	Alternate Tactical Air Control Center-North Sector
ATDS	Automatic Tactical Data System
ATRC	Air Traffic Regulating Center
AWACS	Airborne Warning Control System
BAR CAP	Barrier-Combat Air Patrol
BARREL ROLL	Geographical Area of Northern Laos
BC	Body Count
BUIC	Backup Interceptor Control
CAP	Combat Air Patrol
CETF	College Eye Task Force
CHECO	Contemporary Historical Examination of Current Operations
CINCPAC	Commander-in-Chief Pacific Command
COCKED PISTOL	Exercise term for increased alert condition (DEFCON I)
COLLEGE EYE	Nickname for Airborne Early Warning & Control mission in SEA
COMBAT LIGHTNING	Project to provide a semi-automatic system for "real time" control of tactical air operations over NVN
COMMANDO HUNT	Air interdiction campaigns along roads in Laos Panhandle
COMUSMACTHAI	Commander U.S. Military Assistance Command Thailand
CRC	Control and Reporting Center
CRP	Control and Reporting Post
CSAF	Chief of Staff USAF
CTF	Carrier Task Force
DEFCON	Defense Readiness Condition
DEPCHJUSMAGTHAI	Deputy Chief Joint U.S. Military Advisory Group Thailand
DMZ	Demilitarized Zone

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FAA	Federal Aviation Authority
FADE OUT	Exercise term to cancel increased Defense Readiness Conditions
FIS	Fighter Interceptor Squadron
FRAG	Orders to a unit or units as fragmentary specific instructions in addition to basic operations orders
FWMAF	Free World Military Assistance Forces
GCI	Ground Controlled Intercept
GREEN HILLS	Thai CRC location near Bangkok
IND	Intercept Director
IRON HORSE	Nickname for specialized intelligence system
MAAGV	Military Assistance Advisory Group Vietnam
MACTHAI	Military Assistance Command Thailand
MAP	Military Assistance Program
MDAP	Military Defense Assistance Program
MIG	Russian-built fighter aircraft
MIG CAP	Enemy fighter combat Air Patrol
Monkey Mountain	A mountainous peninsula near DaNang RVN on which weapons and control facilities were located
MR	Military Region
MSEA	Mainland Southeast Asia
MSEAADR	Mainland Southeast Asia Defense Region
MTDS	Marine Tactical Data System
NKP	Town in NE Thailand and location of USAF AB and TACS Control Facility
NLF	National Liberation Front
NTDS	Navy Tactical Data System
NVN	North Vietnam
OPLAN	Operations Plan
OPORD	Operations Order
PACAF	Pacific Air Forces
PACOM	Pacific Area Command
PEO	Program Evaluation Office
RTAF	Royal Thai Air Force
RVN	Republic of (South) Vietnam
RVNAF	Republic of Vietnam Air Force

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SAM	Surface to Air Missiles
SAR	Search and Rescue
SEA	Southeast Asia
SEAITACS	Southeast Asia Integrated Tactical Air Control System
SEATO	Southeast Asia Treaty Organization
SIF/IFF	Selective Identification Feature/Identification Friend or Foe
SVN	South Vietnam
TACC	Tactical Air Control Center
TACC Blue Chip	Tactical Air Control Center 7AF, TSN
TACC-NS	Tactical Air Control Center-North Sector (Monkey Mountain)
TACG	Tactical Air Control Group
TACS	Tactical Air Control System
TDY	Temporary Duty
TFS	Tactical Fighter Squadron
TFW	Tactical Fighter Wing
TRW	Tactical Reconnaissance Wing
TSN	Tan Son Nhut Air Base
UHF	Ultra High Frequency
USAF	United States Air Force
USMC	U.S. Marine Corps
USN	U.S. Navy
VC	Viet Cong
VNAF	Vietnamese Air Force



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DEPARTMENT OF THE AIR FORCE
HEADQUARTERS PACIFIC AIR FORCES
HICKAM AIR FORCE BASE, HAWAII 96853


REPLY TO
ATTN OF: HO

17 January 1983

SUBJECT: Release of CHECO Documents

TO: AFSHRC/CC

1. The list of CHECO reports you sent to us with your letter of 3 January are releasable as far as PACAF Public Affairs are concerned. When referring to CHECO documents, it's most helpful if you include the number assigned in the Research Guide you published in 1976.
2. We will be sending you the Air America documents as soon as we can spare the time to pack them up--we need the vault space.
3. Am retiring at the end of this month, so you probably won't be hearing from me again. It's been nice knowing you and working with your very supportive organization. Best wishes for the future.


JAMES C. NOLAN
Chief, Office of PACAF History

ajb NO, 24/1-83

UNCLASSIFIED/DECLASSIFIED CHECO REPORTS

1. Project RED HORSE (Unclassified), by Derek H. Willard, 1 Sep 1969 K717.0413-68
2. USAF Aerial Port Operations in RVN (Unclassified), by Jack T. Humphries,
5 Aug 1970 K717.0413-79
3. SEA Glossary 1961-1971 (Revised Report) (Unclassified), by E. J. Alspenger,
1 Feb 1972 K717.0413-76
4. OV-1/AC-119 Hunter-Killer Team (Declassified), by Richard R. Sexton and
William M. Hodgson, 10 Oct 1972 K717.0413-34
5. Kontum: Battle for the Central Highlands 30 March-10 June 1972 (Declassified),
by Peter Liebchen, 27 Oct 1972 K717.0414-30
6. PAVE MACE/COMBAT RENDEZVOUS (Declassified), by Richard R. Sexton, 26 Dec 1972
K717.0414-35
7. Air Defense in Southeast Asia 1945-1971 (Declassified), by Guyman Penix and
Paul T. Ringenbach, 17 Jan 1973 K717.0414-36
8. The Battle for An Loc 5 April - 26 June 1972 (Declassified), by Paul T.
Ringenbach and Peter J. Melly, 31 Jan 1973 K717.0414-31
9. PAVE AEGIS Weapon System (AC-130E Gunship) (Declassified), by Gerald J. Till
and James C. Thomas, 16 Feb 1973 K717.0414-37
10. The 1972 Invasion of Military Region I: Fall of Quang Tri and Defense of Hue
(Declassified), by David K. Mann, 15 Mar 1973 K717.0414-32
11. "Ink" Development and Employment (Declassified*), by B. H. Barnette, Jr.,
24 Sep 1973 K717.0414-41
12. Guided Bomb Operations in SEA: The Weather Dimension 1 February - 31 December 1972
(Declassified), by Patrick J. Breitling, 1 Oct 1973 K717.0414-43
13. Airlift to Besieged Areas 7 April - 31 August 1972 (Declassified*), by Paul T.
Ringenbach, 7 Dec 1973 K717.0414-33
14. Drug Abuse in Southeast Asia (Declassified), by Richard B. Carver, 1 Jan 1975
K717.0414-50
15. Aerial Protection of Mekong River Convoys in Cambodia (Declassified**), by
Capt William A. Mitchell, 1 Oct 1971 K717.0414-23

*Declassification date incorrectly computed on cover of document.

**Declassified by Office of Air Force History, 2 May 1977

Declassified IAW E.O. 12958 by the
Air Force Declassification Office and
Approved for Public Release.

Date: 8-17-06

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