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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

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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/}

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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

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*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

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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.

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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/}

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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/}

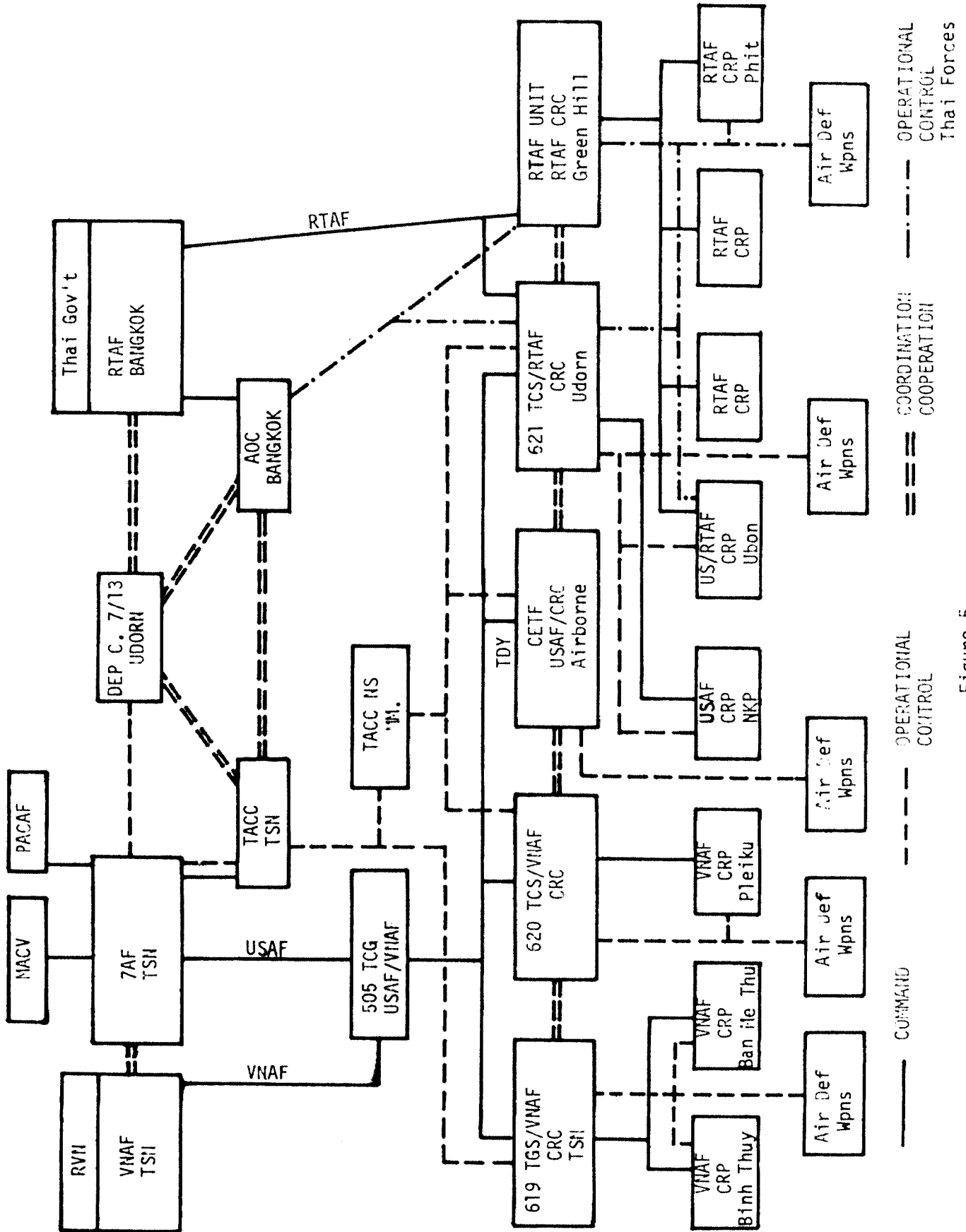
Emphasis had been placed on securing new model F-4s to provide improved air to air "dog fight" capability. These were on the way. But also as an added capability new AIM-7E missiles had arrived in Thailand on 1 June 1968^{127/} and AIM-9E, Sidewinder, missiles were introduced there on 30 November.^{128/} 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 HURT 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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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

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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

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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

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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,



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

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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^{150/} activity which took the squadron further out of the tactical strike work.

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

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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

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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.

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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/}

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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/}

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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/}

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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.