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PROJECT CHECO REPORT

SOUTHEAST ASIA

USAF CONTROL OF AIRSTRIKES IN SUPPORT OF INDIGENOUS LAO GROUND FORCES (U)

SPECIAL REPORT

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PROJECT
Contemporary
Historical
Examination of
Current
Operations
REPORT

USAF CONTROL OF AIRSTRIKES IN SUPPORT OF INDIGENOUS LAO GROUND FORCES (U)

19 JULY 1972

HQ PACAF

Directorate of Operations Analysis
CHECO/CORONA HARVEST DIVISION

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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.

John M. McNabb

JOHN M. McNABB, Major General, USAF
Chief of Staff

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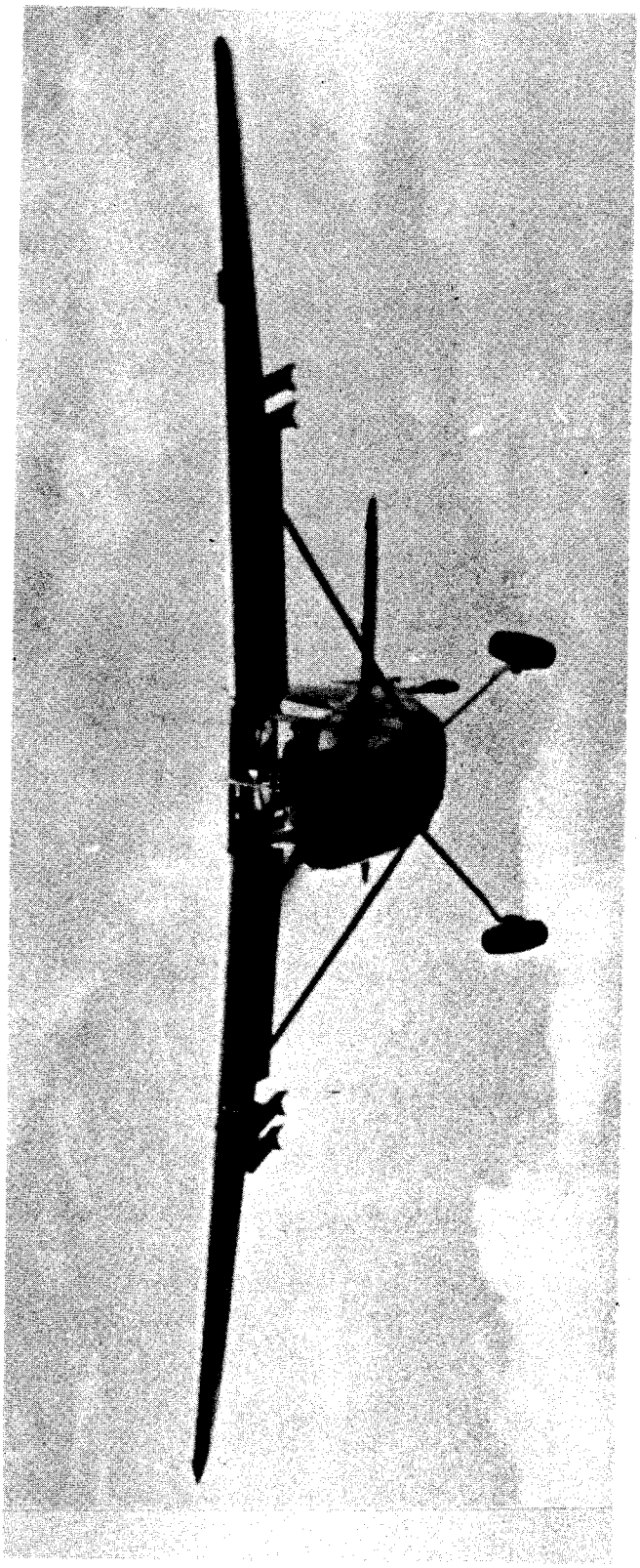
ABOUT THE AUTHOR

Captain Shields received his commission in the USAF upon graduation from Franklin and Marshall College, Lancaster, Pennsylvania, in June 1965. He began his AF active duty in October 1967 after completing a Master's Degree in Russian and East European History at Indiana University. Since that time he has served as a personnel officer and has graduated from the Defense Intelligence School, Anacostia Naval Annex, Washington, D. C. Immediately before becoming a CHECO writer, Captain Shields worked for a year in the Laos Branch of DCS/Intelligence, at Headquarters Seventh Air Force, Tan Son Nhut Airfield, Republic of Vietnam, starting in July 1970.

FOREWORD

The Butterfly and Raven Forward Air Controller programs represented a unique attempt to provide effective air strike control for USAF jet fighters under restrictive political conditions. International agreements (the Geneva Accords of 1962) had forbidden the introduction of any foreign military forces or assistance into Laos. North Vietnam disregarded this restriction and continued to provide weapons, training, and eventually manpower to support native Lao communists. To counter this North Vietnamese effort the U.S. was obliged to organize various clandestine military air projects to maintain a pro-western or neutralist Lao government in face of the communist challenge. Since the overt introduction of U.S. ground forces was ruled out by the Geneva Accords and by the increasing U.S. involvement elsewhere in Southeast Asia, this support took the form of material and training assistance and air power. The effective use of air-power, however, required trained strike control personnel to operate in the field with non-communist Lao ground forces. To provide this service, USAF strike control personnel were introduced clandestinely into Laos starting in mid-1964. This effort was to evolve eventually into the Raven Forward Air Control program.



CESSNA O-1 BIRDDOG

Figure 1

CHAPTER I

LAOS AND THE U.S. INVOLVEMENT: 1959-1965

The Raven Forward Air Controller (FAC) program is a direct descendent of the crude and makeshift air strike control arrangements which were hurriedly established by USAF Air Commando personnel in mid-1964 to improve the effectiveness of airstrikes supporting anti-communist forces in northern Laos. To better understand the circumstances leading to these events and the presence of American personnel, a brief review of events in Laos up to that point is necessary.

Laos: Rightists, Neutralists, and Communists

Upon the withdrawal of French forces from Indo-China in 1953, a neutral government was established in Laos under the direction of Prime Minister Souvanna Phouma. Lao communist forces (the Pathet Lao, or PL) were at that time largely confined to the provinces of Sam Neua and Phong Saly in northern Laos next to the border of North Vietnam (NVN). From 1953 to 1958 Souvanna Phouma sought to integrate PL territory into a neutral kingdom of Laos, and PL military forces into the Royal Lao Army (Forces Armee Royal, or FAR). The Prime Minister was partially successful, but was overthrown by anti-communist, rightist Lao factions in July 1958.[1/]

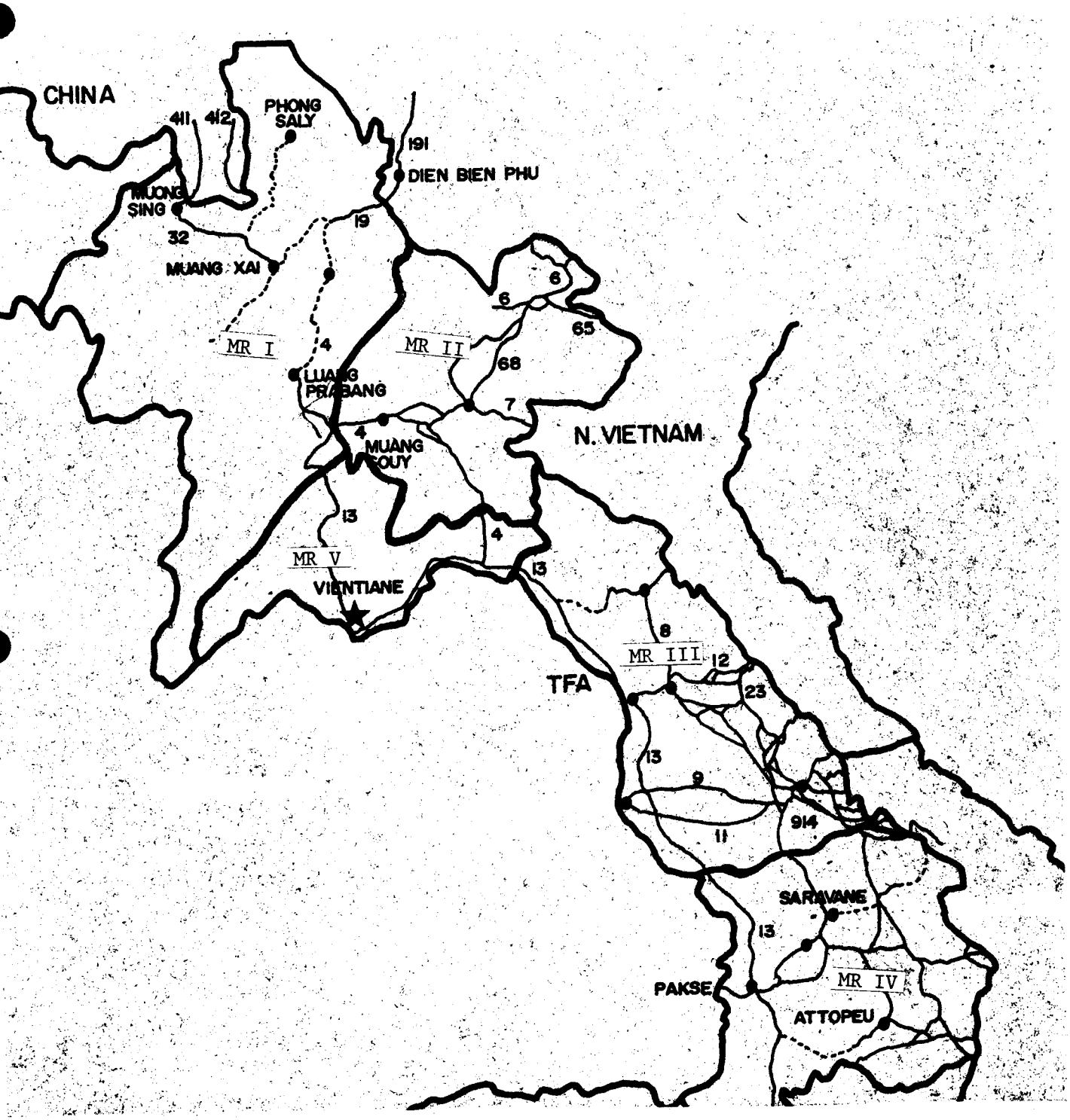
The rightist government immediately discarded the idea of a neutral Laos and embarked upon a pro-western and anti-communist course.[2/] The U.S. supported this regime in 1959 by supervising the increase of the FAR

to 30,000 men and training a small number of Royal Lao Air Force (RLAF) pilots at bases in the U.S.[3/]

The overthrow of the Lao rightist government in August 1960 by the FAR paratroop captain Kong Le paved the way for the return of the neutralist Prime Minister Souvanna Phouma. His regime initiated negotiations with the Pathet Lao and accepted military assistance and material aid from Russia.[4/] This aid was either trucked or flown from Hanoi to receiving points on the Plaine Des Jarres (PDJ) in northern Laos.

To observe Russian supply efforts on the PDJ, the U.S. in January 1961 deployed an SC-47 reconnaissance aircraft from Korea to Southeast Asia (SEA). After this aircraft was shot down by Kong Le's gunners in March while on its 39th sortie, USAF RT-33s flying out of Udorn Royal Thai Air Force Base (RTAFB) and Don Muang Airport, Bangkok, continued the surveillance. In November this task was undertaken by RF-101s of the USAF ABLE MABLE Task Force.[5/] Earlier, in January 1961, the U.S. assisted anti-communists in Laos by transferring T-6 training aircraft to the RLAF and sending 400 U.S. Army Special Forces personnel (known as White Star Mobile Training Teams) into Laos to train and advise local armed forces.[6/]

Further assistance was given to Lao anti-communist elements when the Joint U.S. Military Assistance and Advisory Group-Laos (JUSMAAG-Laos) was established in April 1961, and the Central Intelligence Agency (CIA) began secretly to provide military training for Meo mountain tribesmen



Lao Military Regions

Figure 2

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Northern Laos (BARREL ROLL)

Figure 3

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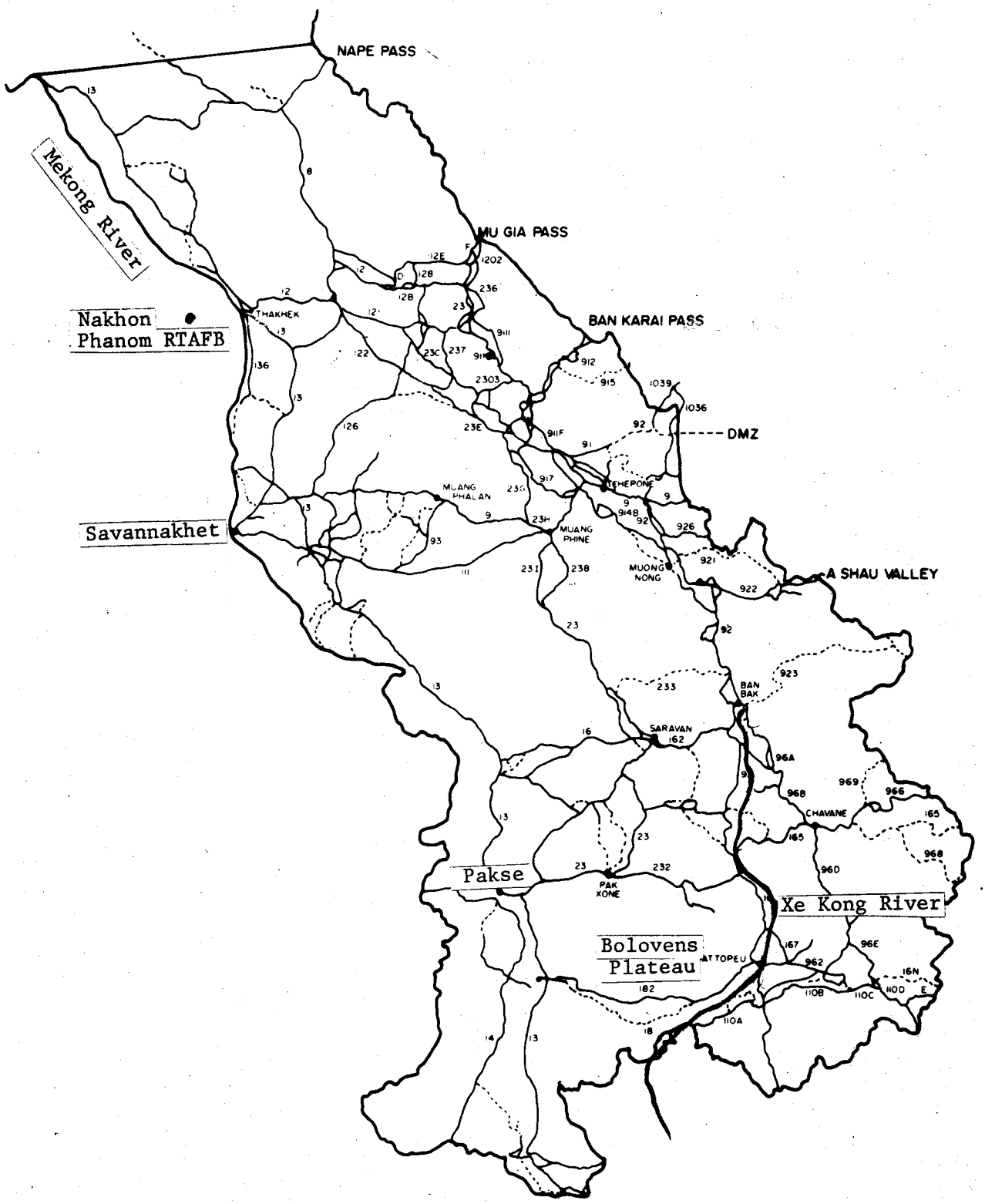


Southern Laos (STEEL TIGER)

Figure 4

in northern Laos.[7] However, the Declaration of the Neutrality of Laos, signed in Geneva, Switzerland, on July 23, 1962, proclaimed the neutral status of the kingdom and terminated all overt foreign military assistance to the Royal Lao Government (RLG).[8] At the same time, an agreement between rightist, neutralist, and communist factions within Laos produced a coalition government and a ceasefire, and alloted control of the Plain of Jars to Kong Le's neutralist forces.

U.S. Assistance Continues: WATERPUMP

The United States agreed to the political neutralization of Laos and, in 1962, JUSMAAG-Laos was redesignated Deputy Chief, Joint United States Military Assistance Group, Thailand (DEPCHJUSMAGTHAI, or DEPCHIEF for short) and moved to Bangkok, thus acquiring the unofficial title, "MAAG-in-exile."[9]

By the end of 1963, Pathet Lao pressure on territory controlled by non-communist Lao forces had steadily increased. To further assist the RLG in meeting the challenge, U.S. Ambassador to Laos Leongard Unger and Secretary of State Dean Rusk decided in November to provide the Royal Laotian Air Force with a Counter Insurgency (COIN) capability. Consequently, in March 1964 a USAF Special Air Warfare (SAW) unit, Detachment 1, 1st Air Commando Wing, deployed to Udorn RTAFB to provide training and operational experience to RLAF pilots. Called Project WATERPUMP, Det 1 originally was equipped with four COIN-configured T-28s and 38 personnel to accomplish flying, instruction, and maintenance tasks.[10] About the same time other U.S.-sponsored training programs were established to teach

Lao personnel to fly and maintain H-34 helicopters and C-47 transports. These programs also were based at Udorn.[11/]

Disruption of the 1962 Geneva Agreement

The Geneva Accords ostensibly neutralized Laos and helped bring about a formal settlement by which each of the three competing factions was assigned certain geographical areas of the country; however, the period 1962-64 was marked by the steady growth of Pathet Lao strength as the North Vietnamese communists continued to supply and train PL forces. This increase in communist strength in Laos inevitably resulted in PL encroachments on territory allotted to the Rightist and Neutralist elements. Open fighting between the three factions finally erupted in northern Laos in May 1964, and Kong Le's Neutralist forces were driven from the PDJ by the end of the month. These events were followed by the withdrawal of the Pathet Lao representation from the three faction coalition government. The collapse of this system was further underlined by the subsequent cooperation of the rightist and neutralist factions against the communists.[12/]

With the initiation of the enemy offensive on the PDJ in May, the RLAF's six T-28s were concentrated in Wattay Airport, Vientiane, and pressed into service against communist forces. Because of the seriousness of the situation, all four T-28s then assigned to WATERPUMP were also made available for RLAF use in late May, and replacement T-28s were flown in from the Republic of Vietnam (RVN) to continue the training

program. By the end of the month Ambassador Unger had authorized the release of fuzes held at Udorn for RLAF 100 and 500 lb bombs so these weapons could be used by the T-28s against communist forces.[13/]

The U.S. responded to these developments by initiating the USAF/Navy YANKEE TEAM reconnaissance program over Laos on 18 May 1964 to gather intelligence, demonstrate U.S. concern over the reverses suffered by non-communist forces,[14/] and support the RLG in the face of its problems and setbacks. Within a few months, the initial flights developed into regularly flown missions and began to include armed reconnaissance as well as photographic flights. By early 1965 the continued North Vietnamese supported communist aggression and RLG military reverses prompted Prime Minister Souvanna Phouma to sanction U.S. combat strikes in Laos, although he insisted that there be no public admission of these activities.[15/]

The first U.S. jet aircraft downed over Laos was a Navy RF-8, lost on 6 June 1964, while participating in YANKEE TEAM activities. The next day a Navy F-8 reconnaissance escort fighter was lost. In retaliation, USAF F-100s from Tan Son Nhut AB, RVN struck antiaircraft artillery (AAA) targets in the Xiengkhouangville area of northern Laos on 9 June, making the first use by the U.S. of jet strike aircraft in Laos.[16/] By August the USAF buildup had begun in Thailand (in response to events in the RVN as well as those in Laos), and in December USAF jet aircraft from Vietnam began regular raids in Laos.[17/]

Use of Thai, Air America, and WATERPUMP T-28 Pilots in Laos

While the RLAF's shortages of T-28s could be alleviated by importing additional aircraft on an emergency basis, procuring trained, combat-ready and proficient aircrews was another matter. With a growing fleet of RLAF T-28s, the RLG authorized the use of Thai pilots on 21 May.[18/] After accelerated training by WATERPUMP, 10 Thai pilots began performing combat missions in early June, under the operational control of the U.S. Air Attache (USAIRA) in Vientiane.[19/]

For political reasons, all Thai T-28 missions flew from Udorn to Wattay Airport, Vientiane, to arm, fuel, and be briefed on their targets for the day. They then continued to shuttle between fuel and ordnance supply points and tactical targets in the PDJ, returning at nightfall to Udorn.[20/]

From May until December 1964 RLAF T-28s flew practically the only close air support for anti-communist forces in north Laos.[21/] By December this force had increased to 40 T-28s and 19 Lao pilots; 20 Thai pilots supplemented the RLAF until the augmentation program was phased out in mid-1970.

The RLAF's 1964 pilot shortage prompted a number of emergency measures to allow as many T-28s as possible to participate in combat operations. Although T-28 instructors occasionally flew strike missions, most of these were associated with the USAF pilots' instructor duties, flown either with

an RLAF trainee aboard to give the student "on the job" experience, or to enable the instructor to remain proficient in the skills he taught.[22/]

Although Air America involvement in close air support missions was small, a few pilots from this organization continued to fly T-28s in support of search and rescue (SAR) operations to help recover downed U.S. pilots. The initiation of the YANKEE TEAM reconnaissance program made the establishment of a SAR capability over Laos vital: until USAF resources could be provided, Air America made available H-34 helicopters and armed T-28 support.[23/] These activities were supported by WATERPUMP, which provided T-28 aircraft and any training required by Air America pilots.[24/]

While Air America resources could provide limited SAR support for the RLAF, effective SAR coverage of the new USAF effort was clearly beyond its capability. By the end of June 1964 plans were being drawn up to provide a SAR capability over Laos from U.S. bases in Thailand and the RVN. Implementation of these plans allowed Air America helicopters to be mostly phased out of the rescue role by mid-1965,[25/] although Air America-piloted T-28s continued to provide armed escort for SAR efforts until 1966.[26/] By 1967, Air America pilots had stopped flying T-28s, but WATERPUMP T-28 instructor pilots were still available for SAR support in emergencies.[27/] From 1965 until the date of this report, however, Air America fixed-wing aircraft (such as Porters and U-10s) occasionally assisted in locating downed U.S. aircrews, and its helicopters performed aircrew pickups if they happened to be in the area at the time.

Growth of the U.S. Air Role in Laos

Up to the end of 1964, USAF jet strikes in Laos were mostly confined to missions in support of the YANKEE TEAM effort and were directed against AAA positions that had downed or fired at reconnaissance aircraft. Close air support of Laotian ground troops was provided only by RLAF T-28s flown by the previously described assortment of pilots.

Interdiction strikes also began in 1964. These were directed against communist supply lines along Routes 7 and 13 in northern Laos at times when the T-28s could be spared from the close support role. However, the small number of aircraft available and limits as to the quantity and type of ordnance they could carry hindered the effectiveness of this effort. On 14-27 October USAF F-100s and RF-101s from Republic of Vietnam (RVN) bases assisted the T-28s in strikes against Mu Gia Pass on the Laos/North Vietnam border. On 14 December F-100s, F-105s, and RF-101s (also from the RVN) attacked the Nape highway bridge in what were clearly interdiction (as opposed to close support) strikes.[28/]

At this time, Thailand's refusal to allow U.S. aircraft stationed at Thai bases to participate in the armed reconnaissance program in Laos necessitated that these strikes be carried out by USAF or United States Navy aircraft based in the RVN or on aircraft carriers. Thailand was reluctant to risk its non-belligerent status by allowing U.S. combat strikes from its bases. Thus, missions originating there were for photo reconnaissance, armed escort for reconnaissance, SAR operations, or the air

defense of Thailand.[29/] The only exceptions were the T-28 missions flown from Udorn, but officially these were RLAF aircraft striking in Laos. The Thai government finally granted permission for U.S. aircraft to fly combat sorties from its bases in April 1965, and the first mission in Laos was flown on 7 April.[30/] At approximately the same time (March 1965) the ROLLING THUNDER large-scale bombing campaign began against North Vietnam.[31/]

It was also during 1965 that the USAF began performing the interdiction and close air support role in Laos. During the first three months of the year 48 missions were flown in northern and southern Laos, 30 of which were armed reconnaissance sorties along major communist supply routes.[32/] At first these were designated BARREL ROLL missions (covering all of Laos), but an early 1965 change in interdiction emphasis to the southern Panhandle of Laos caused a new program designated STEEL TIGER to be developed for this area. Strikes under this program began on 3 April 1965, and in time both terms evolved to refer to geographic areas of Laos, as distinct from a specific program or operation: BARREL ROLL - northern Laos; STEEL TIGER - southern Laos.[33/]

Short Round Incidents

The increase in USAF jet strikes in Laos was not without its problems. An early BARREL ROLL mission flown in support of the FAR in mid-February 1965 resulted in the first of a series of short round incidents which pointed out the need for a greater degree of control of USAF airstrikes. Known as the "Sam Neua incident," it occurred when a special

BARREL ROLL mission, flown in support of the FAR against four enemy 105mm howitzers in fixed positions and against a possible truck convoy, accidentally struck the southern part of the town of Sam Neua.[34/] As a result Lao Prime Minister Souvanna Phouma ruled the town off limits to future air actions,[35/] depriving FAR forces in the area of badly needed support. The reaction of the U.S. Ambassador to Laos to this incident was an abandonment of the close air support idea for the moment[36/] and the withholding of approval for further BARREL ROLL missions until he "could be assured that flights were briefed to strike only embassy-recommended targets which had been approved by Washington."[37/]

A second incident occurred in May 1965 when a STEEL TIGER mission mistakenly hit an RLG gun position near Muang Phalane on Route 9, in southern Laos. The new U.S. ambassador to Laos, William R. Sullivan, suspended all STEEL TIGER strikes, stating that ". . . it is imperative that we take every precaution to preclude the possibility of our aircraft dropping munitions on friendly forces."[38/] Although General Ma, the RLAF Commander, approved U.S. armed reconnaissance missions along Route 92 in August, he reflected that local ground commanders were "a little sensitive" about past incidents, and stated that ". . . no mistakes is (SIC) the order of the day. . . ."[39/] An expansion of the STEEL TIGER target list requested later that month by AIRA was approved reluctantly by the General.[40/]

Following another bombing error in which STEEL TIGER aircraft strafed and damaged a fish trap and a bridge and wounded six people (two civilians and four soldiers), AIRA ordered all bombing missions in southern Laos discontinued on 1 October 1965 until further notice. BARREL ROLL activity was not affected, however.[41/] As a result of these restrictions interdiction operations in Laos were sharply curtailed during October, and permissions to resume operations in the south was not received until later in November.

On 22 November, following this resumption, 2nd Air Division (2AD, later 7AF) cited six violations of the Rules of Engagement (ROE) which had occurred since the 20th, and admonished commanders and air crews:[42/]

> *. . . Air operations in Laos are extremely sensitive. It is absolutely imperative that your aircrews do not expend munitions outside of approved areas. . . . Continued violations will jeopardize US authority to attack enemy forces before they can engage our ground forces. . . . There is no excuse for any attack outside an approved area.*

* * * * * * *

Having briefly reviewed the circumstances leading up to the May 1964 Communist offensive in Laos and the U.S. air response, it is now appropriate to examine the development of airstrike control procedures designed to insure the most effective use of available air power and prevent further bombing errors. The burden of providing this direction and control in northern Laos quickly fell on the WATERPUMP detachment at Udorn, which found its original training missions becoming one of combat support.

CHAPTER II

THE BUTTERFLY FAC

Until the end of May 1964, strike control services were provided to the RLAF by civilians not formally associated with the United States Government. These strike controllers supported RLAF T-28s rather than USAF resources. A 1967 USAIRA, Vientiane Memorandum remarked on this: 43/

> *Prior to late 1964 the need for FAC services was relatively small and was required primarily in Northwest Laos (MR II) in support of General Vang Pao's ground actions. Due to the extreme political and security aspects of military pressure (SIC) in Laos as well as the relatively minor requirements for FAC-directed strikes, the mission was performed by use of civilian piloted, contract, Short Take Off and Landing (STOL) aircraft, not FAC configured. Operationally oriented civilians were utilized as controllers.*

American military personnel first directed air strikes against communist forces in support of Laotian ground troops during the FAR's Operation TRIANGLE in early June 1964. This operation, which sought to clear enemy forces from the Route 7/13 Junction and to reopen Route 13 between Vientiane and Luang Prabang, used ground FAC teams to help with air support. These teams, from the WATERPUMP detachment at Udorn, controlled RLAF T-28 strikes by marking friendly positions with smoke markers. The T-28s were then directed against the enemy by using the friendly smoke as a reference point. 44/

The American teams also controlled strikes from RLAF U-6s and U-17s during TRIANGLE. Ground troops radioed enemy locations to the aircraft

by reference to smoke flares marking the friendly positions. The airborne controllers relayed this information to the circling T-28s which then attacked the target. There was no attempt to mark enemy positions directly, since the utility aircraft used by the controllers were not equipped with target-marking ordnance.[45/]

From June to December 1964 civilian controllers continued to operate in northern Laos and were joined more frequently by military personnel. During these months the U.S. military air strike control program was described as:[46/]

> *An ill-defined group of US Air Force and Army personnel who happened to be on the ground in the vicinity of air strikes, had radio contact with strike aircraft, and were able to give some information concerning target location. The strike aircraft used during this early period were from the RLAF or Air America. As USAF interest and commitments in BARREL ROLL increased, an improved system was gradually developed.*

The "improved system" was introduced in late 1964 and substituted USAF enlisted Forward Air Guides (FAGs) for the civilian controllers, while retaining Air America aircraft for spotter purposes. This arrangement was identified by the call sign "Butterfly" and continued basically unchanged until early 1967.[47/]

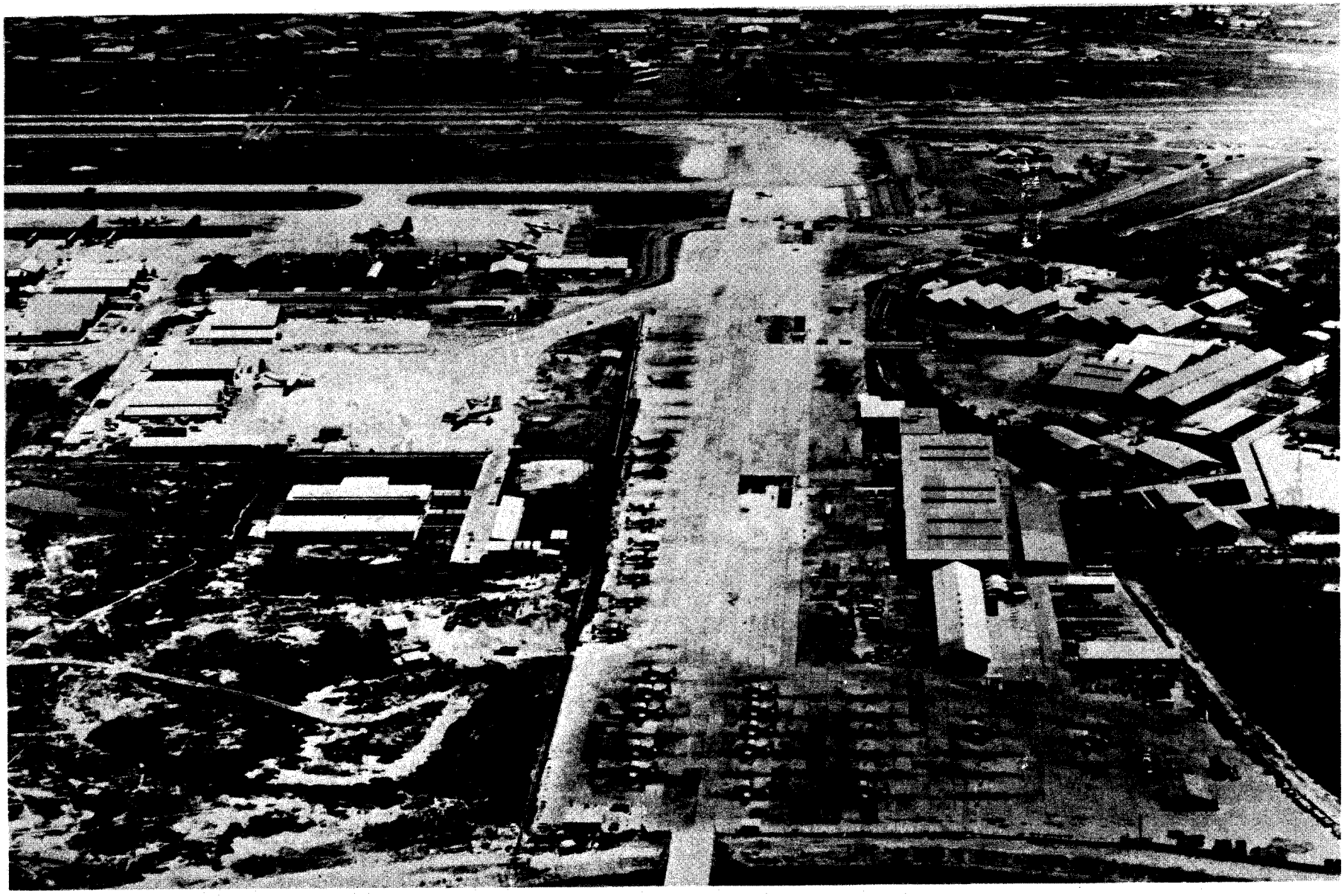
Beginnings of the Butterfly FAC

The first USAF personnel to participate in what would become the Butterfly system were drawn from the WATERPUMP detachment at Udorn. WATERPUMP personnel were at this time from the Air Commandos and the

Special Air Warfare Center (SAWC) at Hurlburt Field, Florida, and were trained in a variety of specialties, including air strike control.[48] Thus when the requirement arose for FAC/FAG trained personnel to fly in Air America and Continental Air Services aircraft, it was only logical to draw them from the Udorn unit. Starting in late 1964, WATERPUMP personnel with the appropriate skills and training were detached from their regular duties at Udorn and sent as needed to northern Laos on a temporary basis to control RLAF T-28 strikes. Upon completion of their assignment in Laos they returned to their duties with the detachment at Udorn.

The excellent results obtained by RLAF T-28s during the second half of 1964 (partly because of strike controllers provided by AIRA and WATERPUMP) naturally stimulated USAF planners to consider the even greater damage which USAF tactical fighters could inflict on the enemy. U.S. tactical air (tac air) power was originally seen as assisting the T-28s in interdicting enemy resupply efforts, but the continuing communist gains in northern Laos prompted the use of jet aircraft in support of SAR ground forces as well. The loss of eight RLAF T-28s at Wattay Airport on 24 January 1965 to an armament accident[49] reduced available Lao strength at a critical time and rendered some sort of USAF assistance imperative.

The initiation of large-scale USAF jet strikes in Laos in 1965 was accompanied by the series of previously described short-round incidents



Udorn RTAFB, Thailand. T-28s of Det 1, 56th SOW, are in right foreground. Helicopters shown at center right belong to Air America whose headquarters are farther to right of photo. In left center near parked C-123 is Continental Air Services facility. In revetments at top left are F-4Cs of 432d TRW.

Figure 5

(starting with that at Sam Neua in February) which seriously strained relations between the U.S. and Lao authorities. As a result, the creation of a full-time strike control capability similar to that provided for the RLAF by WATERPUMP became vitally important. The first recorded effort in this direction was made in February 1965 when the Deputy Commander of 2AD/13AF (later 7/13AF) proposed the creation of four Air Liaison Officer/Forward Air Control (ALO/FAC) teams for duty in Laos. Each team would consist of one ALO/FAC and one enlisted communications man, both of whom would be jump-qualified. Special USAF strike aircraft would be available to these teams, who would communicate with strike aircraft either directly or through an ALO/FAC aircraft accompanying the fighters.[50/]

The relationship of 2AD/13AF's proposal to the WATERPUMP strike control program which had started two or three months earlier is unknown. It is possible, however, that the proposal provided the impetus for assigning personnel from the SAWC at Hurlburt to Detachment 1 specifically for the strike control role in Laos. Although assigned to WATERPUMP for administrative purposes, these additional enlisted controllers performed no duties at Udorn but spent their entire tour directing RLAF and USAF air strikes in support of RLG ground forces. Their arrival in late 1965 thus freed Detachment 1 of the requirement to supply strike controllers from its own resources, and allowed WATERPUMP personnel to return to their regular duties.[51/] By the end of 1965, two-man ALO/FAC teams with appropriate Air Commando training

were regularly directing USAF and RLAF air strikes in northern Laos (until it was realized that in most cases the job could be done just as effectively by one man). While call signs as Top Sergeant and Firefly (later used by an A-1 FAC operation in north Laos) were used in the program's early days, the strike controllers eventually adopted "Butterfly" as their permanent call sign.[52/]

Organization of the Butterfly Program

Butterfly strike control personnel were permanently assigned to the Air Commando Wing at Hurlburt, and spent 179 days temporary duty (TDY) at Udorn, as did all WATERPUMP people at the time.[53/] The Butterfly FACs operated under the direct control of the U.S. Air Attache, Vientiane, entirely outside of the chain of command of 2nd Air Division and 13th AF. This relationship was reflected in a 21 September 1966 7/13AF memorandum discussing command and control procedures in BARREL ROLL:[54/]

> *Butterfly is a FAC aircraft under direct control of the US Ambassador to Laos. This headquarters cannot "direct" Butterfly. Dogpatch (Airborne Command and Control Center) can only make "requests" to Butterfly.*

Use of the Butterfly Call Sign

A constant source of confusion in discussing air strike controllers operating under the Butterfly call sign was the simultaneous use of this identifier by a variety of personnel in northern and southern Laos. These personnel could be officer or enlisted, rated or non-rated; the common feature of these users was that they were all working in support of AIRA and were operating out of airfields within Laos.

FAIRCHILD-HILLER/PILATUS TURBO-PORTER FLOWN BY AIR AMERICA

Figure 6

By far the most common and regular users of the Butterfly call sign were the enlisted strike controllers who were assigned to northern Laos through the WATERPUMP detachment at Udorn and operated in support of General Vang Pao's irregular ground forces. These men were trained in accordance with the Air Commando concept from Project JUNGLE JIM (a covert reconnaissance and training program which operated in the RVN in November 1961), in that all personnel, officer and enlisted, were qualified in a variety of specialities in which they were proficient, had completed combat controller school at Hurlburt Field under the Air Commandos' Air Ground Operations School (AGOS).[55/]

While the most regular and consistent use of the Butterfly call sign was by these enlisted airborne strike controllers, it was also employed by USAF officers who supported AIRA activities. These men were often non-rated intelligence officers who were also Air Commando personnel TDY from Hurlburt to assist Lao forces and provide AIRA with timely and accurate information about the military situation in their area of operations. In the course of performing their general air intelligence duties, it soon became standard practice for them also to direct USAF and Laotian airstrikes from the contract aircraft. Although these men were not qualified fighter pilots they, like the enlisted Butterflys, had completed strike controller training at Hurlburt Field.[56/]

Among pilot-qualified USAF personnel who used the Butterfly call sign were officers TDY from Hurlburt, on loan by AIRA to Lao Air Operations

Centers. These centers were staffed by RLAF personnel, with one or two USAF advisors, and were designed to provide a degree of centralized control and coordination for the T-28 fleet. While the primary duties of these officers were to advise the RLAF in the effective use of its T-28 force, occasionally they would operate under the Butterfly call sign, flying available RLAF or AIRA aircraft.[57/]

During 1965-1967 the Butterfly call sign also was used occasionally by a regular USAF FAC flying an unmarked Air Force O-1. The pilot and aircraft were sent TDY to USAIRA to supplement Butterfly personnel in support of a planned major military effort. The O-1 and its pilot remained in BARREL ROLL only for the duration of the operation, and then returned to their normal activities over STEEL TIGER as part of the Cricket FAC program.[58/] Since this was a USAF FAC-configured O-1, it undoubtedly carried complete radio and target marking equipment. While in BARREL ROLL the O-1 carried either a Butterfly FAC or indigenous personnel in the back seat, although the limited seating capacity of the O-1 (pilot and one passenger) restricted the number of personnel available to assist the pilot in locating targets.

This use of the Butterfly call sign by a USAF O-1 was practiced at least as early as May 1966, since messages of that and the following month between AIRA, Commander-in-Chief, Pacific Air Forces (CINCPACAF), and Chief of Staff, U.S. Air Force (CSAF) discussed the definition of O-1 combat time for ". . . Attache officers and other USAF officers TDY this

station in those instances where they fly direct support combat missions . . . in Laos."[59/] AIRA's request to define O-1 FAC, observation, and photo-reconnaissance missions as combat flights was approved by CINCPACAF on 7 June.[60/]

Other USAF rated personnel utilizing the call sign were officers assigned directly to AIRA, Vientiane, whenever they operated in the field and required a call sign. A former Air Attache to Laos recalled that he personally used the call sign on occasions when he participated in visual reconnaissance (VR) or strike activities.[61/]

When controlling airstrikes the Butterfly FACs added the numbers "22", "33", or "44" to the call sign. This served to identify the particular geographic area in which the FAC was working, with the higher numbers being used farther north. For example, Butterfly 22 was used predominately in the Muong Soui area and west of the PDJ, while Butterfly 44 was used north of the Plain.[62/]

In summary, Butterfly was a call sign used by all U.S. air activities operating in Laos under AIRA's supervision, although its greatest use was by the enlisted strike controllers in MR II. Only the rated Air Operations Center (AOC) Commanders and personnel from AIRA, Vientiane, flew their own aircraft; all other Butterflys flew as passengers in civilian contract or RLAF aircraft. This use of non-rated personnel to control airstrikes actually was inconsistent with USAF and Tactical Air Command (TAC) doctrine, which stipulated that all FACs had to be jet-qualified

fighter pilots who had completed a specified series of schools.[63] This unique feature of the Butterfly operation was to result in major revisions to the program in 1967 in order to bring it more into line with other Air Force FAC activities in SEA.

Butterfly FAC Procedures and Activities

The Butterfly program differed from other USAF FAC operations in that the enlisted men and non-rated officers operating under this call sign did not fly their own airplanes. Except for the AOC Commanders and personnel directly associated with AIRA, all airborne strike control operations were flown in aircraft owned and operated by the civilian Air America and Continental Air Services companies.

Butterfly personnel would fly in the right front or back seat of the contract aircraft (U-6s, U-10s, or Porters). Communication with strike aircraft was by means of an army backpack radio sitting on the cabin floor with the antenna stuck out of the airplane's window.[64] Often there was no direct contact with friendly ground forces. Consequently, the Butterfly directed strikes based on conversations with RLG personnel on the ground before takeoff, or with local Lao commanders accompanying him in the airplane. (One of the advantages of and main reasons for developing the Butterfly program in the first place was the opportunity it afforded the FACs to actually live in the field with the RLG forces. This allowed them to become intimately familiar with the constantly changing friendly and enemy positions on a day-to-day basis.)

Butterfly target development procedures operated in a highly informal fashion. When a particular friendly outpost or strong point had information on a target, word was passed to General Vang Pao at his Long Tieng headquarters by radio, Air America supply plane, or foot runner. The following day a Butterfly FAC was requested from either Vientiane or Long Tieng and would then fly up to the outpost for additional information.[65] Typical Butterfly targets included entrenchments, foxholes, suspected enemy troop locations, bridges, and military structures.

Lt Colonel Jerome W. Klingamen, AOC Commander at Vientiane from August 1966 to February 1967, recalled that on such missions he would take off from Wattay Airport, land at Long Tieng for instructions, and from there visit the various friendly sites which might request air support. Upon landing, he would talk to the site commander, who might be a Meo with long hair down to his shoulders. The Meo would point off into the valley and say something like, "See there, where smoke go up? They there, they cook breakfast, go hit." Klingamen and the Meo, along with an interpreter, would then take off in an Air America Porter, obtain strike aircraft, and bomb the target, with Klingamen controlling the strike under the Butterfly call sign. This process would be repeated at the next site.[66] On days when there were no specific air support requests the Butterfly would perform general VR and develop his own targets.

Lt Col John Garrity, who performed Butterfly duties while serving from February to June 1966 as an AIRA intelligence officer with Vang Pao's forces, describes a typical target development episode:[67]

A big problem of the Butterfly days was that so many people were involved in those airstrikes. One evening, for example, Vang Pao might tell me or another FAC to go up to Lima Site 59 the following day, and help someone out with the air. I would go up the next morning, land, usually taking a Thai along as my interpreter. On the ground we would contact the local Meo commander. The Meo and Thai would communicate (in Lao) about what was required. The Meo commander in turn would be getting his information from some local Meo chief.

So, all of us would pile up into one airplane and go out to find and strike the target. The people aboard included the Air America pilot, myself to talk to the USAF pilots, the village chief (maybe on his first time up in an airplane, getting sick and throwing up all over the place) speaking Meo to the Guerilla commander, who in turn was speaking broken Lao to the Thai. The Thai then tried to translate to me, and I told the strike pilots. This ended up with a whole squad of people in the airplane, trying to figure out where the target was, and make it clear to the next person. All this had to be done before the jets ran out of gas and had to salvo their ordnance and run for home. After each ordnance pass, the whole translation-interpreter problem started all over again, as we tried to refine the target's location and get the idea across to the strike aircraft. To completely complicate matters, the Butterflys couldn't use marker rounds, and had to do the whole job by radio. The process was a real Chinese fire drill.

Things were even more complicated when Lao T-28s delivered ordnance. In this case, the Lao commander relayed his target information (from the Meos) to the Thai, who translated it for the Butterfly. The FAC then told the Thai to tell the Lao what to tell the T-28 pilots.[68/]

The restriction against the use of marking ordnance was the result of the FACs having to fly in Air America and Continental Air Services

aircraft while directing strikes. Because these aircraft were legally working for a civilian contract company, the use of underwing marking ordnance was forbidden, since this would have compromised their company's charter.[69] Consequently, air strikes had to be controlled by means of spoken instructions:[70]

> *You can imagine the problems you have trying to direct high speed aircraft in a jungle environment without being able to mark the target. . . . The only way to get around this problem [was to be very descriptive of the target.] In fact, you have to be able to lead the pilot in, in the sense that you simply start out by saying "Okay, do you see the mountain?", and he says "yes," and then "Now do you see the river on the right hand or the east side of it?", and he says "Yes." "Okay, now do you see the valley coming in from the north side into the river?" "Yes." "Okay now if you look up that valley for 400 meters you will see a large rock." "Yes, I have that." "Okay, now I want you to hit 400 meters the other side of that rock." Well, for each one of those things you're describing to him he's making a separate pass. He's up there at 200, 300, or 400 knots, and he sees the mountain on one pass, the valley on the next, then the rock, and finally understands what you're talking about. And then after you get him to supposedly see the target area, you ask him to put down one bomb as a marker, and he's five miles away from where you're talking about. That's why we never used tac air in close support of ground troops. They were always quite a distance off, because it was just unsafe to try and work this type of operation in close to troops. But the lead would put down a bomb and then you would correct off the lead, and then all the rest of the flight would bomb off his marker. Everytime he would put down a bomb, you would say "Okay, number three, I want to go 200 meters further north." Of course, that is what a FAC does even now, if he has marker rounds.*

When using this control technique strikes directed by the Butterflys were necessarily limited to softening up areas in advance of friendly ground forces, rather than supporting troops in contact (TIC). Normal procedures were to strike targets such as enemy troop concentrations or bivouac/storage areas detected by friendly reconnaissance teams during RLG offensive operations to facilitate the FAR's advance. During times of reduced ground activity, strikes were directed against available targets.[71]

A 1966 message reflected the limitation on the Butterfly's target marking ability. On 29 August a flight of the 388th Tactical Fighter Wing (TFW) reported that its "mission was seriously hampered by FAC inability to mark target . . . FAC should have target marking capability." In a reply to the Wing, 7/13AF commented:[72]

> *Butterfly 44 acting as FAC for this mission was not a USAF aircraft. These aircraft are contract operated and their charter does not permit carrying of munitions, to include marking rockets.*

7/13AF suggested, however, that 7AF consider furnishing the Butterflys with some kind of flare for target marking.[73]

Because of this and other similar incidents the Butterflys apparently began using smoke markers to designate targets after mid-1966. The seasonal increase in communist ground activity in northern Laos as the dry season began in October and November may have also been a contributing factor. Although Air America still declined to use white phosphorous

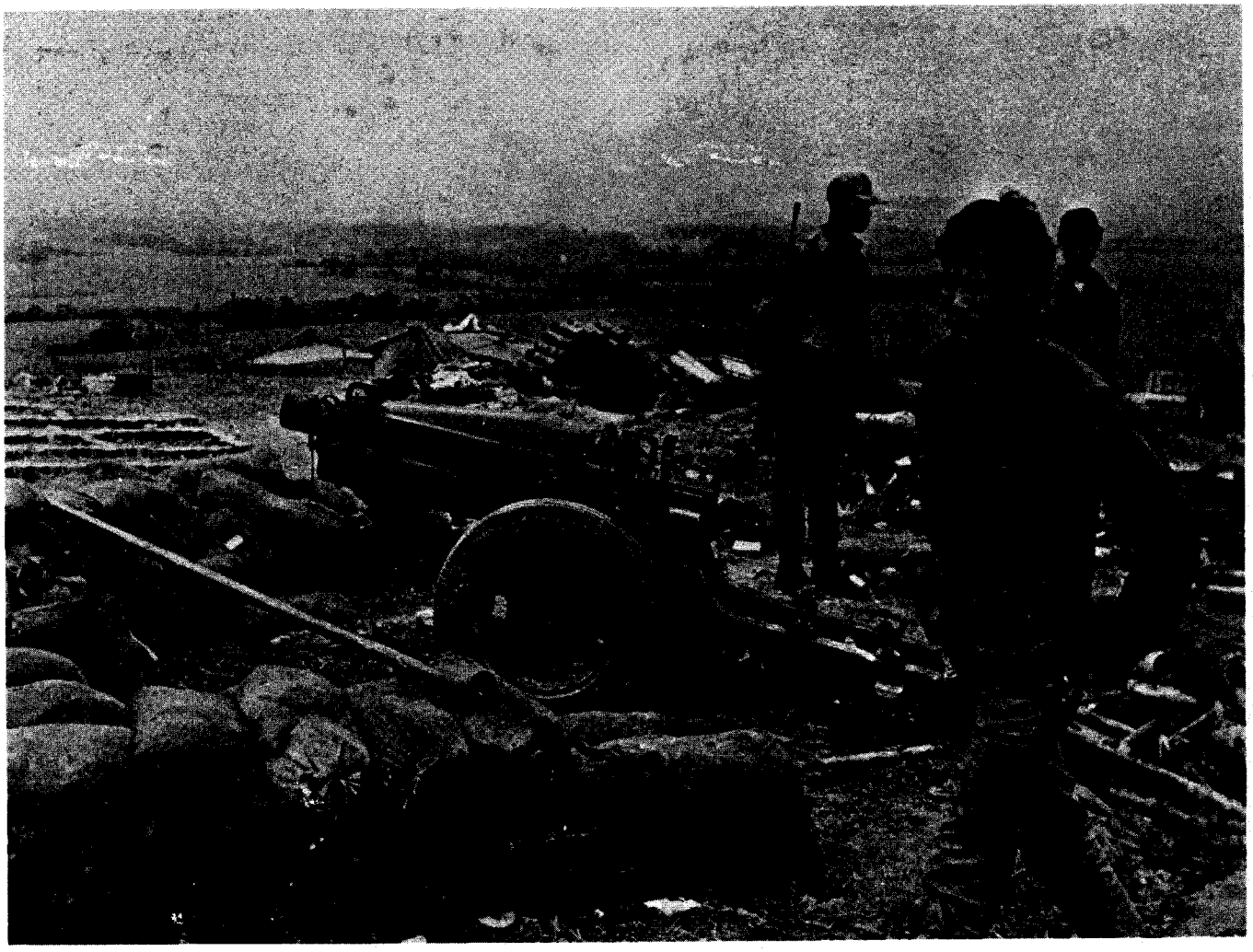
marking rockets (which would have necessitated mounting launching rails under the wings of the Porters), Butterflys regularly dropped smoke grenades and canisters from the contract aircraft to guide strike aircraft.[74/] This was only partially successful, however, since the altitude maintained by the contract aircraft precluded accurate dropping of the markers.[75/]

To further improve target marking abilities, AIRA procured a U-6 in late 1966 and fitted it with radios and rocket rails to serve as a FAC aircraft. This aircraft was flown in MR II by an assistant Air Attache and operated under the Butterfly call sign.[76/] However, the U-6 was ". . . limited by being unable to operate from shorter STOL strips where it [was] frequently necessary to stop either to confer or pick up a local military observer who in turn [directed] the FAC to the target area."[77/] This made the use of a Porter (without marking capability) mandatory in many cases.

Precise figures on the number of Butterfly FACs operating at one time could not be found. Lt Colonel Garrity recalls that at no time during his February to June 1966 association with the program was there more than one FAC on station.[78/] This FAC could use any of the various call signs, depending upon his location. The number of controllers may have increased slightly after mid-1966 (especially with the traditional pickup in enemy activity with the start of the dry season in the fall), but there were probably never more than one or two at any one time.

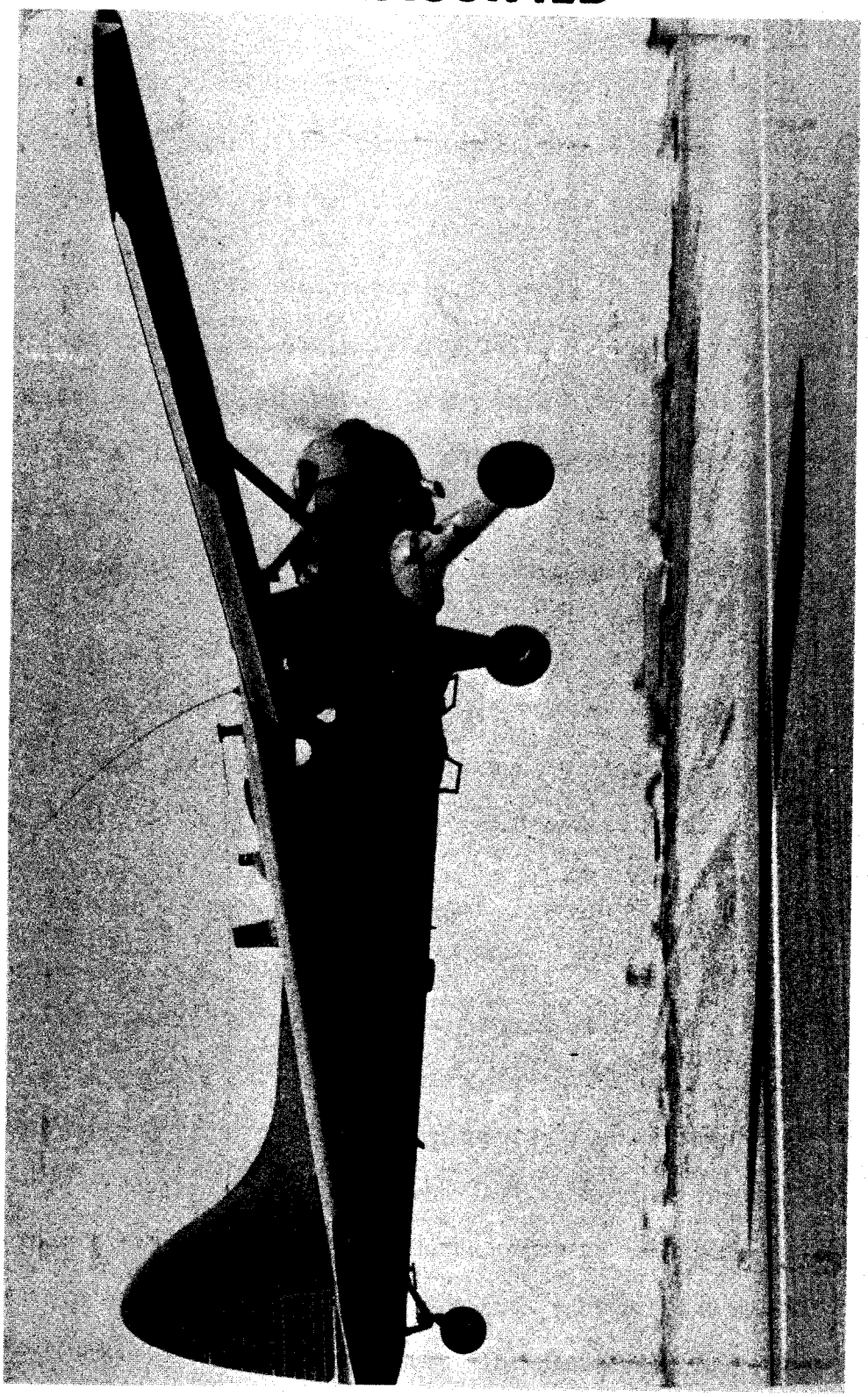
Although the enlisted Butterflys were TDY to SLA for only 179 days, they managed to fly a surprisingly large number of missions. Since they would frequently fly as many as eight times a day, it was not unusual for one Butterfly FAC to have as many as 500 missions to his credit after a six month tour.[79] Colonel Harry C. Aderholt, who was active in supporting the program, recalled a Chief Master Sergeant Charlie Jones who flew between 700 and 1000 missions as a Butterfly and acquired the title "super-FAC" from the pilots he controlled. Sergeant Jones would try to be airborne in his Porter, tuned to the proper radio frequency, with his Lao/Meo/Thai team aboard, so that he would have the earliest possible notice of the approach of fighters diverted to the Butterflys from other targets. In this way he was prepared for their arrival and saved valuable time and fighter fuel.[80]

Butterfly FACs directed airstrikes not only when they were airborne, but also when on the ground with friendly troops. One such incident occurred on 17-18 February 1966 when Captain Ramon Horinek, a USAF officer Butterfly had his Air America pilot land him and his equipment at LS-36 (Na Kouang). This site was under heavy enemy attack and had lost radio contact with other friendly forces. Setting up his radio, Captain Horinek coordinated with a Thai T-28 FAC (call sign Eagle) and directed F-105 flights against enemy mortar, machine gun, and troop positions. Captain Horinek returned to his base at LS-48A that evening, but returned to Site 36 the following morning and continued to direct air strikes throughout the day. Before



GENERAL VANG PAO'S GUERRILLAS
ON THE PLAINE DES JARRES

Figure 7



DEHAVILLAND U-6 BEAVER

Figure 8

the Captain and the surviving FAR defenders were evacuated from the site, Horinek succeeded in personally capturing a North Vietnamese Army (NVA) private, the only enemy prisoner taken during the battle.[81/]

LS-36 eventually was recaptured by friendly forces, and in a second series of enemy attacks in early January 1967, Butterfly 44 (airborne this time) directed USAF A-1E strikes. During this battle one of the Meo defenders aboard the FAC aircraft discovered a large enemy force retreating through a narrow box canyon. Butterfly 44 took over, directed A-1 strikes on this target, and reported that the attack had a "devastating" effect on the enemy.[82/]

While the great majority of the Butterfly's time was spent controlling USAF aircraft, he would occasionally direct strikes for the RLAF. Since RLAF aircraft were striking in their own country, they did not operate under the strict validation and control requirements imposed on USAF pilots, although they often took advantage of the Butterfly's knowledge of target locations.

When working with Thai-flown T-28s the situation was different. A group of Thai Air Force officers was assigned to the Lao forces to act as FACs for these aircraft, and they frequently flew with the U.S. Butterfly. In this situation the American and Thai alternated in controlling USAF and Thai T-28 aircraft as they checked in with the FACs.[83/] In 1966, the Thais also had an artillery battalion (designated SIERRA ROMEO) with the Lao Neutralist forces at Muong Soui. This battalion operated an O-1

and U-17 for fire control and spotter purposes. When controlling air-strikes in support of SIERRA ROMEO, the Butterfly utilized the Thai aircraft:[84]

> *This was, in effect, a military aircraft belonging to the Thais, but unmarked, flown by a Thai pilot, with an American FAC flying in it using the Butterfly call sign to direct USAF and US Navy aircraft.*

Strike Aircraft Available to the Butterflys

The number of strike aircraft that the Butterflys directed varied greatly from day to day. After the beginning of the large-scale bombing of NVN in March 1965, aircraft unable to strike their assigned targets because of weather were diverted to BARREL ROLL and passed to the Butterflys.[85]

> *During [the spring of 1966] we had no USAF assets fragged for strikes in the BARREL ROLL. All the aircraft were assigned to go principally into NVN to bomb there. If they went into NVN and the weather turned bad, then they would turn around, and rather than jettison their ordnance, they would report into us and we would utilize it. Now, this only happened when by chance I was airborne and all of a sudden some guy calls me on the radio, some fighter pilot, and says, "Hey, I've got a flight of 60 here, can you put me in anywhere before I go home?" Well, if I'm airborne and I have some hip-pocket targets, I can use him. But if I'm not in the air and happen to be on the ground, the guy can't even raise me on the radio and he goes home.*

Besides the divert sorties the Butterflys also controlled BANGO/WHIPLASH rapid-response missions. This program was inaugurated in late July 1965

and consisted of F-4Cs from Ubon RTAFB (designated BANGO flights) and F-105s from Korat and Takhli RTAFBs (designated WHIPLASH) on strip alert at their respective bases to quickly strike any targets of opportunity reported by the Butterflys.[86] The BANGOs generally operated a BANGO-Alpha flight in the morning and a BANGO-Bravo in the afternoon. If no immediate-response target appeared by a certain time they often launched anyway, and the Butterfly FAC expended the fighters' ordnance on whatever target he had available.

As a result of these arrangements, the Butterflys could have no strike aircraft to control on one day, but on the next be deluged, with virtually no warning, by 60, 70, or 80 aircraft coming out of NVN. These fighters usually were short of fuel and wanting an immediate target. In addition, BANGO/WHIPLASH aircraft might arrive at the same time.[87] This situation improved in April 1966 when a specially configured C-47 (call sign Dogpatch) was introduced into SEA to serve as the first airborne command post.[88]

Dogpatch carried a single-sideband radio to alert the Butterfly FAC on the ground that diverts were on the way. This enabled him to collect his interpreter/validation team, get airborne, and have his target ready by the time the jets arrived.[89] In addition to working with the Butterflys, Dogpatch also passed fighters to regular USAF FACs working from RVN bases in support of the interdiction program in STEEL TIGER.[90]

Discontinuation of Enlisted/Nonrated Butterfly FACs

In the spring of 1967 official Air Force policy concerning control of airstrikes finally overtook the Butterfly program in northern Laos. Sometime in March or April the Commander of 7AF visited the 56 Special Operations Wing (SOW) at Nakhon Phanom RTAFB, and while there received a briefing which included details on the activities of the enlisted Butterfly FACs. Concern was expressed because the program deviated from the stated Air Force requirement that all personnel engaged in FAC and airborne target marking activities for fighter aircraft be combat-qualified jet pilots, or pilot personnel who had completed special FAC schools. Also, the Air Force did not want to appear to dilute its own standards, since the other services had been told that strike controllers require this special training.[91/]

Instructions were issued immediately directing that all enlisted personnel performing FAC duties be removed from Laos as soon as possible. However, the 7AF Commander recognized the importance of the FAC program to the support of anti-communist forces in Laos, and stated that the requirement would in the future be supported by FAC personnel and aircraft from 7AF resources.[92/]

Conclusion

The Butterfly FAC program was created to meet a particular crisis situation in northern Laos which required some form of professional, experienced air strike control system immediately. While the original

USAF enlisted combat controllers had been confined to directing indigenous T-28 aircraft, the appearance of USAF jet fighters in 1965, and their need for reliable air strike control, resulted in any available Air Force personnel with appropriate training being pressed into service to meet this requirement. The Air Commando-trained strike controllers from WATERPUMP were on-hand and prepared for just such a task.

Because of the political sensitivity of U.S. personnel operating in Laos the program was conducted clandestinely and evolved independent of the control and detailed knowledge of higher Air Force Headquarters in SEA. Although the basic Butterfly concept was apparently in operation two or three months before the February 1965 ALO/FAC proposal of 2AD/13AF, it is unclear to what extent this headquarters was aware of the controller's activities. It appears possible, however, that 2AD/13AF's suggestion gave impetus to the plan to assign enlisted controllers specifically for duty in Laos, rather than continue the practice of detaching them from WATERPUMP on a case-by-case basis.

The major shortcoming of the Butterfly FAC was the lack of an aircraft with the target marking capability necessary for genuine close air support. This was underlined by the August 1966 complaint by the 388 TFW pilot about Butterfly 44's inability to properly mark the target. AIRA's awareness of this deficiency was reflected in the partially successful attempts to use a rocket-equipped RLAF U-6 for FAC duties, as well as the borrowing of a properly-configured USAF O-1 to support planned RLG major

operations. This consideration may also have influenced the 1967 decision to replace the enlisted and non-rated Butterflys with properly trained USAF FACs. The Butterfly program additionally suffered from communications and translation problems between the American, Lao, Meo, and Thai personnel.

A related factor in assessing the usefulness of the Butterfly FAC program in 1967 was the change in conditions in northern Laos since 1964. The appearance of NVA units over these three years, at first supplementing, but later replacing indigenous Pathet Lao forces, brought increased pressure to bear on the FAR. To offset the new enemy strength, RLG forces placed more reliance on airpower. While this need was partly satisfied by expanding the RLAF and increasing the number of USAF fighter sorties in BARREL ROLL, it was also necessary to move airstrikes closer to friendly troops and outposts in contact with the enemy. This could be effectively and safely accomplished only by employing accurate marking devices. Since this was not possible with civilian contract aircraft, major changes in the Butterfly program were inevitable. While the enlisted Butterflys performed useful service for a restricted, counter-insurgency, guerilla-type war, the time was approaching when they would no longer be able to provide the necessary support for friendly forces in the expanding war in northern Laos.

Shortcomings in the Butterfly program were apparently caused by peculiar operating conditions and lack of proper equipment rather than by unqualified, partially trained personnel. All USAF personnel serving in the program

possessed an Air Commando/Special Air Warfare background, were graduates of the specialized combat controller schools at Hurlburt Field, and were trained strike controllers before they arrived in Laos. Consequently the airmen controlling USAF fighters in Laos for over two years were highly trained professionals. The Butterfly FAC program indicates that under certain conditions, non-rated USAF personnel with the proper training (and equipment) as well as up-to-date, first-hand knowledge of the tactical situation and locations of opposing ground forces could provide strike control services for Air Force jet fighters.

* * * * * * *

This report has thus far focused exclusively on AIRA FAC activities in northern Laos. By early 1967, however, a modest AIRA strike control and VR effort had appeared in southern Laos which was different in many ways from that which had been functioning in BARREL ROLL since late 1964.

CHAPTER III

FROM BUTTERFLY TO RAVEN

Until mid-1967 the AIRA FAC programs in norhtern and southern Laos evolved for the most part independently of each other, sharing only common AIRA management and the "Butterfly" call sign. The resources devoted to each program were considered separately, with the major effort devoted to the support of AIRA activities in BARREL ROLL. This situation corresponded with the military realities of the period.

Military Activity in Southern Laos

The story of the AIRA FAC program in Laos is practically synonymous with the war in the northern part of the country until the second half of 1966. North Vietnamese forces in southern Laos (STEEL TIGER) were largely confined to the sparsely populated eastern part of the country adjacent to the RVN; Pathet Lao activities in the south were at a low level relative to those in BARREL ROLL. In 1966, however, Communist forces appeared farther west, and in early March threatened the important town of Attopeu.[93/] In this instance, a USAF AC-47 gunship operating out of Savannakhet aided the defenders in repulsing the attack.[94/]

Practically all USAF attacks in southern Laos at this time (mid-1966) were directed against NVN supply routes in the eastern part of the Panhandle. Consequently, the responsibility for close air support of FAR forces fell almost entirely on the T-28s of the RLAF. This force was

supported by a small number of American advisors who worked with the RLAF at the MR III (Savannakhet) and MR IV (Pakse) AOCs. The Americans were responsible for ensuring proper maintenance, supply, and personnel support for the T-28s, and advising RLAF officers in the most effective employment of these aircraft. By the end of 1966, however, the expanding communist activity in STEEL TIGER was beginning to draw the American advisors into the FAC and VR roles, as they occurred in the north after May 1964.

Butterflys in STEEL TIGER

According to Major Raymond Hamilton, who served as the intelligence advisor at the Lao MR III AOC at Savannakhet from September 1966 to May 1967, there was no full time AIRA FAC capability in STEEL TIGER when he arrived for duty. Practically all of the FAC effort was concentrated in northern Laos, with AIRA personnel in MR III flying only occasional FAC missions using borrowed U-17s. These aircraft came either from the RLAF or from USAF resources at Nakhon Phanom RTAFB, 50 miles north of Savannakhet.[95/] Although AOC personnel used the Butterfly call sign on these missions, all aircraft were flown by rated USAF officers. At no time did enlisted Butterfly FACs operate in STEEL TIGER.

Towards the end of 1966, MR III AOC personnel became increasingly anxious to obtain FAC support for RLAF T-28s operating in support of FAR forces in STEEL TIGER. This capability was provided in October by a USAF Cricket FAC and his O-1F from the 23rd Tactical Air Support Squadron (TASS) who deployed to Svannakhet from his home station at Nakhon Phanom for a

45-day TDY. This arrangement was so successful that upon the aircraft's return to the 23 TASS, an O-1A was borrowed from the RLAF to continue the FAC/VR capability.[96/] Since it was unequipped for the FAC role, the airplane was sent to Udorn and fitted with radios and tubes for marking rockets.[97/] In late 1966 or early 1967 a regular USAF FAC arrived at Savannakhet on six months TDY to fly the RLAF O-1.[98/]

Major Hamilton participated in these activities by flying in the backseat to handle communications and assist the pilot in VR and the control of RLAF and, eventually, USAF strikes. While engaged in these operations the O-1 carried the call sign Butterfly 39; additional call signs available for Butterfly use in STEEL TIGER were Butterfly 49 and 59.[99/] Activities included directing T-28 strikes around Thakhet, flights in MR IV tracing the Route 110 route structure, VR on the Bolovens Plateau and the Xe Kong River, and support of special FAR operations out of Attopeu and Pakse. The BARREL ROLL practice of carrying Lao observers/translators in the backseat of the aircraft had not yet been introduced into STEEL TIGER by the AIRA FACs;[100/] although this later became part of the STEEL TIGER Butterfly program, no specific date for its adoption was available.

Brief mention should be made of the USAF Cricket FAC program, which also operated over STEEL TIGER at this time and employed Lao personnel as observers/validators/translators in the FAC aircraft. This program began early in 1966 and consisted of O-1Fs from the 23 TASS at Nakhon Phanom RTAFB flying primarily over eastern STEEL TIGER. Lao or Thai personnel

flew in the backseat of the O-1s to communicate with indigenous ground teams and to pass target leads on to the USAF FACs.[101] The Cricket FAC program differed from the AIRA effort in that the objective was to interdict the communist logistical system rather than provide close air support for FAR ground forces. The indigenous personnel on the ground consisted of small teams inserted specifically to locate strikeable targets and report them to the Cricket FACs. These teams were not associated with FAR combat units. The Cricket O-1s carried standard USAF markings and the pilots and backseaters were stationed at bases in Thailand, rather than with RLG forces in Laos. The program was controlled by 7th and 7/13th Air Forces instead of AIRA. The effectiveness of the RLAF O-1 (normally a training aircraft) employed by AOC personnel for FAC purposes was seriously restricted by communications. In late July 1967, a message from AIRA to 7/13AF sought the immediate loan of a USAF O-1:[102]

> *Have urgent requirement for O-1 FAC configured aircraft for loan to AIRA for use in southern Laos. Experience past week in attempted use of RLAF O-1 for FAC on lucrative troop targets east of Bolovens Plateau was dismal failure due to communications limitations and failures of RLAF training O-1s. As result, USAF aircraft fragged to area could not be used. Controlled American Source (CAS) believes target still in area and posing threat to friendlies. Could you provide, preferably through 23 TASS, one O-1 with crew chief for two-three week period starting ASAP? AIRA will furnish FAC. AIRA, through Military Assistance Program (MAP) channels, is attempting to have all RLAF training O-1s modified with proper radios and rocket rails to satisfy increasing FAC requirements.*

~~NOFORN~~

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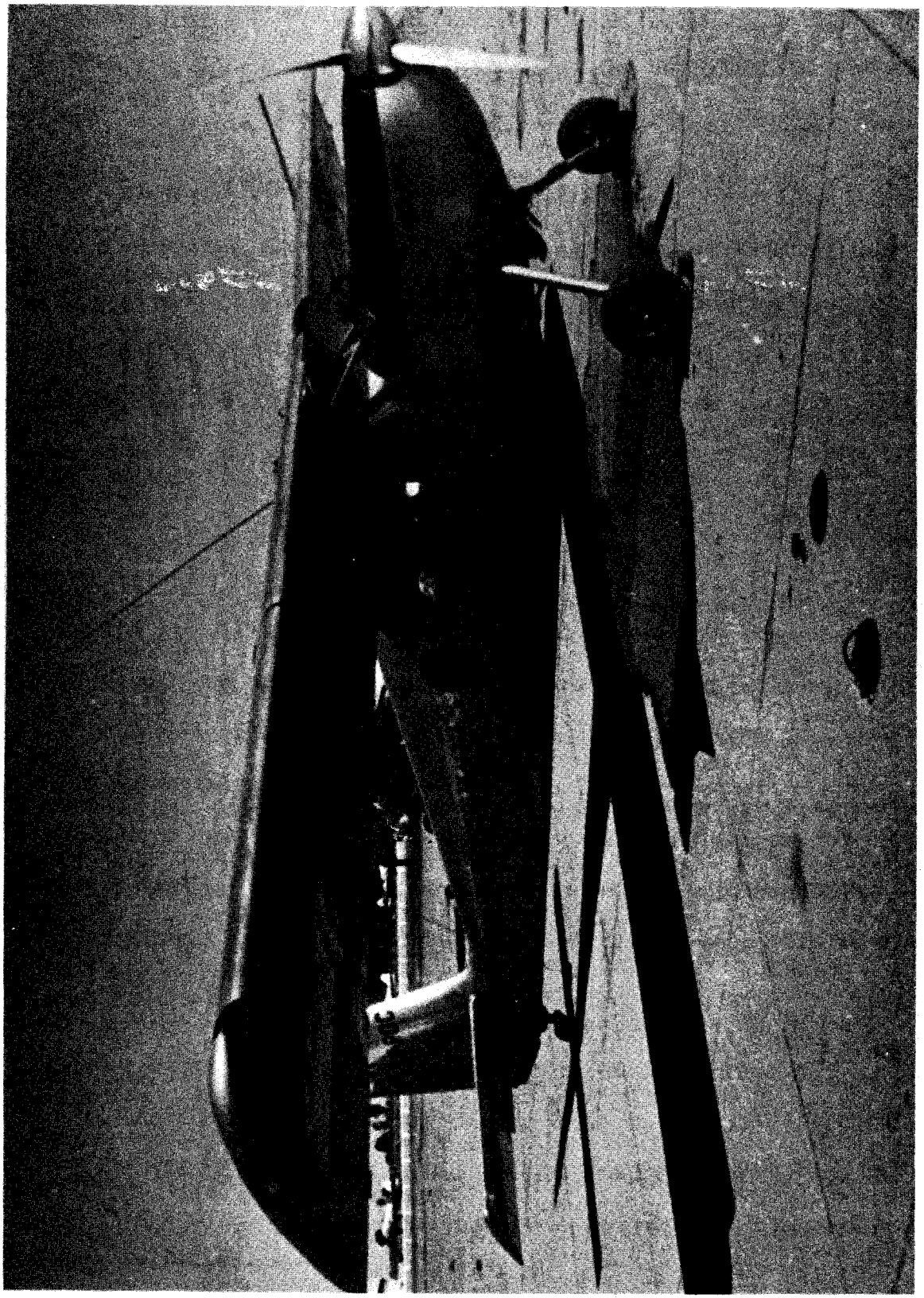

HELIO U-10 COURIER

Figure 9

~~SECRET~~

This aircraft was obtained the following week from 7AF assets in the RVN, rather than the 23TASS,[103] and was returned at the conclusion of the operation.

The increase in fighting and communist activity in STEEL TIGER after mid-1966 required the expansion of both RLAF and USAF air resources in southern Laos and created the need for air strike control expertise which could be provided only by USAF FACs working in close coordination with the FAR and RLAF. By the end of 1967 the two FAC programs had merged into one covering both parts of Laos, although the majority of AIRA's resources in this area continued to be committed to BARREL ROLL.

Efforts to Maintain an Effective AIRA FAC Program

With the removal of the enlisted Butterfly controllers from northern Laos, AIRA continued to perform the FAC mission with rated personnel assigned to its Vientiane office or the regional AOCs, as well as occasional TDY augmentees. A message of 5 June 1967 reported that FAC support for General Vang Pao was being provided by an "AIRA operated U-6 and a Continental Air Services Porter."[104] The Porter was still used for this role since it could operate from air strips too short for the U06.[105]

The same message went on to request that a FAC-configured "USAF-operated" U-10 aircraft be stationed at Long Tieng in order to ". . . enhance considerably the current BARREL ROLL air operations and allow the Porter to return to its primary mission." Also included was a request

for a pilot/FAC (pilots available to AIRA were qualified only in the O-1) and a crew chief to perform maintenance on the aircraft. The Embassy in Vientiane indicated that it wished the entire package to be considered a continuing requirement.[106] In response to a 7AF query as to the suitability of an O-1 in place of the U-10,[107] AIRA stated that the aircraft would have to accommodate a minimum of three people (U.S. FAC, Thai FAC, and "local military observer"), and carry HF, VHF, UHF, and FM communications equipment.[108] A U-10 was subsequently obtained from the 606th Air Commando Wing (ACW) at Nakhon Phanom on semi-permanent loan; it is not known whether a crew chief accompanied it.

As the dry season began in 1967 the lack of suitable aircraft to support the AIRA FAC program and the increase in enemy ground activity throughout Laos was creating a serious situation:[109]

> *In early 1967 the primary contingent of trained, commissioned pilots, AFSC 1444, FACs reported for duty to AIRA. To properly utilize and obtain needed benefits from their skills, AIRA with considerable difficulty, obtained from the RLAF part time use of two U-17s, two O-1s, and one U06, as well as two U-10 aircraft from the 606ACW. By scrounging, begging, borrowing, and pleading for parts, radios, and rocket rails the aircraft were prepared in an austere minimum acceptable condition to perform the FAC role. Although these aircraft, when operated by qualified FACs significantly improved strike effectiveness by tactical aircraft, numerous equipment problems seriously retarded the FAC potential and limited effective and safe operation of the aircraft. The lack of proper communications equipment resulted in loss of sorties, mishaps, and general confusion in the target areas.*

A 24 September 1967 message from AIRA revealed that the situation in STEEL TIGER was little improved from that reported in July:[110/]

> *AIRA unable at this time to safely and effectively satisfy USAF/CAS requirements in south Laos due to lack of properly equipped FAC aircraft. Two FACs now assigned Pakse are using O-1A aircraft on loan from RLAF austerely equipped with FM and PRC-14 radios. Unable to contact . . . USAF resources. RLAF Maintenance and supply cannot safely nor adequately support an accelerated flying program this location. Area has lucrative targets, and enemy probes at friendly sites cannot be quickly countered with air support unless FACs can communicate with USAF resources. . . .*

The 24 September message went on to request the loan for 30-60 days of three O-1E, O-1F, or FAC-configured aircraft as soon as possible for use in southern Laos, along with one maintenance crew chief. The aircraft were to be painted grey or black with no exterior markings, and were to carry UHF, VHF, and FM radios as well as rocket rails. The message also revealed that AIRA was attempting to procure properly configured O-1s through MAP (DEPCHIEF) channels, but that this would take up to two months. Upon their arrival, AIRA intended to keep the MAP-procured aircraft under Embassy control and maintain them locally on a contract basis.[111/]

By 9 October 1967 three O-1Fs had been loaned to AIRA by the 23 TASS at Nakhon Phanom. Two aircraft and the crew chief went to Savannakhet, and the other O-1F to Pakse.[112/] Records reveal that AIRA was determined to retain these aircraft for the full 60 days and to keep them even longer if the MAP aircraft had not arrived.[113/]

Butterfly Pilot Procurement

Having reviewed the aircraft woes of the Butterfly FACs, it is now appropriate to examine briefly the relatively greater success in obtaining pilots for the program. By the end of August 1967 the six FACs formally assigned to AIRA's "Butterfly Network"[114] were carried on either of two manning documents. Three of these were authorized on the Unit Manning Document (UMD) for DEPCHIEF's Laotian MAP program (designated Project 404), while the other three were carried on a 30 April 1967 UMD of Detachment 1 of the 606th Air Commando Squadron (ACS). This was the new designation of the WATERPUMP detachment at Udorn. These manpower spaces were filled by six USAF FACs assigned TDY in May 1967 from the 504th Tactical Air Support Group (TASG), which controlled the USAF's FAC program in SEA.[115]

These six pilots were available to the Butterfly operation from the 23TASS for a 90-day period.[116] At the end of this time they were returned to their parent unit, although it appears that the 90-day TDY was exceeded.[117] Apparently the departing FACs were replaced by another group for a further 90 days, since in November AIRA was again seeking replacements for TDY FACs who would be "rotating in the near future."[118] On 31 October 1967, however, the 504TASG served notice to AIRA that the end was in sight for the practice of supporting the Butterfly program with borrowed O-1 aircraft and aircrews from the 23TASS:[119]

> *Replacement of FACs and O-1 aircraft on detached duty with AIRA from 23TASS will be impractical at completion of current TDY assignments. 23TASS has no more O-1s; all pilots*

have switched to O-2. Please consider further before tasking 23TASS on continued support of this mission. Also suggest that personnel with AIRA FAC [program] be transferred PCS rather than TDY.*

By this time even the six FACs authorized for the FAC program were too few; as early as August AIRA noted that requests were being submitted to expand the 606ACS UMD by two additional FAC spaces to bring the total authorized to eight.[120/]

A New Name and a New Program

Sometime between 6 and 21 September 1967 the call sign of the AIRA FAC program was changed from Butterfly to Raven. A weekly BARREL ROLL Targets Recommendation message from 7/13AF of 6 September stated that "Butterfly FACs will call for diverts to the Western PDJ when lucrative targets are located."[121/] A similar message of 21 September, however, used the phrase "Raven FACs (AIRA)."[122/] The reason for this change is unknown; while there is one report of a possible "compromise of the Butterfly call sign,"[123/] USAF personnel knowledgeable of the program were unable to recall a specific incident.[124/]

The continuing struggle to obtain sufficient numbers of pilots and aircraft suitable for the Raven program soon convinced AIRA personnel that the month-by-month manner in which the program was operating would have to be replaced by something more permanent and reliable. An AIRA memorandum

*Permant Change of Station.

dated 18 September 1967 which discussed the problem noted that while six pilots (soon to be increased to eight) were authorized, there were no suitable aircraft available, and the maintenance support was minimal and unresponsive to needs. As a solution, the note proposed that an "outside agency" (the 23TASS at NKP) be made ". . . responsible for complete personnel and equipment support for the AIRA FAC mission."[125/] This would require that the 23TASS be manned and equipped to satisfy AIRA needs, and that all manpower spaces authorized on the 606ACS's UMD be transferred to the Nakhon Phanom unit.[126/] Support would be furnished in the following areas:[127/]

a. Select and train our required number of personnel (FACs and crew chiefs). All personnel must be subject to AIRA approval and would be under AIRA operational control while in country. Personnel would remain in country for time periods approved by AIRA.

b. Furnish and provide complete maintenance support for FAC aircraft, organically assigned to 23rd TASS and based in country.

c. Requisition new aircraft and equipment and modify existing equipment to insure highest standards of safety and mission effectiveness.

Although no formal requests were made by AIRA to higher headquarters at the time of the September memorandum, it appears that a discussion was occurring between the various parties concerning the form that regular support should take. A 6 November 1967 message from 7/13AF to 7AF, reviewing these exchanges, reported that AIRA was requesting replacements for TDY FACs scheduled to rotate in the near future, and that this requirement would continue. 7/13AF had recommended that replacement FACs be

assigned to the 23TASS (rather than Detachment 1, 606ACS) in order to consolidate all FACs in one squadron. They would then be assigned TDY to AIRA on a rotating basis from the pool of experienced pilots which would always be available for duty in Laos. The 23TASS, however, failed to concur with the 7/13AF suggestion, and wished to provide FACs on a PCS basis to Det 1 as needed.[128/] The 23TASS was soon removed from these considerations because of its scheduled phase out of O-1 aircraft (and hence O-1 qualified pilots) in favor of the O-2.

Finally in late November 1967 AIRA submitted a formal request for support of the Raven program to Commander in Chief, Pacific (CINCPAC) and 7AF. Citing the lack of proper FAC aircraft and spare parts, maintenance deficiencies, and the phase out of O-1s by the 23TASS, AIRA requested that the "504TASG be made responsible for furnishing complete support to AIRA's Laos FAC mission, and be properly manned for it."[129/] At the time of this message, AIRA had eight pilots assigned (five TDY and three PCS), but only three properly-configured aircraft (the three O-1s from NKP, one of which had been transferred from STEEL TIGER to Luang Prabang in northern Laos). Other aircraft available consisted of the U-10 on loan from the 56ACW (the new designation of the 606ACW at NKP), one O-1A and one U-17 on loan from the RLAF, and one U-6 borrowed from 13AF. The U-6 was scheduled for an early transfer to the RVN, and recall of the three O-1s was expected momentarily as the type phased out of the 23TASS. This phase-out would also mean the end of O-1 maintenance support from that unit.[130/] Because of this aircraft situation civilian-operated Porters

were still used for FAC duties in BARREL ROLL, in spite of their lack of target marking capabilities. Figure 11 reviews aircraft available to the Raven program as of late 1967.[131/]

To fulfill its FAC requirements, AIRA's 22 November message stated a requirement for eight FAC-configured aircraft in service at all times at five OLs in Laos. To support this, an inventory of 10 to 11 aircraft was necessary. While five of the aircraft would be required to carry only one passenger in addition to the pilot, the three requested for Long Tieng would have to accommodate three passengers. This was to provide room for the Thai/Lao/Meo interpreter and target validation teams in use since early Butterfly days. O-1 maintenance was expected to be accomplished by Air America on a contract basis apparently leaving the 504TASG responsible for servicing only the four-seat aircraft. Because of strict limitations on the number of American military personnel allowed in Laos ". . . an organic supply and maintenance facility or the addition of support personnel [was] out of the question."[132/] AIRA's failure to make allowances for O-1 maintenance personnel in Laos was to have serious consequences for the Raven program by the end of 1968.

The 22 November message and various working papers used in its preparation found in the files of AIRA-Operations at Vientiane contain statistics on Raven activity during late 1967. For example, in October the FACs flew 200 hours and directed 614 RLAF, 528 RTAF, and 280 USAF strikes. Each Raven had been averaging 85 flying hours per month, although this was expected to

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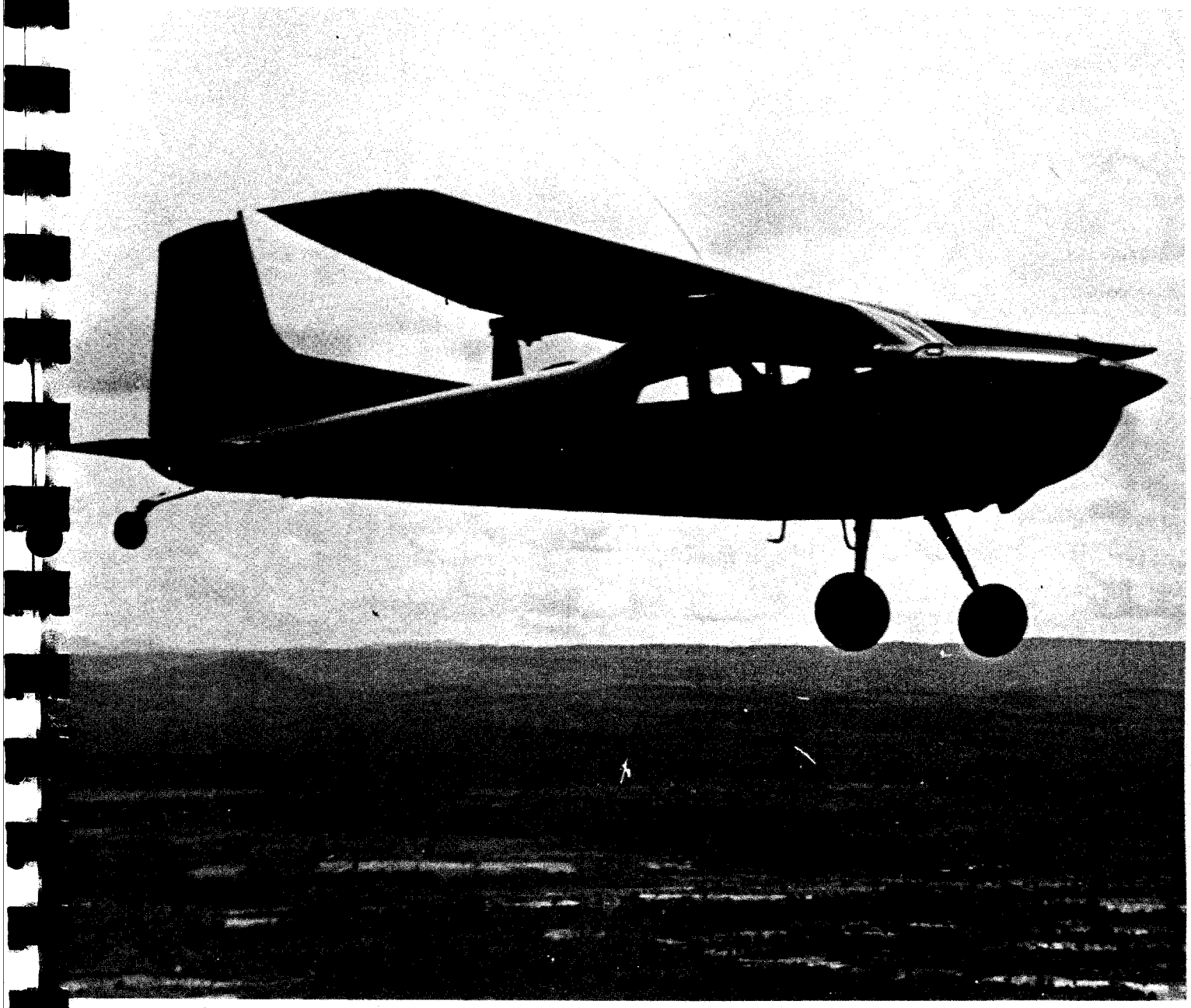


RAVEN U-17

Figure 10

~~CONFIDENTIAL~~

STATUS OF RAVEN AIRCRAFT AS OF NOVEMBER 1967

Location	Aircraft Available	Hours Flown per Month	Hours Flown Since 1 June 1967
Luang Prabang	1 O-1 (loan from NKP)	100	*
LS 20A (Long Tieng)	1 U-10 (loan from 56 ACW)	160	433.1
	1 U-17 (loan from RLAF)	165	160 (received 3 Sep)
	Continental and Air America Porters	120	660
Vientiane	1 O-1 (loan from RLAF)	60	212.4
Savannakhet	None (Use RLAF O-1 occasionally)	75	300
Pakse	2 O-1s (loan from NKP)	210	*
Various	1 U-6 (loan from 13AF)	-	150

*O-1s received on 4 October 1967 and flown a total of 429 hours since then.

Figure 11

rise to around 95 per pilot with the start of the dry season. Of the total of approximately 1565 sorties flown since 1 June, 1350 of these had been for FAC purposes and the rest for VR.[133/]

Augmentation of the Raven FAC Program

Following AIRA's requests, CINCPACAF directed on 14 January 1968 that 7AF transfer eight O-1s to the Raven program.[134/] Due to a shortage of these aircraft only five O-1s were transferred initially, with the other three not following until August when 7AF received more aircraft from TAC.[135/] To provide aircraft in the meantime, two O-1As, which were being prepared at Udorn (probably for the RLAF), were transferred to AIRA in March, even though they were not FAC-configured.[136/] At the end of 1968 eight O-1 aircraft were assigned to the Raven FAC program. Three additional O-1s had been lost during the year, either through accidents or combat.[137/]

The first quarter of 1968 also saw AIRA's FAC manning requirements finally authorized on a specific UMD. In January AIRA received three additional TDY FACs from the 504TASG along with assurances from 7AF that rotating FACs would in the future be replaced by the Group.[138/] At the same time 7AF proceeded with arrangements to formally place the AIRA FACs on a manpower authorization document.[139/] Since these personnel were being provided to support a requirement which did not exist on paper, other SEA FAC programs were being adversely affected. This situation was finally corrected in March when CINCPACAF agreed to assign 10 extra

FAC manpower spaces to the 504TASG's UMD to meet AIRA's "unique requirements."[140/] However, this apparently was reduced to nine when the final document was approved.[141/] In addition to the nine Ravens authorized with the 504th, AIRA retained three additional FAC spaces under DEPCHIEF's Project 404, for a total of 12.

By the middle of 1968, pilots were finally being supplied to the Raven program on a regular, systematic basis. To enter the program, 504TASG pilots were required to have at least 60 days FAC experience in the RVN[142/] and six to eight months retainability in SEA.[143/] The efforts of the 504th to supply only the best-qualified personnel for duty in Laos were reflected in an AIRA message to CINCPACAF reporting that the FACs had proved to be ". . . outstanding/well trained/combat experienced and had hit the ground running at full speed."[144/] The three pilots on the Project 404 UMD were assigned to AIRA immediately after completion of FAC training in the Continental U.S. (CONUS). However, if they lacked previous FAC experience, they had to obtain it in SEA before they actually reported for duty, even if this delayed their arrival in Laos.[145/] Originally Raven personnel were assigned to one of the TASSs in SEA. Upon selection for the Raven FAC program they were sent PCS to Det 1 of the 56 SOW (WATERPUMP) at Udorn RTAFB, and assigned TDY to AIRA; AIRA then transferred them to one of the OLs in Laos.[146/]

One further change occurred in Raven FAC manning during 1968. In early October AIRA reported to Ambassador Sullivan that the three FAC

personnel assigned against the Project 404 UMD were becoming increasingly involved in "the demanding and full time job" of regional AOC Commander and had practically no time left for Raven duties. Consequently, AIRA requested that the number of Ravens be increased to 12 in order to better distribute the FAC workload and make allowances for time lost to leave and Rest and Recreation (R&R). Plans were being drawn up at that time to delete the three Project 404 authorizations as FAC spaces and establish them in other officer specialities, such as operations, maintenance, supply, and communications.[147/] Apparently these changes were approved, since by year's end there were 12 FACs authorized for the Raven program.[148/]

Also by 1968 a clearly defined organization had emerged for the Raven FACs. At each of the five main Raven OLs (Vientiane, Long Tieng, Luang Prabang, Savannakhet, and Pakse) the ranking FAC was named the Senior Raven and was made responsible for supervising the other FACs assigned there. At Long Tieng (Lima Site 98/20A) the Senior FAC performed the duties of an Air Liaison Officer (ALO) and discussed "ground plans and potential air targets with General Vang Pao and his CAS advisors on a daily basis."[149/] With the other FACs he developed "plans to use available USAF air strikes against these targets."[150/]

The overall supervision of the Raven program was entrusted to the ranking Raven, who was assigned to the position at Vientiane (MR V) and given the title "Chief FAC." In this position he administered the program throughout Laos and served to coordinate Raven affairs with AIRA and

and the Embassy. Officer Effectiveness Reports (OERs) were prepared by AIRA's Director of Operations after consultation with the appropriate Senior FAC and AOC Commander, and endorsed by the Air Attache. When the OER was outstanding, it was forwarded to the Commander of the 56 SOW for further endorsement.[151/]

Raven Cover Stories

Like the Butterflys, the Raven FACs operated on a clandestine basis, since their presence in Laos was technically illegal and a violation of the 1962 Geneva accords. Unlike their predecessors, however, cover stories were developed so that all personnel possessed common explanations if questioned as to their status.

When in Laos, the FAC identified himself as a USAID employee and produced the U.S. Embassy ID card he received upon his arrival at AIRA. Raven personnel were also issued Lao Driver Licenses in case they became involved in traffic incidents. If queried at a Lao airport, and obviously associated with aircraft, the FAC could additionally state that he was engaged in aerial survey work for USAID.[152/] While in Laos, the FACs were at all times addressed as "Mister," regardless of their military rank.

While performing FAC duties, Ravens were authorized after April 1969 to carry regular USAF ID and Geneva Convention cards as well as clip-on rank insignia and flight caps with the appropriate rank insignia.[153/] If downed in enemy territory, Ravens put on this insignia before capture

and stated that they were engaged in a SAR mission from a USAF base in Thailand.[154/] Before departing on a mission pilots left all other identification (Embassy card and drivers license) behind. The decision in April 1969 to allow the FACs to use USAF identification cards permitted the use of standard-issue E & E aids, such as blood chits and cloth charts.[155/]

In dealing with USAF personnel at a base in Thailand the Raven showed his USAF ID card (never the Embassy card) and stated that he was assigned to Det 1 of the 56SOW and on flying status. No further explanation would be offered; if queried further, he stated that his duty location was Udorn or a "classified location." On such occasions he usually wore civilian clothes.[156/]

The use of cover stories for the Raven program was discontinued in October 1970 after the U.S. Government officially acknowledged the presence of U.S. military personnel in Laos associated with the Embassy. Raven personnel were instructed to identify themselves as working for the Air Attache. Raven FACs continued to receive an Embassy ID card and Lao drivers license upon their arrival for duty.[157/]

CHAPTER IV

THE RAVEN MAINTENANCE CRISIS OF 1968

Nineteen Hundred and Sixty-Eight began with the highest level of communist activity and success seen in Laos up to that time. On 12 January the 3800-man FAR garrison at Nam Bac in MR I was overrun by NVA/PL forces and large quantities of weapons were seized by the enemy.[158] This was followed on 12 March by the fall of the TACAN site at LS-85. These two successes freed significant numbers of enemy soldiers who had previously been tied down at these positions.

Starting in late June, General Vang Pao began an offensive in the Muong Son area of MR II designed to retake Site 85, but after four months the attack had come to a complete standstill. In an effort to throw the NVA off balance and prevent an expected communist offensive, Vang Pao in late November launched Operation PIGFAT which after heavy fighting finally seized LS-85 on 18 December. The year ended with NVA reinforcements arriving from Sam Neua and raising the prospect of even more intense fighting in the months ahead.[159]

Vang Pao's successful offensive required increased USAF air strikes to support and assist in the defense of newly-seized positions. From 5 to 20 July, 292 USAF sorties were flown in support of the Muong Son operation. Enemy counter attacks in late July against several recaptured airstrips were successfully repulsed with help of airpower. During July

and August 1968 combat sortie levels supporting BARREL ROLL ran between 800 and 900 per month, largely under Raven control. The final assault on LS-85 starting in late November likewise demanded heavy air support which was provided by USAF, Lao and Thai aircrews. Raven FACs were active in controlling these strikes, as well as occasionally directing 105mm howitzer fire against the enemy.[160/]

Maintenance Difficulties of December 1968

Although representative sortie rates for the Raven FACs during this period are unavailable, there is no doubt that their activities broadened in direct proportion to the increased use of airpower. It was not long, however, until this increased and sustained level of BARREL ROLL operations began to have a cumulative adverse effect on their ability to adequately meet new demands. This was most clearly reflected in maintenance difficulties which by the end of 1968 sharply reduced the reliability and usefulness of the Raven O-1 fleet.

The most serious problem was engine reliability, since the continued high power settings required by the short airstrips and high terrain elevations placed unusually severe demands on the powerplants.[161/] For example, on 21 December the unavailability of a Raven FAC due to aircraft maintenance difficulties at Long Tieng denied critical air support to friendly forces and contributed to the conclusion of Vang Pao's offensive effort.[162/] A 30 December message from 7/13AF to CINCPACAF reported that the Ravens had suffered four mission aborts due to engine malfunction from 22 to 28

December, and that the FACs were "becoming increasingly concerned over safety of flight for missions which are hazardous enough without being concerned about engine failure."[163/]

During 1968 all maintenance performed on Raven aircraft in Laos was accomplished on a part time basis by mechanics whose primary responsibility was to keep RLAF T-28s airworthy. Not only were qualified O-1 airplane and engine mechanics totally lacking, but there were no O-1 maintenance manuals available at the Lao OLs. Additionally, there was no stock of O-1 spare parts in Laos, and items were shipped in as required.[164/] The consequence of this situation had already made itself felt early in 1968, as revealed in a 13 January message from the AOC at Luang Prabang to AIRA.[165/]

> *The O-1F made a forced landing at Nam Bac on 7 January with a rough engine, and was recovered to Luang Prabang on 9 January. The aircraft has been out ever since for lack of tech orders to effect a repair. The necessary parts are available.*

O-1 phase inspection and major maintenance was performed by Air America at Udorn under a contract with DEPCHIEF, but this first required getting the aircraft to Udorn.[166/]

In early December a message from the Embassy in Vientiane to the Commander in Chief, Pacific (CINCPAC) described the situation facing the Raven program:[167/]

> *. . . Operational requirements have increased beyond all previously forecasted estimates. Further, the increase in enemy activity since 1 November has caused the planned*

attrition of FAC type aircraft to become completely unrealistic. This entire situation has been further compounded by the critical availability of O-1 aircraft throughout SE Asia for replacement.

The message went on to request an increase in the O-1 attrition rate for the rest of Fiscal Year (FY) 69 from two to six aircraft and the initiation of action to acquire four T-41 trainers for the RLAF pilot training school at Savannakhet. The T-41s were to replace the four O-1As assigned to the school in order to make these aircraft available for the FAC program.[168/] This message was apparently prepared before the engine situation became critical (later in December), since there was no specific mention of maintenance problems and the remedies sought were of a long-term nature which offered no immediate relief for the overworked FACs.

On 16 December DEPCHIEF went to PACAF requesting that "immediate action to be taken to reconcile the MAP-Laos program and the USAF Tactical mission requirements in Laos with respect to FAC-configured aircraft."[169/] Citing the loss of three FAC O-1s during 1968 and the AIRA message of earlier that month, DEPCHIEF requested airlift delivery of seven FAC-configured O-1 aircraft to Udorn for use by the Ravens. Because these aircraft were to be used primarily "to support the USAF tactical FAC mission," DEPCHIEF wished them furnished at no cost to MAP-Laos. The message pointed out that Raven aircraft had to be MAP property in order to be maintained by the Air American contract facility at Udorn.[170/]

The Raven FAC difficulties were the subject of discussion between the Ambassador to Laos and CINCPAC (Admiral McCain) during a 26 December meeting held at Cam Ranh Bay, RVN. A direct result of these discussions was a message from Ambassador Sullivan to CINCPAC reaffirming the importance of the Raven program and reviewing the problems affecting it. Citing the impossibility of the Ravens meeting "current and forecast USAF requirements" without substantial USAF support, Ambassador Sullivan requested the following:[171/]

1) Increase the number of authorized Raven personnel from 12 to 16. This would allow 12 FACs on-duty in Laos at all times as well as for R&R, leave, and combat losses. (Some FACs had been flying as many as 150 hours a month).

2) Similarly, increase Raven O-1 aircraft (of various models) from the present eight to 16. This would make available 12 aircraft for use in Laos at all times, allow immediate replacement of combat losses, and provide opportunities for scheduled maintenance and overhaul.

3) Station six O-1 qualified mechanics on a continuing TDY basis to provide maintenance support in Laos.

4) Deliver one set of O-1 tech orders and two CONEX containers (for storage of marking rockets and spare parts) at each of the five OLs in Laos.

With CINCPAC supporting the Ambassador's request, 7AF provided emergency assistance to the Ravens. On 8 January 1969, 7AF transferred three FAC-configured O-1s, three USAF pilot FACs, and three qualified O-1 maintenance personnel from various subordinate units. At the same time 7AF, working in coordination with AIRA, DEPCHIEF, and 7/13AF surveyed the Raven FAC program in order to identify problems and support relationships, to determine the support required, and to establish formal channels to

facilitate future program support.[172/] DEPCHIEF also changed the O-1 attrition rate for MAP-Laos from two to six aircraft annually.

The Raven FAC Survey of January 1969

The survey of the Raven program by a special team from Hq 7AF represented the beginning of closer involvement by that headquarters in the AIRA FAC program. Based on meetings with AIRA, DEPCHIEF, and 7/13AF, the survey team submitted the following recommendations concerning the Ravens:[173/]

1) Raven pilot strength be maintained at 17 by 7AF on a routine basis.

2) Fourteen O-1s be provided for the Raven program to insure the fulfillment of operational requirements and permit the establishment of a realistic program of scheduled maintenance. This should allow for 12 O-1s available for duty in Laos.

3) On-site maintenance be provided for FAC aircraft. This would require the expansion of the DEPCHIEF contract with Air America to insure service availability on a continuing basis.

4) Until 3) is accomplished, 7AF must provide immediate assistance in the form of the TDY assignment to Laos for 179 days of seven O-1 crew chiefs and one O-1 engine mechanic.

5) To facilitate FAC assignment procedures, pilots should continue to be assigned PCS to Detachment 1, 56 SOW (WATERPUMP) at Udorn when entering the program. This would require the addition of 15 FAC spaces to Det 1's UMD.

Although the figures recommended for Raven FAC and O-1 strength were less than those stipulated in the 27 December message from Ambassador Sullivan, the survey team was confident that they were adequate for the immediate future.

A pilot authorization of 15 FACs was finally arrived at for the Raven program. This figure was incorporated into a 5 August 1969 Memorandum of Understanding (see Appendix I) defining the responsibilities of the various agencies supporting the Ravens. This document was signed by senior representatives of 7AF, 7/13AF, DEPCHIEF, and AIRA. No specific statement concerning Raven aircraft strengths or types was incorporated into the Memorandum. DEPCHIEF was made responsible for ". . . stating and processing through MAP channels requirements and requests for aircraft required to support the Raven FAC program" as well as establishing realistic aircraft attrition levels.[174/]

Under MAP-Laos, DEPCHIEF was authorized a strength of twenty-two O-1 aircraft. A 10 January message from 7AF stated that when the recently initiated transfer of six O-1s from USAF and U.S. Army resources was completed, 21 aircraft would be on hand, with the additional one on order from the Department of Defense. Since fourteen O-1s were permanently committed to the FAC program, 7AF indicated that "internal adjustment" should allow the Ravens to operate at full strength. This would require the temporary transfer of one MAP O-1 either from the six assigned to the RLAF's Savannakhet training school or from the two utilized by the Thai artillery battalion in northern Laos.[175/]

Progress on Resolving Maintenance Problems

Although 7AF's Raven FAC survey of 24 January 1969 indicated a TDY requirement for eight qualified O-1 maintenance personnel, available

documentation indicates that, because of shortages in this specialty, only three or possibly four could be spared for duty with AIRA.[176/] The approaching end of the six-month assignment of three mechanics prompted AIRA on 6 June to request four O-1 mechanics for a further 179 days. As justification, AIRA reported that, while an O-1 maintenance contract had been negotiated with Air America and maintenance personnel were in position at all locations, results had varied from poor to bad because of the low experience level of contract personnel. Progress was being made, but a continuation of USAF maintenance support was regarded as absolutely necessary until contractor capability had improved to the point that the Raven mission would not be operationally affected.[177/]

An AIRA letter of 8 August 1969 to all its operating sites in Laos indicated that the additional TDY request of June had been granted by 7AF. This letter recommended that henceforth Air America mechanics would perform all O-1 maintenance, while the "GI mechanic" would act as a quality control inspector. Any discrepancies would be pointed out by the "GI," who would then aid the other mechanics ". . . by pointing out the proper method of repair."[178/] Eventually the TDY mechanics returned to 7AF and Air America assumed maintenance responsibilities on a full-time basis, although a precise date for this is unavailable.

The December 1968 Raven maintenance crisis was reviewed by Lt Col David L. Gray in a May 1969 discussion with 7AF Project CHECO personnel. Lt Col Gray was assigned to Hq 7AF, Deputy Chief of Staff/Plans when he led the 7AF team which prepared the Raven FAC Survey of January 1969.[179/]

> *I think we have one real lesson which we learned from the Raven program. . . . When we go around the world supporting counterinsurgency operations and the thing has to be done covertly, with ceilings on the number of people you have in a country, don't scrimp on support. Airplanes are machines and they have to be maintained. . . . The number of people that are aware of the Raven program, to what extent, what it is for, how it operates, is astronomical today compared to the people you could find that knew anything about it before AIRA had to scream for help . . . last December. So, the sum total of the care and cunning that went into making the program very low profile, very covert, and very, very quiet, was all lost simply because they went too short by five or six maintenance people. That is the great lesson to be learned for the future with this type of problem. Plan a bit more carefully and don't try to make an airplane run without taking care of it; it won't do it.*

Although Lt Col Gray's point about the need for adequate maintenance support from the beginning of such an operation is valid, he overstates the degree to which the Raven program was compromised as a result of the events of late 1968. Certainly more people were aware of the program's existence but detailed information was still closely held and confined to those individuals and offices directly involved in its support. The low profile of the operation was not seriously affected, and the Raven program emerged from the episode better prepared to accommodate the further expansion of its resources occasioned by the events of 1969.

CHAPTER V

THE RAVEN PROGRAM DURING 1969

The history of the Raven program during 1969 is closely tied to the continual increase in the level and scope of fighting in northern and southern Laos and the corresponding rise in the number of USAF combat sorties supporting RLG forces.

The early months of 1969 witnessed the beginning of an enemy offensive which by March had pushed RLG forces back from many of the gains won by Operation PIGFAT. In an effort to regain the initiative and secure the PDJ, General Vang Pao initiated the offensive operation RAINDANCE on 17 March. This effort lasted until 7 April and occasioned ". . . the largest tactical air commitment ever used for friendly ground forces in Laos."[180/] In spite of impressive BDA reports, RAINDANCE served only to slow rather than halt the enemy's advance: its most lasting effect was to "open the eyes" of U.S., CAS, and Lao officials to the importance of USAF support of operations in northern Laos.[181/]

Raven Responsibilities Continue to Grow

The expanded USAF effort during RAINDANCE placed an even greater burden on the MR II Raven FACs. On 20 March AIRA requested that five additional FACs be transferred to the Raven program to bring its strength up to the full authorized level of 15.[182/] This request apparently was promptly approved and filled.

By the end of March the NVA offensive was still gaining momentum. The loss of LSs 50 and 50A on the 26th increased the seriousness of the situation and threatened positions vital to the defense of the important bases at Muong Soui (L108) and Long Tieng. To cover the RAINDANCE and associated RLAF T-28 effort, AIRA assigned eight of its 15 Ravens to MR II by stripping OLs in the other four MRs to the minimum. Since even the five Ravens requested earlier were insufficient as the situation steadily worsened, Hq 7AF was approached on 28 March for three additional FACs on a 60-day TDY basis.[183/] Less than six hours after the initial request, 7AF wired its approval and directed the 504 TASG to dispatch the aircrews immediately to bring Raven strength up to 18.[184/]

Despite regularly scheduled inputs, Raven strength over the next three months gradually slipped back to 15 available pilots as personnel were either lost in action, left after TDYs expired, or completed their tours. Scheduled leaves and R&Rs further reduced the number of FACs on station.[185/] On 6 July, after an additional series of reverses in Barrel Roll, such as the fall of Muong Soui to the NVA on 27 June, AIRA again submitted a request that Raven strength be increased from 15 to 18 pilots.[186/] Even this increase proved to be insufficient and on 19 July AIRA expressed its need for a further Raven expansion to 21 personnel. Enemy forces in division strength were "pouring into the Plaine des Jarres area,"[187/] and the number of tactical sorties assigned to Raven control in MR II had increased from an average of 43 to as many as 64 per day.[188/] This second request was filled by the TDY assignment of three pilots to Detachment 1,

56 SOW, for 120 days.[189/] This was not the end of the Raven expansion, since a 2 August 1969 message from 7AF to AIRA revealed that the "Ravens have been increased from 15 to the present 24."[190/]

The period July to October 1969 was marked by the most spectacular advance and series of victories won to date (or since) by RLG forces.[191/] On 1 July 1969, General Vang Pao launched Operation OFF BALANCE in an effort to retake Muong Soui and block further enemy movements westward.[192/] This offensive had ground to a halt by the end of the month, however, in spite of an intensified USAF effort which flew 172 sorties on 21 July.[193/] Continued heavy support by U.S. air helped restart the offensive (now called ABOUT FACE) on 6 August, and by 1 September friendly forces were again pushing out onto the PDJ.[194/] A Raven FAC described the scene on the PDJ as unbelievable--the sight of a thousand men walking slowly, side by side, heading west.[195/]

Throughout September RLG forces completed their occupation of the PDJ and began to advance further north and west. During the month, friendly successes prompted an increase in the USAF air effort in BARREL ROLL to 200 sorties a day to support Vang Pao and an expanded interdiction program.[196/] Numerous enemy supply caches were uncovered and seized, and on 28 September Muong Soui was recaptured.[197/] Stiffening enemy resistance towards the end of September was answered by continuing heavy air support. From 1-10 October, 1190 USAF and 185 RLAF sorties were flown in northern Laos, with a substantial portion under Raven control.[198/] On 9 October,

MUONG SOUI AIRFIELD (L108) IN NORTHERN LAOS UNDER AIR ATTACK AFTER CAPTURE BY COMMUNIST FORCES IN JUNE 1969

Figure 12

for example, 67 of the 181 USAF BARREL ROLL sorties were allocated to Raven FACs, with the rest going to mining, interdiction, and anti-logistics operations.[199] In addition to the 67 USAF sorties, the Ravens also controlled Lao and Thai-flown T-28s and continued to conduct a daily VR program to locate and develop fresh targets.

As a result of OFF BALANCE and ABOUT FACE the area in northern Laos controlled by friendly troops expanded considerably between July and October 1969. The continued presence of sizeable communist forces, however, required the constant presence of air support and forced the Raven FACs to often operate at a considerable distance from usable airstrips. The seizure of airfields at Muong Soui and small sites on the northern and western PDJ helped to some extent to ease the burden by reducing the distance between bases and operating areas.

Simultaneous with the two operations in northern Laos, FAR and Special Guerrilla Unit (SGU) forces conducted Operation JUNCTION CITY JR in the MR III area of southern Laos. Beginning on 28 July 1969 friendly forces moved eastward from bases near Savannakhet and by 7 September had seized the Route 9/23 junction and the town of Muong Phine. Raven FACs operating out of Savannakhet directed RLAF and USAF air in support of JUNCTION CITY JR until its termination in late October.[200]

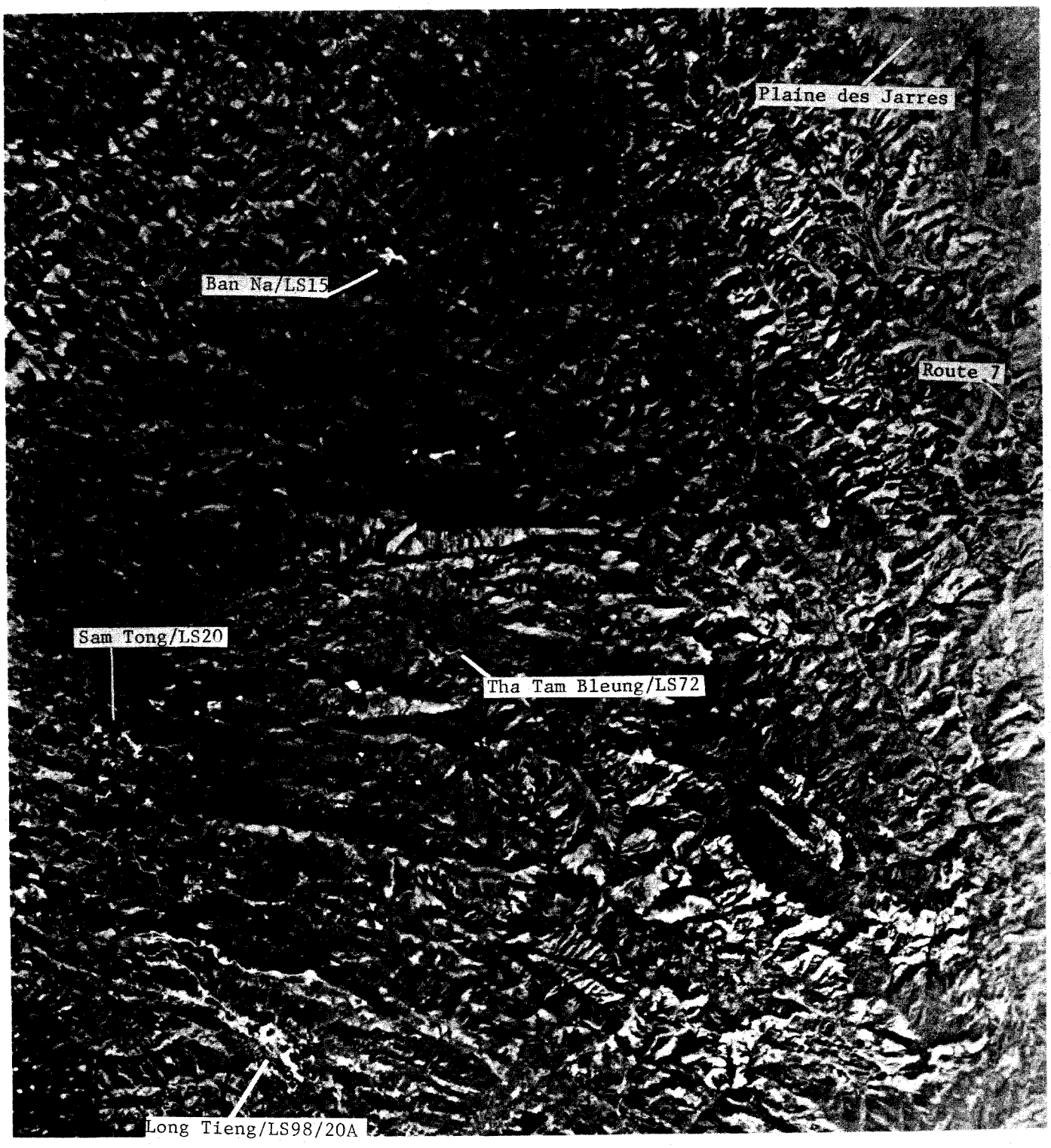
The escalation of fighting in Laos during the second half of 1969 soon made the 15 Raven FACs authorized earlier in the year (and incorporated into the August Memorandum of Understanding) clearly inadequate to meet the

expanded AIRA commitments. In late September 7AF proposed an increase in the official authorizations from 15 to 18, with provisions for temporary augmentation above this number when required by circumstances.[201/] At the time the number of Ravens available for duty stood at 21 because of the assignment of three TDY augmentees. Soon after this, the Raven authorization was also expanded to 21, as revealed in a 15 October 1969 letter from the 504 TASG to 7AF discussing the program.[202/] Raven pilot strength was based on this level through the end of 1970.

Procurement of Pilots for the Ravens: 1969

The heavy demands levied by the Raven program for qualified USAF O-1 pilots during 1969 placed an increasingly difficult burden on the principal source, the RVN-based 504 TASG. While O-1 aircraft (and hence pilots) serving in the 23 TASS at Nakhon Phanom RTAFB had been replaced by the O-2 and OV-10 in 1967, the USAF FAC squadrons in the RVN continued to operate the O-1. By mid-1969, the gradual draw down of the RVN O-1 force or its replacement with newer aircraft models began to have an increasingly adverse effect on the number of O-1 qualified volunteers for the Raven program. Requirements established in April 1969 for Raven volunteers had stipulated 200 hours of O-1 experience as part of the required 750 hours total flying time.[203/] However, this had to be overlooked more frequently as the number of O-1 pilots declined.

Raven personnel problems were further aggravated by the absence of assigned FACs for duty because of leave and R&R. Normally, pilots completed



HIGH ALTITUDE PHOTOGRAPH OF AREA BETWEEN
LONG TIENG AND THE PLAINE DES JARRES

Figure 13

four to six months as FACs in the RVN and then joined the Ravens. If they had not completed their R&R and leave breaks before reporting to AIRA, however, their availability for duty was automatically reduced by as much as a month. To avoid this situation, AIRA after mid-1969 requested that as far as possible all leaves and R&Rs be completed before pilots joined the program.[204/]

In an effort to expand the available sources for Raven personnel, AIRA in early July 1969 raised the possibility of drawing FACs from TAC's Special Operations Force (SOF), a successor to the Air Commandos. AIRA hoped that this would provide ". . . a more stable source of personnel qualification for specific jobs in Laos," and would largely eliminate the leave/R&R problem.[205/] TAC, however, regarded the Raven program as a "functional responsibility of 7AF" and opposed filling AIRA FAC requirements with SOF resources. According to TAC, all FAC personnel in SOF were SEA returnees who were fully occupied with the training of ALO/FAC personnel to support USAF operations in SEA.[206/]

By the second half of 1969 the 504 TASG began to open the Raven program to "a select group of volunteers" with no previous O-1 combat experience. These pilots (qualified FACs who had flown in O-2s and OV-10s) were put through an O-1 conversion course by the Group and then given 60 to 80 hours of Phase II flying training in the mountainous terrain of RVN MR II. Successful completion of a Standardization/Evaluation check flight was required before their release for duty with AIRA. By 15

October 1969, 11 non-O-1 FAC pilots had volunteered for the Raven program and entered O-1 training. Pilots entering the program in this fashion had the 200-hour requirement in the O-1 waived.[207] By late December the 504 TASG was basing the number of O-1 hours required by O-2/OV-10 trainees on individual qualifications.[208]

At the end of 1969 a large number of Raven volunteers were First and Second Lieutenants recently graduated from Undergraduate Pilot Training (UPT) with no more than 350 total flying hours upon arrival in the RVN. No matter what FAC aircraft these pilots were assigned to upon their arrival (O-1, O-2, OV-10), five to seven months were needed to acquire the necessary 750 total flying hours required to qualify for the program. Since this frequently left only five months on the individual's one-year SEA tour, voluntary extensions were required by AIRA to insure at least six months retainability.[209] In December 1969 a new directive from USAF Military Personnel Center (MPC), citing FAC overmanning in SEA, served notice that extensions in this specialty would no longer be approved. 7AF and CINCPACAF succeeded in having Raven extensions exempted from this ruling by pointing out to MPC the decline in O-1 pilot resources, the time needed to acquire the stipulated 750 flying hours, and the six to nine weeks of O-1 training required by O-2/OV-10 volunteers.[210]

Even with extensions readily available, the 504 TASG throughout 1969 was hard pressed to keep pace with AIRA's continually increasing requirement for Raven personnel to support RLG forces in Laos. Raven authorizations

grew from 15 in January to 21 in October. Since a normal Raven tour was six months, 42 O-1 qualified FACs were required yearly, plus replacements for combat losses. The success of the 504 TASG in accomplishing the formidable task of filling these growing requirements while faced with a decline in both its O-1 force and the O-1 experience of its FACs testifies to its strenuous efforts in AIRA's behalf and its recognition of the importance of the Raven program.

Aircraft Available to the Raven Program in 1969

From the start of the Butterfly/Raven program, qualified personnel were always easier to obtain than aircraft suitable for FAC duties. The original contract Porters, while always available and able to use even the shortest airstrips in BARREL ROLL, were hampered by their lack of adequate target marking ordnance. The AIRA-operated U-6, on the other hand, was able to employ marking rockets, but was unsuitable for operating out of the shorter STOL airfields.

The O-1 Birddog came to be the ideal aircraft for conditions in Laos. Its widespread use in SEA by the air forces of the United States, South Vietnam, Laos, and Thailand insured the availability of spare parts and assistance in obtaining replacement aircraft. Since the O-1 was authorized for use by MAP-Laos, all aircraft were the property of DEPCHIEF and thus could receive major maintenance support on a contract basis from the conveniently located Air America facility at Udorn RTAFB.

The O-1 possessed a combination of characteristics which made it an outstanding FAC airplane. Compared to the other FAC aircraft (O-2, OV-10, U-17, T-28), it was simple to maintain and was extremely maneuverable. The O-1's stability allowed a pilot engaged in VR activities to devote a minimum of attention to the controls. This left the pilot free to use his hands to handle maps, radios, or binoculars, and also aided in communicating with his Lao backseater and helping with his equipment.[211/] The seating arrangement of the O-1 had the advantage (shared by other FAC aircraft used by the Ravens (with the exception of the T-28) of allowing the pilot and his passenger to communicate either by hand signals or written notes in the event of language difficulties. The presence of plexiglass panels in the cockpit ceiling also assisted the FAC, since it enabled him to keep other aircraft (e.g., fighters) in sight to better control them and reduce the chance of mid-air collisions.

Disadvantages of the O-1 included its limited range, speed, and endurance. Consequently, a smaller number of U-17 or T-28 aircraft could cover a larger area more quickly and with greater on-station time.[212/] Among other problems affecting O-1 operations was the lack of sophisticated navigation equipment which, on long-range missions in inclement weather, made target identification extremely difficult.[213/] Finally, while adequately powered for its size and weight, the O-1's performance did not permit sudden and rapid climbs to avoid unexpected ground fire.

During the early years of the Butterfly/Raven program U-10 aircraft were occasionally used in the FAC role. This aircraft was little improvement over the Porter, however, since the wing configuration prevented the installation of rocket rails. Consequently, any target marking done from U-10s employed hand-dropped smoke grenades.[214/] After mid-1968 U-10s were no longer employed by the Ravens for FAC duties, although they performed liaison function for AIRA personnel until early 1970.[215/]

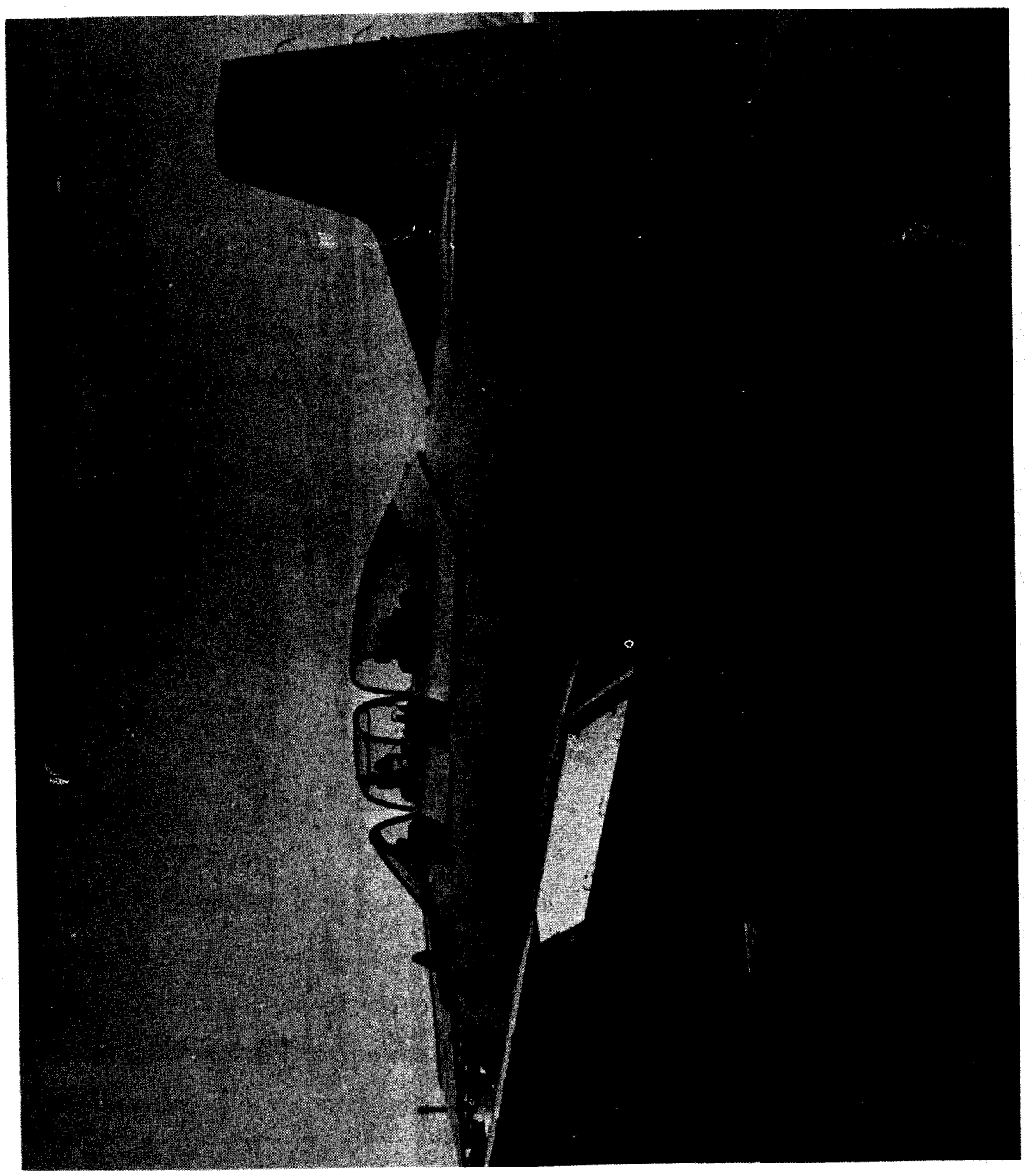
The next best aircraft to the O-1 for the Raven FAC mission was the U-17. This light plane was similar in configuration to the O-1 but substantially larger and more powerful. A primary advantage of the U-17 was that its greater range and speed allowed it to cover more area on a single mission. The four-seat capacity of the U-17 was another advantage, since this allowed the FAC to carry Lao, Meo, and Thai personnel on his mission.[216/]

Among the disadvantages of the U-17, compared to the O-1, was its lesser degree of stability. The pilot's hand was required on the controls at all times, leaving only one hand free for handling equipment or communicating with passengers. The U-17's inferior visibility also detracted from its effectiveness as a FAC aircraft. While the O-1 featured tandem seating of the two-man crew (offering equal visibility to either side), the U-17 employed side-by-side seating. As a result the pilot, sitting on the left side, always had a blind spot to his right. In addition, the lack of plexiglass panels in the ceiling of the U-17 cockpit made constant visual contact with other aircraft practically impossible.[217/] In late

1969, DEPCHIEF and AIRA sought permission to install locally five plexiglass panels in the ceilings of MAP-Laos U-17s. The Air Material Area (AMA) responsible for U-17 support, however, refused to sanction the project because of uncertainty as to its effect on the U-17's structural integrity and lack of Frederal Aeronautical Administration (FAA) approval.[218/] Many of the advantages and shortcomings of the U-17 resulted from its being designed for a utility rather than a FAC role. The O-1 was designed specifically for missions of a VR/FAC nature.[219/]

The steady expansion of Raven pilot strength during 1969 made necessary a corresponding increase in the number of FAC aircraft supporting the program. Because of shortages of O-1s and U-17s existing in early 1969, AIRA adapted RLAF T-28s for use in the FAC role. Advantages of the T-28 over the conventional Raven aircraft were its greater range (underwing drop tanks were available) and a cruising speed double that of the O-1. This allowed it to reach distant areas rapidly and have ample loiter time for VR or FAC activities, as well as provide FAC services at locations beyond the range of the O-1. T-28s were especially useful during enemy offensives which overran or threatened Raven Forward Operating Locations (FOLs) and forced the FACs to operate from rear area OLs at a considerable distance from the fighting.[220/]

Because of its more powerful engine the T-28 was a safer and more versatile aircraft. While O-1s and U-17s carried only eight marking rockets, T-28s could carry substantially more, and fire them more accurately by use



RLAF RT-28 AT WATTAY AIRPORT, VIENTIANE

Figure 14

of the pilot's air-to-ground sight. The T-28's ability to climb at 2500 feet per minute (compared to the O-1's 500 feet per minute under ideal conditions) gave it improved survivability in a AAA environment, as did the armor plating protecting both crewmembers.[221/] The greater load-carrying capacity also allowed the installation of TACAN equipment and more sophisticated navigation instruments, permitting precise rendezvous with fighters and greater accuracy in locating ground points.[222/] USAF A-1 pilots from NKP in 1969 stated their preference for the T-28 as a FAC aircraft because ". . . if necessary the FAC can join up in the formation, place fighters in trail, and lead the strike.

Disadvantages of the T-28 included the need for increased maintenance support and longer runways in comparison to the O-1 and U-17, as well as a loiter/maneuvering speed which the Ravens considered too high for effective FAC work.[223/] While the visibility from the front (pilot's) seat was adequate, the low wing occasionally blocked the rear seater's view. The seating arrangement of the T-28 was also inferior. Separation of the crew members prevented the pilot from assisting the back seater with his radios and maps, or exchanging information by hand signals or notes.[224/] Another problem was that every T-28 used by the Raven FACs meant one less available for RLAF strike mission. The presence of Americans flying T-28s from Lao bases also had political implications, since these aircraft were normally associated with strike, rather than FAC missions.[225/] In any event, shortages of conventional FAC aircraft in 1969 forced the occasional use of T-28s in a FAC role when O-1s or

U-17s were unavailable, or when the T-28 was better suited for a particular mission. At the end of 1971 the Ravens were still using the T-28 for FAC purposes in MR I, III and V because of its superior range and airspeed.[226]

Other aircraft considered for use with the Ravens during 1969 were the O-2 and OV-10. The first obstacle to acquiring these aircraft for AIRA was that neither was authorized for MAP-Laos.[227] Like the T-28, the O-2 levied excessive (compared to the O-1) demands on maintenance capabilities and runway length. While the O-2 was superior in cruise speed, endurance, and instrumentation, its loiter/maneuvering speed was considered to be too high by Raven standards.[228] There was also some question as to whether its nose gear would prove strong enough for regular operation from Lao dirt strips.[229]

Although the OV-10 was larger and more sophisticated than even the O-2, a shortage of Raven aircraft in late 1968 prompted Hq 7/13AF to request an OV-10 to operate out of Long Tieng. This aircraft was to be accompanied by a qualified maintenance man and OV-10 pilot, who would either personally direct strikes as a Raven or carry a regular Raven FAC as his backseater.[230] Hq 7AF rejected this request, citing the ". . . lack of maintenance facilities and marginal operating conditions at most Lima sites . . ." as well as the limited number of qualified OV-10 maintenance personnel then available.[231] Most of the difficulties associated with use of the O-2 by the Ravens would apply in greater or lesser degree to the OV-10, including the absence of authorization for its use by MAP-Laos.

Raven or Magpie?

One of the last crises to beset the Raven program during the eventful year of 1969 was the threatened replacement of the call sign "Raven" by "Magpie." On 27 November a cable from the State Department to the Vientiane Embassy directed that since the Voice Call Sign (VCS) Raven was assigned to the U.S. Navy, AIRA should stop using it immediately.[232] A further message of 1 December revealed that the call sign "Magpie" had been suggested by 7AF as a substitute.[233]

Two days later AIRA forwarded to the State Department its reasons for retaining VCS Raven for its FACs:[234]

> *[VCS Raven] has become much more than a call sign and is now an internal part of a complete program which has taken the name "Raven." It is used to identify these specialized FACs to widely dispersed indigenous ground teams and to both USAF and local tactical fighter crews. To change the call sign at this time would create much confusion and could be severely detrimental to the air effort in Laos.*
>
> *In addition to operations problems a change would cause, the call sign has become significant in the history of the air war in Laos and widely used in documentation of this war in the past two and a half years. It has also become a prestigious symbol among those officers assigned to the Raven program.*

The Ambassador to Laos, G. McMurtie Godley, amplified AIRA's remarks:[235]

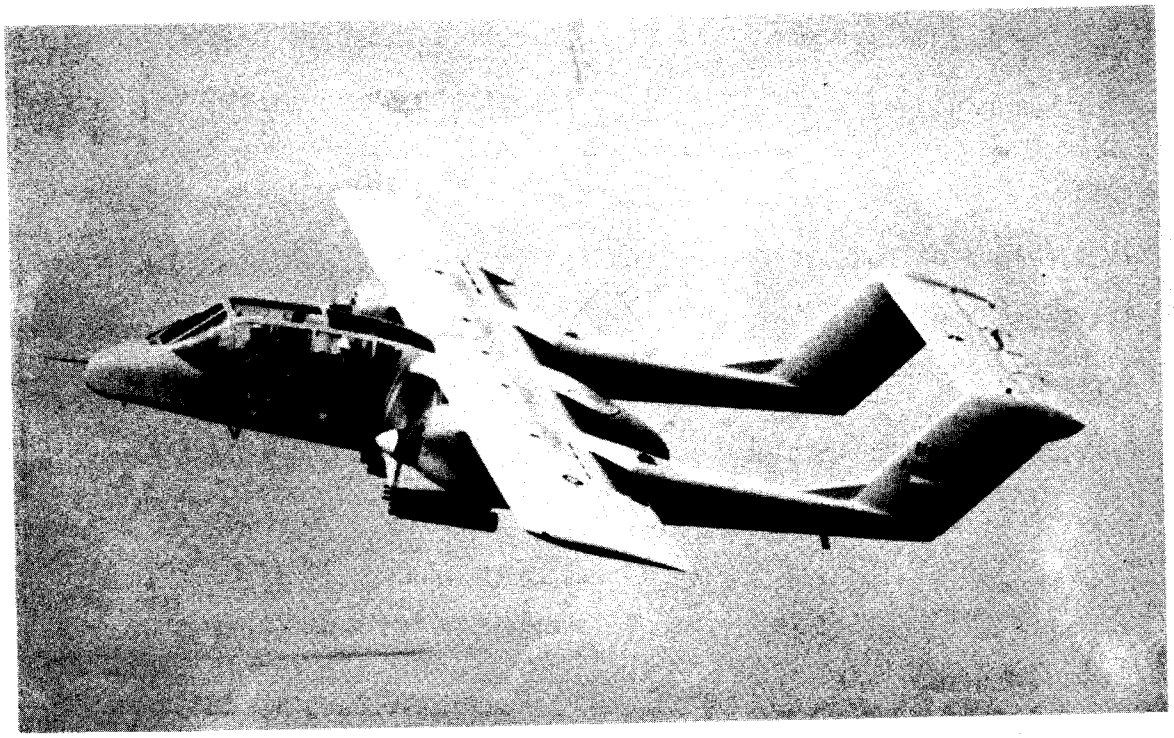
> *I heartily concur with suggestions for continued use of Raven call sign for FACs here in Laos. The Raven must work with Lao, Thai, Cam, Ka, etc., ground troops, mostly poorly educated with minimum knowledge of English.*

Over the years these indigenous elements have come to learn to identify the use of air power with the Raven call sign. To change names now would at best be confusing and at worst lead to tragic and expensive accidents.

On 11 December 1969 a message to AIRA (signed by Secretary of State Rogers) allocated VCS Raven to the Vientiane Embassy ". . . for further assignment to AIRA."[236/]

Strangely enough, this same problem arose again in May 1970 when A U.S. Navy air unit with VCS Raven arrived in SEA aboard the aircraft carrier Midway.[237/] CINCPACAF resolved the problem by directing that AIRA would use the call sign on a shared basis with the Navy. The Navy in turn agreed to modify its use of the identifier and always say "Jet-Raven."[238/]

CESSNA O-2 SKYMASTER



NORTH AMERICAN OV-10 BRONCO

Figure 15

CHAPTER VI

THE RAVEN PROGRAM DURING 1970 AND 1971

The patterns of military activity in Laos during 1970 and 1971 closely followed those established in previous years, as friendly offensive operations during the wet seasons were countered by enemy advances during the dry periods. The major difference, however, was that by the end of 1971 communist forces had significantly expanded the areas of Laos under their control. In the early months of both 1970 and 1971 the NVA expelled General Vang Pao's forces from the PDJ and seriously threatened his headquarters at Long Tieng. At the end of 1971 the same cycle appeared to be starting again. Also by late 1971, the enemy's occupation of the Bolovens Plateau in southern Laos and his seizure of practically all major towns in the central and eastern Panhandle raised fears for the safety of Savannakhet and Pakse. These setbacks occurred in spite of RLG military efforts and the presence of massive U.S. air and logistical support.

Throughout these two years the Raven FAC program continued to operate throughout Laos to ensure the most effective use of available strike sorties and to prevent bombing errors. At the beginning of 1971 Raven pilot and aircraft strength apparently reached an optimum level and stabilized, making unlikely any more of the emergency and unplanned expansions of the

Raven Pilot Procurement: 1970-71

Authorized Raven pilot strength remained at 21 throughout 1970. Because of the six-month tour for Raven personnel the 504 TASG was required to provide AIRA 42 volunteers a year. By September 1970 the gradual phase out of the USAF's O-1 resources in SEA had caused the proportion of O-1-experienced volunteers for the Raven program to drop to 40 percent of the total.[239/] In mid-1969, to ensure that all personnel sent to AIRA were qualified O-1 FACs, the 504th began to provide O-1 Phase II training for the increased number of O-2 and OV-10 pilots entering the program. This training was for men with previous O-1 time who were no longer current in the aircraft, and for personnel requiring familiarization with the mountainous terrain of northern Laos.

By the end of 1970, however, most volunteers for the Raven program had septn their entire careers in O-2s or OV-10s, and possessed no previous O-1 experience. As a result, on 1 January 1971 the 504 TASG initiated a Phase I training program to provide volunteer pilots with basic instruction in the O-1. The 504 TASG assumed responsibility for providing instructors and devoted two aircraft and up to 100 flying hours per month to the program.[240/] Completion of Phase I training was followed by the Phase II portion.

The 504th's provision of Phase I/II O-1 training lasted only three months. In mid-January 1971 the 504th informed DEPCHIEF that the Group was scheduled to phase all O-1 capability out of its inventory by 1 April.

After that date no more O-1 training could be provided in support of AIRA, although the recruiting and selection of volunteers from O-2/OV-10 resources would continue.[241/]

The termination of the 504 TASG's O-1 training support was anticipated by AIRA and DEPCHIEF. Within five days of receiving formal notice from the 504th, plans were being drawn up to initiate an O-1 training program at Udorn under the direction of Detachment 1, 56SOW (the original WATERPUMP Detachment). These plans included determining the number and frequency of FAC inputs to the program and including additional aircraft for training purposes in Map-Laos' authorizations.[242/] A message in late January from AIRA outlined anticipated FAC requirements and commented that "Phase I FAC O-1 training being accomplished by Det 1 would provide improved responsiveness to Functional Check Flight (FCF) requirements and offer some ferry capabilities in support of the Raven program."[243/] The training responsibility was picked up by Det 1 sometime after 1 April 1971.

The Phase I/II O-1 flight training program for Raven volunteers remained at Udorn for approximately nine months. In late October 1971 the operation was moved to Wattay Airport at Vientiane to take advantage of the lower air traffic density and the presence of several small airstrips in the area. It was expected that touch-and-go landings and short-field familiarization practice would be easier to accomplish at the new location. This arrangement also allowed more effective utilization of Raven aircraft since the training O-1As would be available for FAC work in MR V in an

emergency. Finally, the move consolidated all of AIRA's O-1 training functions at one location, an RLAF FAC training program having begun at Wattay in late November 1971.[244/]

During 1971 the number of authorized Raven FACs expanded from 21 to 28. In February the onset of the annual NVA dry season offensive prompted an increase in Raven FACs to 25 on an interim basis.[245/] On 2 March AIRA requested that a previously agreed upon expansion to 28 FACs be put into effect immediately because of conditions in northern Laos. Heavy flying schedules had resulted in some Ravens accumulating an excessive number of flying hours. Average flying time per FAC for December 1970 and January 1971 had been 135 and 121.7 hours, respectively; during February one third of the Ravens flew on waivers of maximum allowable flying time.[246/] By the end of March 1971 the total number of Raven FACs authorized and available for duty in Laos stood at 28. This brought the program up to its pilot strength as of the December 1971 cut-off date of this report. Also by December 1971, the 28 Raven FAC manpower authorizations were carried as overages on the Unit Detail Listing (UDL) of the 504TASG.[247/]

A continuing difficulty with the Raven FAC assignment process up to mid-1971 was the requirement to wait until a vacancy occurred in Laos before requesting a replacement pilot. This problem was relieved somewhat in July by an agreement between AIRA and the 504TASG which paid greater attention to FAC rotation dates in scheduling replacements.[248/]

Even this improvement failed to have the desired effect, since by late September 1971 AIRA was complaining that the sporadic nature of personnel inputs to Det 1 prevented actual attainment of the newly authorized figure of 28 FACs.[249/] A 27 September meeting at Udorn of AIRA, Det 1, 504TASG, and 7/13AF representatives agreed that, starting 18 October 1971, one FAC would be sent to Det 1 for O-1 training each week.[250/] This initiation of regular pilot inputs finally resolved the manning problem.

Requirements and Procedures for Entering the Raven Program

As of the end of 1971 the following guidelines had been established for pilots applying to enter the Raven FAC program:[251/]

1. Applicants had to be volunteers
2. Applicants had to be mature officers in the grade of First Lieutenant through Major.
3. Applicants must have had 750 hours total flying time, with 100 hours of combat FAC time desirable.
4. Applicants had to be or to have been FAC-qualified. At least four months of FAC experience was required, preferably in support of ground troops.
5. Pilots working with the out-country war (Laos, Cambodia) were preferred, although others were not excluded if they met the other qualifications.
6. Single men were preferred, although this was not mandatory.
7. Applicants had to be highly recommended by their supervisor, operations officer, and/or commander.
8. Applicants had to extend if necessary to insure six months retainability with the program in Laos.

9. Applicants had to have completed their 14-day leave or R&R prior to reporting to AIRA for duty.

No fast-mover (F-4, F-100) FACs were selected for Raven duty because of their lack of experience in directing airstrikes (compared to O-2 and OV-10 FACs) and the presence of sufficient numbers of slow-mover FAC volunteers.[252/]

The application process at the end of 1971 was supervised by a Steve Canyon (the unclassified title of the Raven Program) Project Officer assigned to the Headquarters of the RVN-based 504 TASG. FACs assigned to the Group's subordinate TASSs were made aware of the existence of the Raven program (to the extent permitted by security considerations) and, if interested, were encouraged to submit formal applications. The Steve Canyon Project Officer then reviewed the pilot's application and record, either rejecting the individual at that point or passing the application on to the next stage of the process. Few pilots were eliminated by the records review, since usually only top-quality FACs were given the necessary supervisor recommendations to apply. Following successful completion of their records review, the Project Officer and the 504 TASG Commander separately interviewed the applicant. The two interviewing officers then discussed the pilot's suitability for the program and determined his final acceptance or rejection for Raven FAC duty. During this selection process the 504TASG, not AIRA, had the final authority to decide who was accepted for Raven Duty. AIRA, however, always retained the option of dropping personnel from the

program if their performance in Laos did not meet Raven standards. The 504 TASG was then required to replace these men with new volunteers.[253/]

Raven Aircraft Status: 1970-71

On 20 April 1970 DEPCHIEF reported the arrival of four additional O-1s at Udorn, bringing to 25 the total inventory of these aircraft available to MAP-Laos.[254/] Six of these were of the more powerful F-model. The planned elimination of the O-1 from the USAF inventory in SEA by attrition or transfer to the Vietnamese Air Force (VNAF), however, threatened to cut off this accustomed source of replacement Raven aircraft. By mid-1970 Hq 7AF served notice to CINCPACAF that its O-1 fleet would be phased out by 1 July 1971 and that alternate sources for Raven aircraft would be necessary after that date.[255/] AIRA's problems were further aggravated by a requirement that newly-procured O-1s be of the F-model, if at all possible.

Of all the O-1 versions available for Raven service, the F-model was the most suitable for conditions in Laos. Compared to other versions the F possessed a more powerful engine, a variable-pitch propeller, and strenghtened wing and fuselage structure. These features allowed the F-model to operate out of the high-elevation STOL strips found in BARREL ROLL while carrying a full complement of crew, armor plating, fuel, marking rockets, weapons, and equipment.[256/] Such operations were beyond the capability of other O-1 models; even reduced payloads could result in their less-powerful engines overheading. The advantages of the F-model also improved flying safety and made possible longer engine life.[257/]

Faced with the termination of its accustomed aircraft sources, DEPCHIEF and the Air America maintenance facility at Udorn developed a program in July 1971 to modify as many as 10 O-1As to O-1F standards. This involved replacing certain structural sections and installing a variable pitch propeller and a more powerful engine. Resupply through normal channels was not expected to present a problem, since Air America could fabricate or modify any missing parts. In addition to providing a better performing aircraft, AIRA and DEPCHIEF hoped that the modification would simplify spare parts supply and facilitate the training of aircrews and mechanics. Standardization was becoming especially important as the day approached when the RLAF would begin to take over the O-1 support and maintenance role.[258/]

In spite of initial success with the O-1F modification effort, the USAF Air Material Area (AMA) responsible for the O-1 expressed misgivings, and the program was terminated. Although such conversions had already been accomplished in the Continental United States (CONUS) under an Army contract, it had been done by the manufacturer (Cessna Aircraft Company) using special drawings and equipment. Even though none of these items were available to Air America, all but two A-models had been successfully reworked before the conversion program was terminated in late 1971.[259/]

As a result of the conversion program, the Raven Unit Equipment (UE) strength as of 10 December 1971 consisted of 17 O-1Fs, two O-1As, and five U-17s. The O-1As were kept at Wattay Airport and used for training

purposes; the U-17s were distributed around the various sites as needed, either when greater passenger capacity was necessary or when O-1s were unavailable.[260] Authorized Raven O-1 UE at this time stood at 23 aircraft.[261]

Since the Ravens required 20 aircraft on station in Laos at all times, the 10 December UE total of 24 aircraft provided little allowance for combat losses or unscheduled maintenance and made necessary the substitution of U-17s for O-1s at a number of locations. According to the Director of DEPCHIEF's Air Support Branch, the ideal UE for the Raven program--one which would allow for these operational uncertainties--would total 40 aircraft and would be distributed in the following manner:[262]

Available for Duty

20 O-1Fs in operation at the Lao OLs
5 O-1Fs in maintenance status at Udorn or in Laos
2 O-1Fs in Crash/Battle Damage (CBD) repair status
4 U-17s in operation at the Lao OLs
1 U-17 in maintenance status at Udorn or in Laos

32 (O-1Fs and U-17s combined)

Attrition Aircraft

7 O-1Fs at Udorn or otherwise available on short notice when needed
1 U-17 at Udorn or otherwise available on short notice when needed

40 (Duty and attrition aircraft combined)

Because of the difficulties in O-1 procurement, there was some question whether even a figure of 32 aircraft immediately available was possible.

One factor allowing the Ravens to operate with limited numbers of O-1s was an aircraft in-commission rate approaching 90 percent. Normal USAF maintenance policy sought to keep 75 percent of a unit's aircraft UE available for duty. By these standards 28 O-1s were required to support 20 Raven aircraft in Laos at all times. DEPCHIEF was confident, however, that the high quality of maintenance support enjoyed by the Raven program by late 1971 would allow the required operational strength to be attained with a UE of 25 O-1s (plus those in CBD status) instead of 28. Under Air Force maintenance policy, the two O-1Fs in CBD status on the above list would be dropped from the UE and replaced with other aircraft until repairs were completed.[263/]

By the end of 1971 Raven O-1s were being procured from a number of courses. Procedures were to be established by which MAP-Laos would trade U-17s for O-1s operated by USAF units elsewhere in the PACAF area. This was still in the planning stage at the cut-off date for this report, however, and its feasibility was still untested.[264/] A certain number of O-1s also were expected to become available from MAP programs operating in other countries, and it was hoped that these aircraft could be acquired by DEPCHIEF. Finally, the RTAF operated a number of O-1Ds which AIRA hoped to obtain by trade agreements with the Thais. The O-1D was a training version identical to the F-model in engine, variable pitch propeller, and internal structure, but incorporating dual flight controls.[265/]

Raven Officer Effectiveness Reports (OERs)

Sometime prior to August 1971 the rating official for Raven FACs was changed from AIRA's Director of Operations to the Chief FAC, who was responsible for administering the entire Raven program. The Chief FAC, assigned to the office of the Director of Operations at Vientiane, also performed duties as the Lao MR V FAC. He prepared OERs based on recommendations from the Senior FAC and AOC Commander at the individual FAC's locations.

At the end of 1971 there was considerable question within AIRA as to whether this OER system was the best. During July 1971 AIRA had sought to establish the regional AOC Commander as rating official for all Raven FACs. Under this plan these OERs would be indorsed by AIRA's Director of Operations (based on an input from the Senior FAC at the particular location) and additionally indorsed by the Commander of Detachment 1, 56SOW. The OER of the Chief FAC would be written by the Director of Operations and then indorsed by the Detachment 1 Commander.

This proposed system was an attempt by AIRA to bring the formal organization of the Raven system in line with what AIRA saw as its command realities. AIRA supported its position by pointing out that the End-of-Tour (EOT) reports by the AOC Commander consistently reflected that these individuals were responsible for control of all Raven FACs assigned to their MR. However, since FAC OERs were written by the Chief FAC, the AOC Commanders lacked formal authority over the pilots.[266/]

Implementation of AIRA's proposed change in Raven OERs was blocked by the Commander of Detachment 1. Under the Memorandum of Understanding (dated 5 August 1969) governing the Raven program, AIRA was vested with operational control of the Ravens, while the Detachment 1 Commander exercised "Command, less operational control."[267/] If Raven OERs became the responsibility of the AOC Commanders, the Detachment 1 Commander feared that he would relinquish military control and responsibilities owed to Raven personnel who, officially, were assigned to his unit. Concen was also expressed by Detachment 1 over the timely accomplishment of OERs, since the Detachment would in effect surrender control in this area to AIRA but still be held responsible by higher headquarters for any late reports. The nature of the Raven operation, with personnel assigned to widely separated OLs throughout Laos, had always made the prompt submission of administrative paperwork a major problem. Consequently, the Detachment 1 Commander proposed that the Chief FAC continue to write all OERs and that the AOC Commanders be required to submit a Letter of Evaluation (LOE) to AIRA on each FAC serving under them. The Commander at the same time suggested that a new Raven Memorandum of Understanding be drawn up, clearly spelling out revised rating procedures.[268/]

Although a draft of a new Memorandum was prepared in August 1971, it still had not achieved final form by the end of the year.[269/] Part of the delay involved further changes in the Raven OER system: on 18 October the reporting official for all FACs was changed from the Chief FAC, whose

position was abolished and replaced by a PCS Project 404 FAC Liaison Officer, to the appropriate Senior FAC assigned to the various MRs. Each AOC Commander was required to submit an LOE on his senior FAC, whose OER was then prepared by the Commander, Detachment 1. AIRA remained unhappy with the arrangement, since it did not correspond with the actual chain of command, i.e., from AIRA, to the AIRA Director of Operations, to the regional AOC Commander, and then to the Senior and individual Raven FACs. AIRA still preferred that the appropriate AOC Commander be made the reporting official for each of the senior FACs, since he was their day-to-day supervisor.[270/] The Senior FAC would continue to write the OERs for all FACs assigned to his OL.

Cricket West

On 24 July 1971 the Nail FACs operating out of Nakhon Phanom RTAFB terminated their strike control and VR operation in the Cricket West area of western STEEL TIGER and turned the mission over to the MR III Ravens operating out of Savannakhet.[271/] The Cricket West VR/FAC program had been initiated in July 1966 by the Cricket FACs of the 23TASS at Nakhon Phanom RTAFB and covered a special zone west of the normal Cricket operating area in eastern STEEL TIGER. This program was designed to provide close air support for FAR forces defending the city of Thakhet and the surrounding area. This was at a time when aerial VR and intelligence reports indicated a possible communist attack on Thakhet.[272/]

The Cricket West program was similar to the Ravens in that the USAF Cricket FACs (later the Nail FACs) from Nakhon Phanom carried Lao or Thai personnel in their O-1s as backseaters to communicate with FAR ground units and relay target information to the American pilot.[273] However, the O-1s carried regular USAF markings and the pilots and backseaters lived at Nakhon Phanom, rather than with RLG forces in Laos. The operation also differed from the Ravens in that it was under the control of 7AF and 7/13AF, instead of AIRA. Daily VR of the Cricket West area by Cricket and later Nail FACs (and their backseaters) continued until July 1971. By this date the Cricket West program had become an important source of up-to-date intelligence concerning communist activity in western Laos threatening American personnel and installations at Nakhon Phanom. This base was directly across the Mekong River from Thakhet.

At the end of November USAF personnel responsible for the defense of Nakhon Phanom complained that since the termination of the Nail VR operation in July the intelligence derived from daily FAC missions had decreased sharply and was "now sketchy and sporadic at best." Citing only eight intelligence reports from Raven missions over Cricket West since 1 September and "numerous indications of potentially lucrative targets" in the area, the 56 SOW at Nakhon Phanom requested that AIRA begin daily coverage of Cricket West by Raven FACs. The 56 SOW hoped that such coverage would allow strikeable targets to be located and regular liaison established with FAR ground forces operating there, thus serving

to keep communist forces off balance and "prevent them from consolidating their position in the Thakhet area (of western Laos)."[274/] AIRA, however, asserted that the coverage provided by the MR III Ravens was perfectly adequate.[275/] The discussion had not proceeded further at the mid-December cut off date for this report.

The RLAF FAC Program

On 29 November 1971 AIRA began a FAC training program at Wattay Airport to provide the RLAF with a FAC capability. All RLAF pilots entering the new program were required to be T-28 lead-qualified. This new project, managed by the FAC Liaison Officer, was supported by AIRA's training section, which consisted of the two O-1As and two USAF FAC-qualified instructor pilots. These pilots were assigned to AIRA to perform all O-1 training required by USAF and RLAF personnel; they did not participate in Raven strike control and VR activities. Originally no time limit was placed on the FAC school, and it was anticipated that no student would graduate until he had demonstrated a high degree of FAC qualification and expertise.[276/]

Due to their previous T-28 experience, the RLAF trainees made such rapid progress that the first two had completed the FAC school by 14 January 1972. Their subsequent excellent performance as operational FACs indicated the suitability of RLAF personnel as eventual replacements for the Ravens.[277/]

AIRA's RLAF FAC program consisted of three successive phases: Transition from the T-28 to the O-1 (minimum of 24 flying hours and 125 landings); basic FAC tactics (12.5 hours); advanced flight tactics (28 hours). In

addition to the basic O-1 flying instruction, Phase I also covered local airfield and radio procedures and aircraft pre-flight inspection. Phase II included familiarization with maps, intelligence briefings and the use of binoculars as well as practice in identifying items of military interest from the air and properly reporting them. The final phase covered target acquisition, rendezvous with fighters, target marking and control of fighters.[278]

Upon completion of formal training at Wattay the trainee returned to the R where he flew as a T-28 pilot and worked with the Senior Raven FAC there. At that time he would learn aircraft scheduling, maintenance requirements, VR responsibility, and coordination with T-28 strike aircraft. It was hoped that the original RLAF FAC trainees would gradually assume total FAC responsibilities in the MRs and allow a decrease in the required number of Ravens.[279]

Future of the Ravens

Up to the end of 1971 AIRA contemplated no reduction in the size of the RAVEN FAC force, but in early February 1972, AIRA-Operations prepared a tentative plan for reducing it. This plan was based on the following assumptions:[280]

a. That U.S. strike sorties would decrease through 1972 as the U.S. withdrawal from SEAsia continued.

b. That the RLAF FACs would continue their professional performance.

c. That the U.S. Embassy would grant approval for RLAF to control U.S. airstrikes.

d. That AIRA training capabilities would remain the same or increase.

Although the Rules of Engagement (ROE) did not specifically forbid non-U.S. FACs to control USAF and U.S. Navy strikes, the U.S. Embassy had, in practice, discouraged anyone but Americans from performing this function. It was hoped that the success and demonstrated proficiency of RLAF FACs would eventually lead to a change in Embassy policy.[281/]

If the above assumptions remained valid, AIRA hoped to reduce the number of Raven FACs operating in Laos to 18 (plus the two instructor pilots) and augment them with six RLAF FACs, by 30 June 1972, and by the end of December, to alter the totals to eight and 16, respectively. AIRA would continue indefinitely to be responsible for the training of RLAF FAC personnel.[282/]

CHAPTER VII

RAVEN OPERATIONS

Having examined the evolution of the AIRA FAC programs from 1964 to 1971, brief comments are now appropriate on certain features of the Ravens not previously covered. The following topics are discussed according to their status in late 1971; specific details may have been significantly different in previous years.

Initial FAC Orientation

Upon completion of Phase I/II O-1 training at Wattay Airport, newly arrived Raven FACs were posted to one of the five Lao MRs. It was then the responsibility of the appropriate Senior FAC to provide regional orientation and training for the newcomer. This included a minimum of 12 flying hours and stressed home-base traffic patterns, landings at all FOLs from which the FAC might expect to operate, and acquaintance with known enemy troop locations, gun emplacements, and AAA high threat areas. The FAC also learned radio frequencies and operational procedures employed by the local AOC and the Airborne Battlefield Command and Control Center (ABCCC) operating over that MR. New FACs were required to work one USAF strike mission and one RLAF strike mission prior to completion of MR check-out. The USAF mission requirement was not applicable in MR I and MR V. Also included in the newcomers' orientation were introductions to regional FAR and CAS personnel and local O-1 maintenance procedures. Only after completion of this program was the FAC authorized to operate on his own

with a Lao backseater.[283/] Because of the high degree of familiarity with a particular geographic area required by Raven operations, a FAC would usually spend his entire six-month tour in a single MR.[284/]

Daily Raven Operations

Raven FACs obtained their daily assignments either the previous evening or early in the morning. This information came from a variety of sources, such as face-to-face meetings with local personnel (FAR and AOC officials, CAS, the Senior FAC, AIRA), examination of current situation maps in the AOC, or the ABCCC log from the previous night. Once airborne the FAC contacted friendly ground forces and received further target information or support requests through his Lao observer riding in the backseat of the O-1.[285/] On occasions he would land and substitute his indigenous backseater for one working with the local unit before performing VR or controlling strikes. If a tactical emergency arose once the FAC became airborne, it was necessary to ignore original instructions and proceed to the scene of the fighting.

On days when there were no specific instructions from the AOC or CAS, the Ravens would proceed to a VR area, check in with the ground forces and then perform general VR to develop targets. Through contacts with local forces and gradually acquired experience, the Raven eventually learned to distinguish between friendly and enemy positions, and developed a "feel" for recognizing areas of possible activity. The Ravens also kept a number of "hip-pocket" targets available, in the event strike resources were

available. Over the years the friendly forces came to place great trust and confidence in the Ravens, frequently maintaining their positions in the face of communist attack only because a FAC was overhead.[286/]

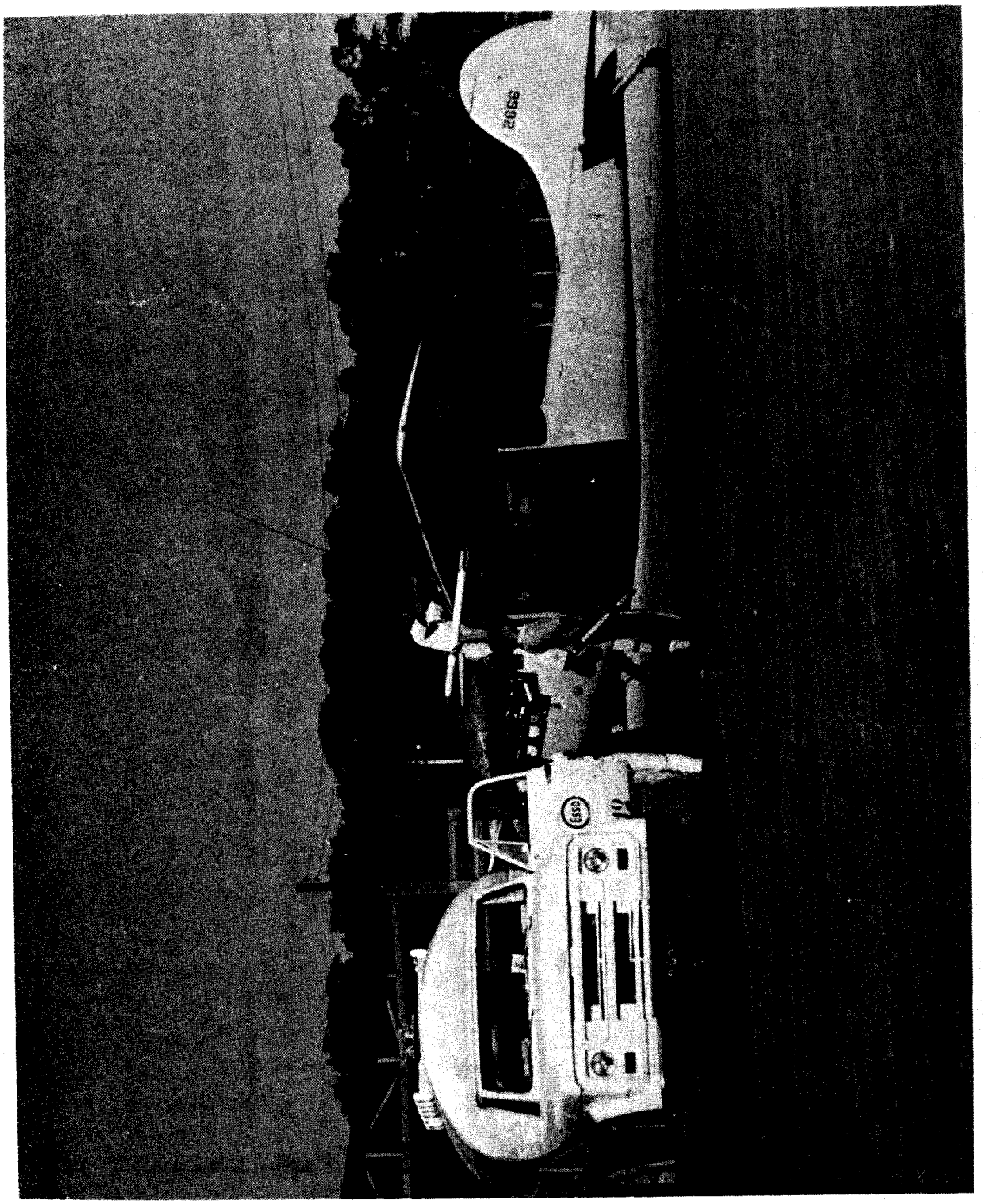
Raven FACs were based at one of the main Lao airfields. Standard practice was for a FAC to fly to the smaller FOLs each morning where they received briefings and picked up backseaters. The FOLs were austerely equipped, but could provide extra white phosphorous (WP, or "Willie Pete") marking rockets and fuel (usually out of barrels using handpumps). Raven pilots recalled one FOL which was part of a busy highway. Standard landing procedure was to make a low pass over the "airstrip" to clear the area of vehicles, children, and animals, and then return and land before the locals had a chance to get back on it.[287/]

At the conclusion of the day's flying activities, Raven pilots were debriefed by AIRA intelligence personnel assigned to each regional AOC. These debriefings were compiled into a daily report which was forwarded to AIRA-Vientiane. The reports from the different AOCs were consolidated into a report called the Office of the U.S. Air Attache Laos Daily Intelligence Summary (OUSAIRA LAOS DISUM). This DISUM was transmitted to U.S. military higher headquarters in SEA and the Pacific area, as well as various addresses in the CONUS. The daily DISUM contained a record of all RLAF airstrikes for the 24-hour reporting period (including those not under Raven control) as well as all Raven-directed USAF and U.S. Navy strike sorties in Laos. In addition, the DISUM was used to report enemy

locations and to recommend targets detected by the Ravens during their VR activities.[288]

Raven call signs were assigned by military region. Thus, call signs in MR I were in the 10's, those in MR II in the 20's, and so forth. Unlike the Butterflys, they were not assigned according to a specific operating area within the MR, but were assigned to an individual FAC for use during his entire six-month tour. Traditionally, the first call sign in each series (Raven 10, Raven 20) was assigned to the Senior FAC in the particular MR. When flying into military or civilian airfields outside of Laos (such as Udorn or Nakhon Phanom), the FACs were not allowed to use the Raven call sign. Instead, they were instructed by AIRA to identify themselves to the control tower by their airplane's tail number.

A separate report would be required to present enough individual FAC mission narratives to adequately describe the diversity of the personal and professional skills required of Raven pilots in Laos. In mid-July 1971, for example, it became necessary for an MR II Raven to aid two friendly patrols on the eastern PDJ which were under heavy attack by enemy mortar fire and infantry. The Raven departed from his home base and proceeded to the patrols' location, having to fly under a 700-foot overcast all the way. Upon arrival on the scene, the position of the opposing ground forces on a steep ridge left only 100 feet of airspace between the crest of the ridge and the overcast in which the O-1 could operate. The FAC attempted to control friendly 155mm artillery fire in



REFUELING AND ARMING RAVEN O-1 AT WATTAY AIRPORT, VIENTIANE

Figure 16

WHITE PHOSPHOROUS 2.75" MARKING ROCKETS UNDER WING OF RAVEN U-17

Figure 17

support of the patrols, but this was unsuccessful. Since strike aircraft were unavailable because of weather the FAC made repeated passes over the enemy mortar position, keeping the gun crew down by use of his marking rockets and smoke grenades dropped by his Lao backseater. This permitted the friendly patrols to disengage and withdraw.[289/]

The FAC soon had to return to his base to rearm and refuel. While there he briefed Lao T-28 pilots concerning the location and nature of the target and advised them of an ordnance delivery method which would permit them to attack the enemy under the marginal weather conditions and avoid receiving framentation damage from the exploding bombs.[290/]

When he returned to the target with the T-28s, the overcast had shifted to permit the T-28s only a short approach run. These conditions required an extremely accurate ground mark to keep the T-28s from striking the withdrawing friendly patrols. Breaking out of the clouds, the FAC fired his first rocket; because of the short distance to the target the rocket had insufficient flight time to arm and thus failed to ignite upon impact. The second attempt was made using a partial Instrument Flying Rules (IFR) approach through the clouds and was successful. Amid intense enemy AAA fire and rapidly deteriorating weather conditions T-28 strikes alternated with additional FAC marker rounds and enabled the friendly patrols to complete their withdrawals to their main camp. Observed BDA included an enemy mortar position and bunkers destroyed, but any further casualty assessment was prevented by foilage, weather conditions, and heavy ground

fire. Upon return to base battle damage to the O-1's horizontal and vertical stabilizers was discovered.[291]

Typical Raven strike control activities were similar to those performed by Raven 28 on 27 August 1971. On that day the FAC flew for six and a half hours and controlled eight F-4s, two A-1s, one AC-130, and numerous T-28 sorties in support of a medical evacuation effort. Reported BDA included four enemy personnel killed by air (KBA), one mortar destroyed and two probably destroyed, two secondary fires, and over a dozen enemy bunkers destroyed or uncovered.[292]

Occasionally intelligence reports were received concerning the appearance of enemy weapons and equipment which significantly enhanced communist capabilities. On those occasions CAS or other U.S. command elements sometimes would offer bonus "incentives" to the FACs for the location and destruction of these usually well camouflaged targets:[293]

> *On 16 March 1971, Raven 23, Mr. _____, located a 122mm field gun. He subsequently directed fighters against this gun, which resulted in its complete destruction. In accordance with referenced message, Mr. _____ hereby lays claim to the prize offered. Preference: Scotch.*

Lao Backseaters

Throughout Laos the Raven FACs continued a practice which originated with the Butterfly program of carrying indigenous personnel (designated "X-Rays") to assist with target location and identification of friendly positions. The presence of these backseaters allowed the Raven limited

validating authority not given to other USAF FACs in Laos. The X-Ray personnel were selected by local Lao commanders and received very basic instructions in both the English language and airborne VR techniques. Language difficulties were encountered frequently, but with time and practice the individual Raven worked out a system of hand signals or written notes to supplement oral communications. The seating arrangements in the O-1 and U-17 facilitated this system.[294/]

Each Raven FAC operated with a variety of backseaters, since the FAC covered an entire MR and each Lao was familiar only with that part in which his unit operated. To pick up these backseaters, often several times a day, the Ravens utilized the STOL airstrips through Laos. As could be expected, some X-Rays were better than others; a good backseater was one who was familiar with his area, knew the relative locations of friendly and enemy forces, spoke adequate English, and did not get airsick.[295/]

Raven Control Boxes

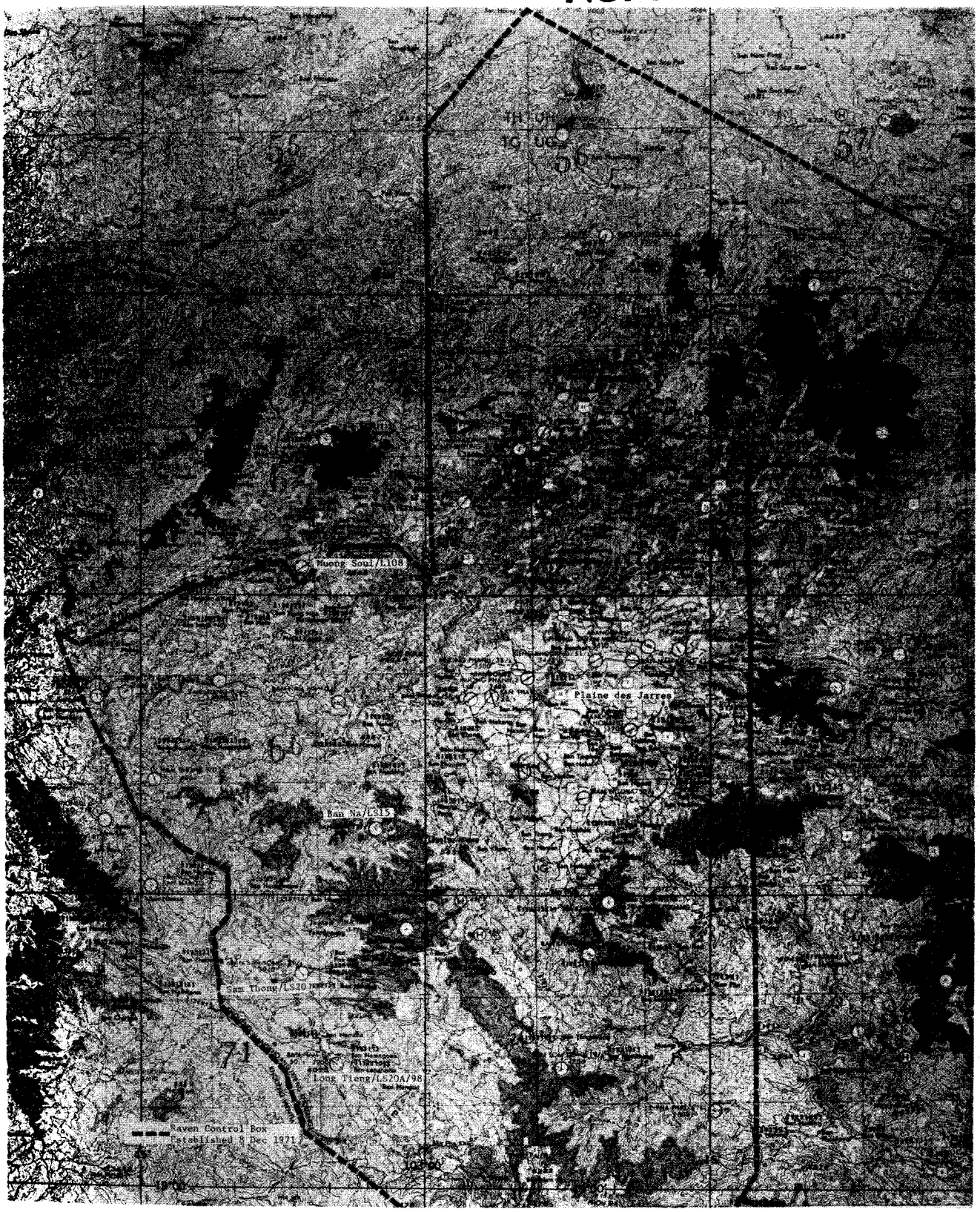
During 1971, AIRA FAC activities in MRs II and IV centered around special strike control zones designated Raven Control Boxes. These were areas of intense and fluctuating tactical activity in which precise and up-to-date knowledge of friendly and enemy locations was necessary to safely and effectively control airstrikes. Troops in contact (TIC) situations requiring close air support occurred daily, with the attendant risk of short rounds or bombing errors.

During daylight hours all airstrikes within the control boxes had to be under Raven control. At night, USAF gunships were allowed to expend ordnance or perform FAC duties for other USAF strike aircraft in the control box only if they were in radio contact with Lao Forward Air Guides (FAGs) accompanying friendly ground troops. Other IFR strikes had to be either specifically approved by the Embassy in Vientiane or requested by AIRA.[296/] Figures 18 and 19 show the limits of the Raven Control Boxes in August and December 1971.[297/] Their specific dimensions changed from day-to-day according to the tactical situations; in the event of a friendly or enemy withdrawal from the area, the boxes and their strike restrictions might be discontinued altogether.

Raven Equipment and Living Conditions

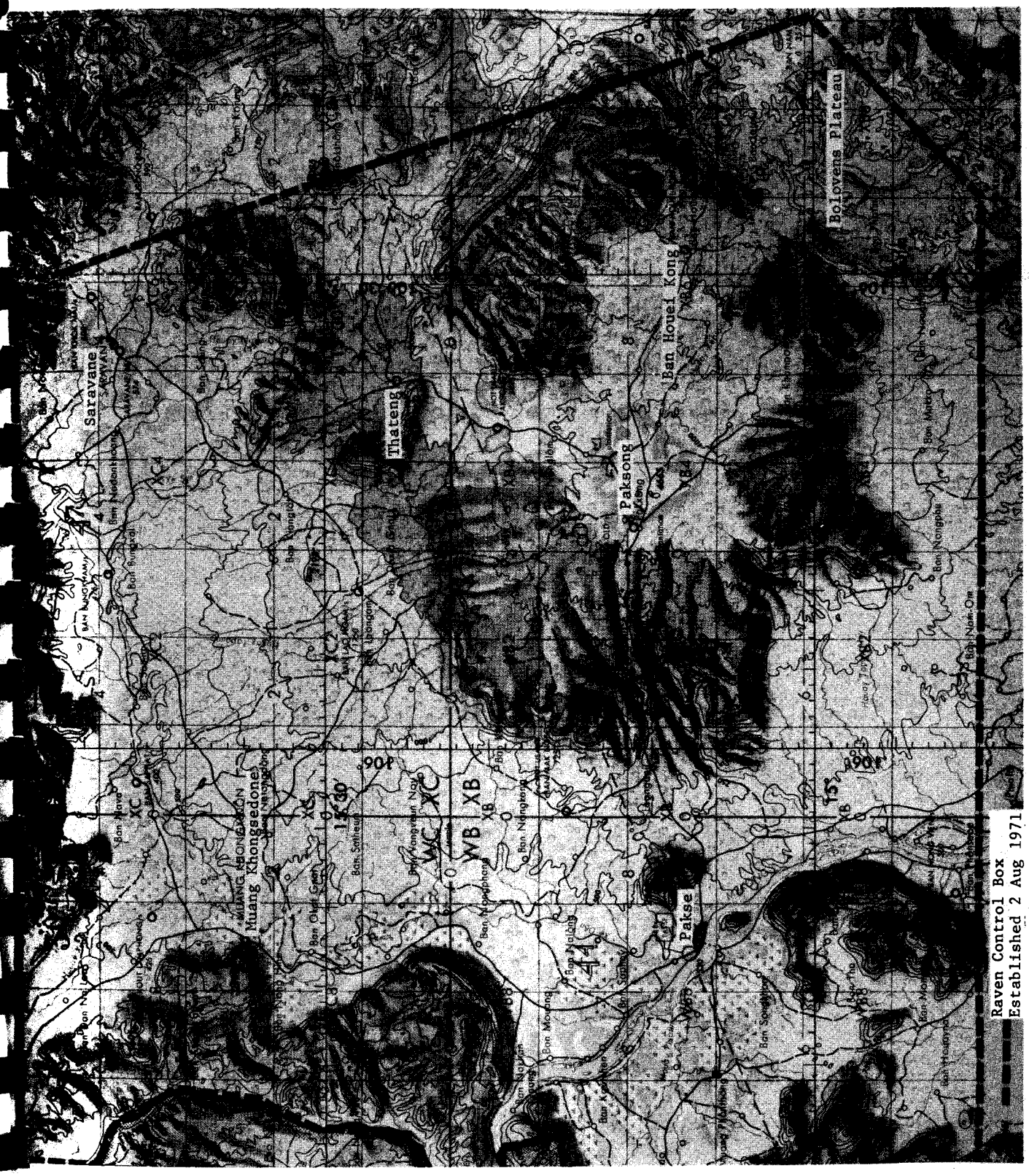
Raven flight clothing consisted either of non-USAF flight suits or suitable civilian clothing. For footwear, the Ravens were allowed to wear standard U.S. military combat boots in order to allow them to engage in escape and evasion (E&E) activities if their O-1 was downed.[298/] Other optional but practically standard items of the Raven "uniform" were a gold and silver ID bracelet specially designed and made in Vientiane, and Lao officer's ring.

Standard Raven flight equipment included radios, maps, notebooks, and USAF E&E and survival gear. The pilots also carried AKC275 codewheels to encode the map coordinates of targets for transmission to strike aircraft. All other information was passed in the clear, since target information other



RAVEN CONTROL BOX IN NORTHERN LAOS

Figure 18



RAVEN CONTROL BOX IN SOUTHERN LAOS

Figure 19

than the location did not require encryption.[299/]

Up to mid-1969 the Ravens carried captured communist AK-47 rifles for protection in case they were forced down in hostile territory. Because of its length, the standard issue M-16 rifle was too cumbersome to fit in the small cockpit of Raven aircraft. In August 1969, AIRA requested that Det 1, 56 SOW initiate the procurement of CAR-15 sub-machine guns (a collapsible-stock version of the M-16).[300/] This weapon, along with a .38 caliber pistol, became the standard Raven sidearms.[301/]

Raven and AOC personnel living quarters at the major bases (Vientiane, Luang Prabang, Savannakhet and Pakse) were air conditioned, with two or more men sleeping in each room. Communist dining facilities were provided. Conditions were more austere at the main MR II base (Long Tieng), where personnel lived in a compound in rooms equipped with ceiling fans. MR II quarters also included plug-in electric heaters for cold weather.[302/]

CHAPTER VIII

CONCLUSION

The Raven FAF program had its beginnings with the air strike control services provided to the RLAF by Air America and later by the WATERPUMP Detachment at Udorn. These operations supported Lao MR II Commander General Vang Pao, who required sustained air support to successfully oppose superior communist forces in northern Laos. Vang Pao's forces were deficient in artillery support; in effect, air power became his "artillery," and the Butterfly/Raven program was indispensable for the safe and accurate use of this weapon.

The Butterfly/Raven operation underwent practically no change in basic concepts from 1964 to 1971. Throughout the period the FACs operated in a clandestine fashion from various operating locations within Laos where they lived with the Lao forces. Tight control was exercised at all times by AIRA Vientiane and the Ambassador to Laos. Consequently, the program remained outside of regular USAF command channels in SEA. The airstrike control mission of the AIRA FACs also remained constant throughout the period, and only in 1971 did the Ravens begin to assume an additional training role, designed to eventually turn the operation over to the RLAF.

While the FAC mission remained basically unchanged over the seven years, the resources devoted to the program expanded dramatically. Starting

with a half dozen USAF officer and enlisted personnel working on a part-time basis with Lao forces during Operation TRIANGLE, the program soon centered around a small number of USAF rated and non-rated personnel controlling airstrikes on a full-time basis from borrowed civilian aircraft. By mid-1967 the FAC effort in BARREL ROLL had been handed over to regular USAF FACs and a similar program was struggling to get started in southern Laos. During the next four years the Raven program grew from six pilots and a fluctuating number of inadequately-equipped FAC aircraft to its December 1971 authorized strength of 28 pilots and approximately 20 FAC-configured O-1s, as well as a small number of U-17s. This expansion was a direct result of increased communist strength throughout Laos and the constantly escalating level of USAF air support.

The uneven nature of this expansion, however, was one of the Ravens' greatest weaknesses. Only in 1969 was a serious effort made to determine the basic requirements of the program and establish systematic and orderly arrangements to obtain (and expand when necessary) Raven resources. A direct result of these efforts was the Raven Memorandum of Understanding of August 1969.

Conclusions and Lessons

An examination of the history of the AIRA FAC programs in Laos from 1964 to 1971 leads to certain conclusions which are instructive for any future USAF-sponsored programs of this type.

AIRA-Vientiane's Butterfly/Raven program demonstrated the feasibility of conducting a clandestine USAF FAC effort as part of a larger conventional war in the same geographical area. The collocation of clandestine and conventional operations proved vital to the success and continued existence of the Raven program, since without the availability of 7AF strike assets to support Lao forces, the RLG almost certainly would have been taken over by the communists. This would have removed any reason for having the Raven program in the first place. The Ravens for their part provided the strike control necessary for the effective and safe use of USAF strike sorties.

The Ravens also benefited greatly from the maintenance, logistical, and personnel support provided by nearby USAF units. By late 1971 the Ravens were drawing upon the pilot resources of the 504TASG and the administrative support of the WATERPUMP Detachment at Udorn. Maintenance was performed by Air America's Udorn facility. Timely assistance had also been provided by those senior U.S. Headquarters (7AF, PACAF, CINCPAC) responsible for military activities in SEA.

One of the greatest lessons to be learned from the Butterfly/Raven program was the need to adequately plan so that all mission-essential personnel and material support would be readily available when required. Although the AIRA FAC program began in a very makeshift fashion, it soon was obvious to AIRA that U.S. interests would best be served by formally establishing the program and issuing documents specifying resource procurement and support arrangements. To accomplish this, AIRA, in late

1967, sought to have the 504TASG made responsible for supporting all aspects of the FAC program. This resulted in Raven manpower spaces being assigned to and filled by the 504th, although aircraft procurement and maintenance were still managed on a case-by-case basis. Only after the maintenance difficulties of late 1968 and the Raven FAC Survey of January 1969 were specific taskings and an official document (the August 1969 Memorandum of Understanding) drawn up. The efforts of the 504TASG throughout this period to fill AIRA's pilot needs in the face of dwindling O-1 resources were particularly noteworthy.

From 1967 until early 1969 AIRA displayed a tendency to put off expanding the program or correcting deficiencies until it was almost too late. During this period higher headquarters also were equally slow to react, and often had to be faced with the imminent collapse of the FAC program before they would accommodate AIRA's requests. The program was expanded and improved only in direct relation to the rise in enemy military activity and the corresponding increase in USAF strike sorties. It can be argued that since an accurate prediction of the intensity of any future enemy effort was impossible, this was the only feasible course of action. U.S. commanders, however, should have appreciated the demands which planned friendly offensive efforts would place on the Ravens, and adjusted the size of the FAC force accordingly. After early 1969, the rapid response of 7AF and PACAF to AIRA's requests for augmentation [illegible]ified to the increased appreciation of the value and importance of the program.

A final lesson derived from the Raven program is one that was appreciated from its very beginning: The need for the greatest degree of simplicity possible in all phases of such operations. This was reflected in the use of the easily-maintainable O-1 aircraft and the care taken to keep communications and on-site maintenance equipment as basic as possible. By the end of 1971 this factor was becoming increasingly important, as plans went ahead to eventually turn the Laos FAC program over to RLAF personnel.

APPENDIX I

~~SECRET~~ ~~NOFORN~~

BOX 404
APO SAN FRANCISCO 96237

REPLY TO
ATTN OF: Chief FAC

25 Nov 1969

SUBJECT: Assignment to Raven FAC Program

TO: Newly Assigned Pilots

1. This letter is aimed at providing an initial briefing for the newly assigned Raven FAC, to guide his actions, following reassignment from a 7th or 13AF tactical unit, after leaving his old unit and en-route to Udorn for in-processing. It contains sensitive information, will not be removed from the immediate briefing area, and will not be reproduced. It is intended to be read jointly with AIRA, Vientiane Operating Instruction 55-1, dated 15 Nov 1969.

2. Most questions should be answered by a reading of OI-55-1 and the following information:

a. Re-assignment. FAC's are assigned, for administrative purposes, to Detachment 1, 56th SOW, APO 96237 (Udorn). Orders are published by the losing CBPO directing this reassignment and it is important that a complete out-processing be conducted and all records picked up and hand carried by the officer. Records which are to be "forwarded later" invariably get lost and the long distance negotiation involved in tracing them is always time-consuming and difficult.

b. Transportation. The best possible method is via Scatback (T-39) Courier from Tan Son Nhut to Udorn, however booking must normally be done about three weeks in advance and even then it is not guaranteed. Normally, airlift to Bangkok from Saigon is the easiest to arrange and two daily flights leave Don Muang (Bangkok Airport) direct to Udorn. Booking for these is made, in person, or by telephone, at the downtown Military Air Terminal in Bangkok. If unusual difficulties are encountered, call the Administrative Officer, Det 1, 56 SOW (Telephone: 974-2262/2046) who should be able to assist. If possible, call him with flight number and arrival time at Udorn when known, and he will arrange to have the aircraft met and transportation to quarters arranged.

c. Arrival at Udorn. If arriving during duty hours, call the Det 1 Administrative Officer and request transportation to his location (He is located on the second floor on the southern side of the southernmost hangar in the Air America compound.).

~~SECRET~~

If after duty hours, check in with Base Billeting, who will assign you overnight quarters, probably in a downtown hotel. Do not request permanent quarters at this time. Report at 0730 the following morning, with all records, to CBPO In/Out Processing Center. Whenever time and circumstances permit, call Det 1 and inform them of your presence. In-processing normally takes about three hours in the morning. Detailed in-processing requirements are contained in OI-55-1, paragraph 9. The stay at Udorn will normally be about one week, dependent on the day of the week arrived (some of the required briefings are given by the 432nd TRFW and take place only once a week).

d. Assignment to Site. Nearly half of the assigned FAC's go to Long Tieng (20A), where they support operations in MR II, particularly around the critical Plain de Jarres area. The remainder go to the other four sites (about 3 each) where their duties are similar but generally more closely tied to the indigenous tactical air situation and the support of Royalist troops in smaller, but important, ground operations. Some of these will become involved in the training of RLAF FAC's and all will be associated with the advice and assistance to the RLAF development of a tactical air system. This assignment is made, based on rotational losses, by the Chief FAC. During the course of the tour, it is possible, on request, to change sites after several months at one location. Some FAC's find it a desirable broadening of their education to spend half a tour at Long Tieng and the other half at one of the other sites. It is usually possible to arrange this.

e. Quarters. Government quarters, but not messing, is provided at all sites. This takes the form of a rented house, air-conditioned bedrooms (except at Long Tieng, where the altitude is such that it's not required) which are occupied normally by one or two officers. These quarters will be superior, in almost all instances, to those occupied by most FAC's in RVN. Cooking, maid and laundry service is provided by locally-hired Lao/Meo/Thai civilians. The food is procured through the US Embassy commissary in Vientiane, supplemented by local fresh produce. The cost of the food and the indigenous employees' wages are shared by the site residents.

f. Finances. The following additional allowances are currently being paid to Raven FAC's who are assigned to Det 1, 56 Specl Ops Wg, authorized to live off the base, and spend most of their time TDY to Laos.

Type	Monthly (30 day) Allowances 1st Lt	Captain	Major
COLA (Index 108)	30.00	34.50	37.50
BAQ/FSA-1	95.10	105.00	120.00
Per Diem (Max)	240.00	240.00	240.00
Combat Pay	65.00	65.00	65.00
BOQ Fees (Max)	60.00	60.00	60.00
Total	490.10	504.50	522.50

g. Medical Aid. A Flight Surgeon is usually assigned to Long Tieng and an enlisted medical technician to each of the other sites. Their duties are varied and include a significant amount of civic action responsibilities in the local, relatively primitive communities. Personnel requiring attention beyond first aid are airlifted to the 432d USAF Dispensary at Udorn.

h. What to Bring. FACs are required to fly with the normal items of personal equipment used in RVN, with the exception of USAF flying suits. Those items which are normally transferrable should be brought along. Weapons, binoculars, survival equipment, etc., are available for issue at Det 1. Uniforms are not required during any part of the Raven tour and, if brought, will be stored at Udorn. However, when the tour is over, the final PCS move back to the States will require a uniform. To this end, it is probably advisable to wear one set of 1505s to Udorn, have it laundered and locked away to be worn on the homeward trip. Many FACs have a form of flying suit manufactured by Thai tailors at Udorn, while others prefer to fly in shirt and trousers. Whatever the individual preference, common sense rules still apply in wearing clothing that will protect the pilot both in the air and while walking home. "Jungle boots" issued in RVN are the preferred footwear. Social life at the sites will not require any special clothing and the laundry service is good, so the only clothing requirement, beyond that discussed above, will be that required for breaks in Udorn/Bangkok and on leave/R&R. There are no real shortages of standard toilet articles and sundries, most of which are individually resupplied during the fairly frequent trips to Udorn.

i. Final Briefing. Following completion of in-processing at Udorn, the Chief FAC is advised by the Det 1 Administrative Section and will arrange air transportation to Vientiane, where final processing, prior to reporting to a site, is completed. This is a mandatory procedure and no FAC may proceed to his site without clearance to do so, following Vientiane briefing. The time in Vientiane is normally two days and consists of administrative processing, a full day of intelligence briefing (including a thorough repeat of Rules of Engagement), and a comprehensive briefing by the Chief FAC on the rules of the program, etc.

3. Any specific questions not answered by this letter and the attached OI 55-1, may be referred to "Mr (Chief FAC's name) at 977-6054/2522/2523, taking care to avoid reference to the presence of USAF personnel in Laos.

FOR THE AIR ATTACHE

A L PATTEN
Chief, FAC

APPENDIX II

OUSAIRA OPERATING INSTRUCTION NO. 55-4

OFFICE OF THE US AIR ATTACHE, AMERICAN EMBASSY
Vientiane, Laos
9 November 1970

Operations

NIGHT FLYING BY AIRA PERSONNEL

PURPOSE: To prohibit all but absolutely necessary night flying by AIRA personnel.

1. GENERAL: AIRA pilots, with the exception of the AC-47 advisor, do not have a night mission in Laos. Due to the difficulties of a night SAR effort, lack of reliable navigation aids, erratic runway lighting systems at primary airdromes in Laos, and primitive aircraft navigational systems, night flying by AIRA personnel is prohibited.

2. PROCEDURES:

a. AIRA personnel will not fly during the hours of darkness unless authorized for a specific mission by the Director of Operations.

b. No AIRA pilot will remain airborne into the hours of darkness unless necessitated by an emergency (I. E SAR). All occurrences of this will be immediately reported by the applicable AOC to the AIRA Command Post.

HAYDEN C. CURRY, Colonel, USAF
Air Attache

OPR: OUSAIRA-OPS
DISTRIBUTION: 1 cy ea section; 1 cy ea site; 1 cy file

OUSAIRAOI 55-1

OUSAIRA OPERATING INSTRUCTION NO. 55-5

OFFICE OF THE US AIR ATTACHE, AMERICAN EMBASSY
Vientiane, Laos
22 December 1970

Operations

RAVEN FAC OPERATION

PURPOSE: This directive establishes policy for Raven Fac operations.

CONCEPT OF OPERATIONS: The Raven FACs are authorized in Laos by the United States ambassador. They are under the operational control of the Air Attache, for purposes of assisting the AOC commander in providing forward air control and air liaison to the Military Region Commander. The number of Raven FACs will be as required to support the military region ground forces. The Raven FACs will provide strike control for both USAF and RLAF aircraft.

RESPONSIBILITIES:

1. The Chief FAC is a member of the AIRA staff and is responsible to the AIRA Director of Operations. He will:

a. Establish requirements and procedures for Raven FAC operations.

b. Maintain rapport and communications with the AOC Commanders.

c. Insure assignment of sufficient FACs and their professional competence.

d. Standardize all FAC activities.

e. Maintain close liaison with the 504th TASG and Commander at Det 1 56 SOW.

f. Recommend to the Director of Operations personnel selected to be Senior FAC at each AOC.

2. The Senior FAC will assist the AOC Commander and act as the air liaison officer (ALO) for the Military Region Commander. The Senior FAC is directly responsible for all FACs located in his AOC, and is designated the deputy AOC Commander.

3. Each Raven FAC is responsible for compliance with the ROE and other special flight and ordnance delivery restrictions.

HAYDEN C. CURRY, Colonel, USAF
Air Attache

OPR: AIRA-OPS
DISTRIBUTION: 1 cy each section [illegible] ite; 1 cy file

OFFICE OF THE US AIR ATTACHE
American Embassy
Vientiane, Laos

OUSAIRA OPERATING INSTRUCTION 55-2

12 August 1971

Operations

T-28 FLYING BY USAF PILOTS IN LAOS

PURPOSE: To define the conditions for USAF pilots flying T-28 aircraft in Laos.

1. GENERAL: The U.S. Ambassador to Laos has prohibited USAF pilots from flying T-28 strike sorties originating in Laos. U.S. policy, based on the 1962 Geneva Accords, has been to maintain our combatant endeavors to the lowest level consistent with our mission. Flying T-28 strike sorties launched within Laos is considered an unwarranted escalation which could result in damaging publicity.

2. PROCEDURES:

a. Sorties originating in Laos.

(1) No USAF pilot will fly a strike sortie in the T-28 aircraft originating in Laos. A strike sortie is defined as a sortie that involves carrying ordnance of any type.

(2) No AIRA personnel or other American will fly as an advisor, instructor, or observer on T-28 strike sorties originating in Laos.

(3) The AOC advisor may test fly the T-28 for maintenance purposes only. He will also be allowed to ferry the T-28 or to fly for the purpose of liaison, with the concurrence of the Director of Operations.

(4) The AOC advisor may conduct training missions for Lao pilots, i.e., instrument, navigation, but never with ordnance on the aircraft. Each training flight must be approved by the Director of Operations.

(5) FAC missions in the T-28 are not considered strike sorties. FAC aircraft will not carry ordnance other than 2.75 smoke rockets.

(6) Exceptions to any of these procedures require AIRA approval.

b. Pilot Training sorties orginating in Thailand. T-28 USAF Instructor pilots may fly with RLAF student combat training sorties with the following restrictions:

This OI supersedes OUSAIRAOI 55-2, 9 Nov 70
OPR: OUSAIRA/OPS
DISTRIBUTION: 1 cy ea section; 1 cy ea site; 1 cy Det 1 56SOW; 1 cy 7/13AF
1 cy file

(1) Missions must be part of the Det 1, 56th SOW T-28 pilot training syllabus.

(2) Targets being struck must:

(a) Have no friendlies located in the area.

(b) Have no more than very light defenses against air attack.

(c) Be located within Laotian MR-V and 100 NM of Udorn.

(d) Be selected where targets in impact point will not cause unwanted damage to surrounding areas.

(e) Have good reference points to enable student attempts at pin point bombing.

(f) Have no heavily defended areas on routes to and from targets.

(3) All training strike sorties must be directly controlled by a combat FAC.

(4) All sorties will be flown in flights of three or four aircraft.

(5) Specific information as to dates, times and number of sorties must be forwarded to AIRA for approval. This should be done in sufficient time to allow for scheduling of FACs and verification of targets.

(6) AIRA may apply additional restrictions as deemed necessary.

HAYDEN C. CURRY, Colonel, USAF
Air Attache

SAMPLE FORM LETTER

FROM:

SUBJECT: Application for Steve Canyon Program

TO: 504th TASGp (DOX)
Attn: Steve Canyon Project Officer

1. I hereby volunteer for the Steve Canyon Program.

2. Marital Status:

3. Present duty and total flying time:

a. Date of Rank:

b. (Flying time by aircraft for last three or four acft)

c.

d.

4. Present DEROS and agreement to extend if necessary to assure six months retainability after reporting for duty. You may specify a not later than date.

5. Date you can be released from present duty.

6. Any comments that might enhance your qualifications.

SIGNATURE BLOCK

(1st & 2nd Inds) - A written statement of recommendation by your immediate supervisor, operations officer, and/or commander stating whether or not he is familiar with this program and validating your qualifications. If your commander is not familiar with this program, the 504th will arrange either a personal letter or visit with your commander to discuss your application. These statements may be brief.

SAMPLE FORM LETTER

FOOTNOTES

1. Corona Harvest Report (S), Waterpump 1964-1965, A Special Report, Aerospace Studies Institute, Air University, Maxwell Air Force Base, Alabama, January 1970, pp. 1-2. (Hereafter cited as Corona Harvest - Waterpump.)

2. Ibid.

3. Briefing Script (S), undated (probably 1966). (CHECO Secret Microfilm 94, fr 55.)

4. Project CHECO Report (S), Air Support of Counter Insurgency in Laos, July 1968 - November 1969, Hq PACAF, 10 November 1969, p. 20. (Hereafter cited as CHECO 1.)

5. Project CHECO Report (TSNF), USAF Reconnaissance in SEA, 1961-1966, Hq PACAF, 25 October 1966, pp. 4-6. (Hereafter cited as CHECO 2.)

6. Project CHECO Report (SNF), The Royal Laotian Air Force, 1954-70, Hq PACAF, 15 September 1970, p. xv. (Hereafter cited as CHECO 3.)

7. Ibid., pp. xv-xvi.

8. Op. cit., CHECO 2, pp. 4-6.

9. Op. cit., CHECO 1, pp. 1; 18.

10. Op. cit., Corona Harvest - Waterpump, p. 9.

11. Op. cit., CHECO 3, pp. 11-12.

12. Project CHECO Report (TSNF), Yankee Team, May 1964-June 1965, Hq PACAF, 8 March 1966, p. 1.

    Project CHECO Report (S), USAF Operations from Thailand, 1964-65, Hq PACAF, 10 August 1966, p. 29. (Hereafter cited as CHECO 4.)

13. Op. cit., CHECO 3, p. 16.

14. Op. cit., CHECO 4, p. 102.

15. Project CHECO Report (TSNF), Air Operations in Thailand, 1966, Hq PACAF, 31 October 1967, p. 4. (Hereafter cited as CHECO 5.)

16. Op. cit., CHECO 2, p. 20.

17. Op. cit., CHECO 4, p. 29.

18. Op. cit., CHECO 3, p. 17.

19. Ibid., pp. 17-18.

20. Op. cit., CHECO 4, p. 31.

21. Ibid., p. 39.

22. Project CHECO Report (TSNF), LUCKY TIGER Combat Operations, Hq PACAF, 15 June 1967, p. 3. (Hereafter cited as CHECO 6.)

Op. cit., CHECO 1, p. 24.

23. Op. cit., CHECO 4, p. 115.

24. Interview (SNF), Subject: "Butterfly and Raven FACs," with Colonel Harry C. Aderholt, Commander, 56SOW, 1966-67, by Captain Henry S. Shields, Project CHECO, at Bangkok, Thailand, on 13 December 1971, pp.1-2. (Hereafter cited as Aderholt Interview.)

25. Op. cit., CHECO 4, pp. 115-25.

26. Interview (SNF), Subject: "AIRA FAC Programs and Air America," with Major Joseph W. Potter, Member of WATERPUMP Detachment in 1964; Pilot for Air America, 1965-68; AOC Commander at Long Tieng, August 1969 to January 1970, by Captain Henry S. Shields, Project CHECO, at Bangkok, Thailand, 7 January 1972, pp. 7-8. (Hereafter cited as Potter Interview.)

27. Op. cit., CHECO 3, p. 19.

28. Op. cit., CHECO 4, pp. 55-7.

29. Ibid., pp. 70-1.

30. Ibid., p. 71.

31. Project CHECO Report (TSNF), ROLLING THUNDER, March-June 1965, Hq PACAF, 28 March 1966, p. 1.

32. Op. cit., CHECO 4, p. 57.

33. Ibid., pp. 57-9; 67-9.

34. Ibid., p. 74.

35. Ibid., p. 85.

36. Ibid., pp. 74-5.

37. Ibid., p. 85.

38. Ibid.

39. Ibid.

40. Ibid., pp. 85-6.

41. Ibid., p. 86.

42. Ibid., p. 87.

43. AIRA Memorandum (SNF), Mr. Solomon to Colonel Pettigrew, Subject: "Recommendation - FAC Mission, 18 September 1967." (In AIRA-Operations files, Vientiane.)

44. Op. cit., Potter Interview, pp. 1-2.

45. Ibid.

46. Undated (Probably early 1970) Working Paper (S), in AIRA-Operations files, Vientiane, p. 2. (Hereafter cited as Undated Working Paper.)

47. AIRA Memorandum (SNF), Mr. Solomon to Colonel Pettigrew, Subject: "Recommendation-FAC Mission, 18 September 1967. (In AIRA-Operations files, Vientiane.)

48. Op. cit., Aderholt Interview, pp. 4-5.

Interview (SNF), Subject: "Butterfly and Raven FAC Programs," with Colonel Harry C. Aderholt, Commander, 56SOW, 1966-67; Colonel Paul Pettigrew, US Air Attache to Laos, 1965-68; and Lt Colonel Jerome W. Klingamen, AOC Commander, Vientiane, 1966-7, and AOC Commander, Pakse, 1968-69, by Captain Henry S. Shields, Project CHECO, at Bangkok, Thailand, on 7 January 1972, p. 2. (Hereafter cited as Aderholt, Pettigrew, Klingamen Interview.)

49. Op. cit., CHECO 3, p. 22.

50. Op. cit., CHECO 4, p. 75.

51. Op. cit., Aderholt Interview, p. 4.

52. Op. cit., Potter Interview, p. 3.

53. Interview (SNF), Subject: "Butterfly FAC Program," with Lt Colonel John Garrity, AIRA MR II Intelligence Officer, 1966, by Captain Henry S. Shields, Project CHECO, at Udorn RTAFB, Thailand, on 3 December 1971, p. 2. (Hereafter cited as Garrity Interview.)

Op. cit., Aderholt Interview, p. 15.

54. Memorandum (S), 7/13AF/DO to DC, Subject: "Bangos, Butterflys, DOGPATCH, and SAM," 21 September 1966. (CHECO Top Secret Microfilm 94, fr 59.)

55. Op. cit., Garrity Interview, p. 9.

56. Op. cit., Aderholt Interview, p. 5.

57. Ibid., p. 8.

58. Op. cit., Garrity Interview, p. 8.

59. Message (S), AIRA to CINCPACAF, No subject, 300401Z MAY 66. (In AIRA-Operations files, Vientiane.)

60. Ibid.

Message (U), CSAF to AIRA, No subject, 062145Z MAY 66. (In AIRA-Operations files, Vientiane.)

Message (S), CINCPACAF to AIRA, Subject: "Logging of Flying Time," 070354Z JUN 66. (In AIRA-Operations files, Vientiane.)

61. Op. cit., Aderholt, Pettigrew, Klingamen Interview, p. 3.

62. Op. cit., Garrity Interview, p. 3.

63. Ibid., pp 9-10.

64. Op. cit., Aderholt Interview, pp. 3-5.

Op. cit., Garrity Interview, p. 2.

65. Op. cit., Aderholt, Pettigrew, Klingamen Interview, p. 3.

66. Ibid.

67. Op. cit., Garrity Interview, pp. 23-24.

68. Op. cit., CHECO 6, p. 5.

69. Op. cit., Garrity Interview, p. 13.

Op. cit., Aderholt Interview, p. 6.

70. Op. cit., Garrity Interview, pp. 13-14.

71. Ibid., p. 15.

72. Message (SLNF), 7/13AF to 7AF and 388TFW, Korat RTAFB, Subject: FAC Target Marking Capability, 051807Z SEP 66. (CHECO Secret Microfilm 94, fr 112.)

73. Ibid.

74. Op. cit., Aderholt Interview, p. 6.

75. AIRA Memorandum (SNF), Mr. Solomon to Colonel Pettigrew, Subject: "Recommendation - FAC Mission," 18 September 1967. (In AIRA Operations files, Vientiane.)

76. Op. cit., Garrity Interview, p. 23.

77. Message (SNF), AIRA to 7AF, Subject: "Requirement for FAC Aircraft," 050350Z JUN 67. (In AIRA-Operations files, Vientiane.)

78. Op. cit., Garrity Interview, p. 23.

79. Op. cit., Aderholt Interview, p. 4.

80. Op. cit., Aderholt, Pettigrew, Klingamen Interview, p. 4.

81. Project CHECO Report (S), The Defense of Lima Site 36, Hq PACAF, 25 May 1966.

82. Project CHECO Report (SNF), The Second Defense of Lima Site 36, Hq PACAF, 28 April 1967, p. 9.

83. Op. cit., Garrity Interview, pp. 15-16.

84. Ibid., p. 8.

85. Op. cit., Garrity Interview, p. 16.

86. Op. cit., CHECO 4, pp. 76-9.

87. Op. cit., Garrity Interview, p. 17.

88. Letter of Understanding (S) (Future Air Operations N. Laos), to USAIRA, Vientiane, and 7/13AF, 11 April 1966. (CHECO Secret Microfilm 94, fr 58.)

89. Op. cit., Garrity Interview, pp. 16-17.

90. Ibid.

91. Op. cit., Aderholt Interview, p. 7.

92. Ibid.

93. Op. cit., CHECO 5, pp. 87-90.

94. Project CHECO Report (S), The Defense of Attopeu, Hq PACAF, 16 May 1966.

95. Interview (SNF), Subject: "AIRA FACs in STEEL TIGER," with Major Ray Hamilton, Chief of AIRA Intelligence, by Captain Henry S. Shields, Project CHECO, at OUSAIRA, Vientiane, 6 December 1971, p. 1. (Hereafter cited as Hamilton Interview.)

96. Ibid., p. 2.

97. Ibid., p. 2; p. 5; p. 8.

98. Ibid., pp. 2-4.

99. Message (TSNF), 7/13AF to 7AF, Subject: "Request for Airstrikes," 22 April 1967.

100. Op. cit., Hamilton Interview, pp. 2-4.

101. Op. cit., CHECO 6, pp. 97-104.

Op. cit., Hamilton Interview, pp. 4-5.

102. Message (SNF), AIRA to 7/13AF, No subject, 230700Z JUL 67. (In AIRA-Operations files, Vientiane.)

103. Message (SNF), 7/13AF to 7AF, No subject, 240950Z JUL 67, and handwritten note on message. (In AIRA-Operations files, Vientiane.)

104. Message (SNF), AIRA to 7AF, Subject: "Requirement for FAC Aircraft," 050350Z JUN 67. (In AIRA-Operations files, Vientiane.)

105. Ibid.

106. Ibid.

107. Message (SNF), 7AF to AIRA, No subject, 080550Z JUN 67. (In AIRA-Operations files, Vientiane.)

108. Message (SNF), AIRA to 7AF, Subject: "FAC Aircraft Laos," 11 June 1967. (In AIRA-Operations files, Vientiane.)

109. AIRA Memorandum (SNF), Colonel Pettigrew to Mr. Solomon, Subject: "Recommendation - FAC Mission, 18 September 1967, pp. 1-2. (In AIRA-Operations files, Vientiane.)

110. Message (S), AIRA to 7/13AF, Subject: "O-1 FAC Aircraft," 240500Z SEP 67. (In AIRA-Operations files, Vientiane.)

111. Ibid.

112. Message (S), 7AF to 504TASG and 23TASS, Subject: "Loan of O-1 Aircraft," 301117Z SEP 67, and handwritten note on message. (In AIRA-Operations files, Vientiane.)

Message (SNF), AIRA to 504TASG, Subject: "Loan of O-1 Aircraft," 090245Z OCT 67. (In AIRA-Operations files, Vientiane.)

113. Message (SNF), AIRA to 504TASG, Subject: "Loan of O-1 Aircraft," 090245Z OCT 67. (In AIRA-Operations files, Vientiane.)

114. Message (SNF), AIRA to 7AF, Subject: "504 TAC Support Group FACs Assigned to Laos," 260335Z AUG 67. (In AIRA-Operations files, Vientiane.)

115. Ibid.

116. Message (SNF), 504TASG to 7AF, Subject: "TDY of FACs and O-1 Aircraft," 311030Z OCT 67. (In AIRA-Operations files, Vientiane.)

Message (SNF), 7/13AF to 7AF, Subject: "TDY FACs," 060445Z NOV 67. (In AIRA-Operations files, Vientiane.)

117. Message (S), 7AF to AIRA, Subject: "TDY FACs in Laos," 010600Z SEP 67. (In AIRA-Operations files, Vientiane.)

118. Message (SNF), 7/13AF to 7AF, Subject: "TDY FACs," 060445Z NOV 67. (In AIRA-Operations files, Vientiane.)

119. Message (SNF), 504TASG to 7AF, Subject: "TDY FACs and O-1 Aircraft," 311030Z OCT 67. (In AIRA-Operations files, Vientiane.)

120. Message (SNF), AIRA to 7AF, Subject: "504 TAC Support Group FACs in Laos," 260335Z AUG 67. (In AIRA-Operations files, Vientiane.)

121. Message (TS), 7/13AF to 7AF, Subject: "47th 7/13 Weekly Joint Recommendation of Targets for Air Operations in the BARREL ROLL and STEEL TIGER Areas," 060945Z SEP 67. (CHECO Top Secret Microfilm 30, Fr 125.)

122. Message (TS), 7/13AF to 7AF, Subject: "49th 7/13 Weekly Joint Recommendation of Targets for Air Operations in the BARREL ROLL and STEEL TIGER Areas," 21 September 1967. (CHECO Top Secret Microfilm 30, fr 126.

123. Interview (TS), Subject: "Raven FAC," with Colonel Sonnenberg, Director of AIRA Operations, 1969, by Project CHECO, on 13 May 1969, p. 1. (On CHECO Top Secret Microfilm 64, frs 112-116.)

124. Op. cit., Hamilton Interview, pp. 8-9.

Interview (SNF), Subject: "Butterfly/Raven FACs," with Captain Thomas L. Shera, FAC Liaison Officer, AIRA-Operations, by Captain Henry S. Shields, Project CHECO, at OUSAIRA, Vientiane, Laos, on 6-8 December 1971, p. 2. (Hereafter cited as Shera Interview.)

125. AIRA Memorandum (SNF), Colonel Pettigrew to Mr. Solomon, Subject: "Recommendation-FAC Mission, 18 September 1967, p. 2. (In AIRA-Operations files, Vientiane.)

126. Ibid.

127. Ibid., pp. 2-3.

128. Message (SNF), 7/13AF to 7AF, Subject: "TDY FACs, 060445Z NOV 67. (In AIRA-Operations files, Vientiane.)

129. Message (S), AIRA to CINCPAC and 7AF, Subject: "FAC Support," 220530Z NOV 67. (In AIRA-Operations files, Vientiane.)

130. Ibid.

131. Message (S), AIRA to CINCPAC and 7AF, Subject: "FAC Support," 220530Z NOV 67. (In AIRA-Operations files, Vientiane.)

Working Paper (S), no subject, no date (Probably November 1967; content similar to that in 220530Z NOV 67 message above.) (In AIRA-Operations files, Vientiane.)

132. Ibid.

133. Ibid.

34. Message (S), CINCPAC to CINCPACAF, Subject: "Deviation of 31-0-68 FAC (O-1) Aircraft," 161440Z JUN 68. (CHECO Secret Microfilm 448, fr 145.)

135. Message (S), 7AF to 504TASG, Subject: "Transfer of O-1 Aircraft," 260640Z AUG 68. (In AIRA-Operations files, Vientiane.)

136 7AF Background Paper (S), Subject: "FAC Aircraft for Laos," 13 September 1968. (CHECO Secret Microfilm 448, fr 148.)

Letter (U), AIRA to RO, Subject: "Request for O-1A Aircraft, 13 March 1968. (In AIRA-Operations files, Vientiane.)

Letter (U), ARO(AVN), S. L. Chance, to AIRA, Subject: "AIRA Memo of 13 March," Same subject, 13 March 1968. (In AIRA-Operations files, Vientiane.)

137. Message (S), American Embassy, Vientiane to CINCPAC, Subject: "USAF Support for FAC Mission in Laos," 270530Z DEC 68. (CHECO Top Secret Microfilm 74, fr 212.) (Hereafter cited as Embassy 270530Z DEC 68 Message.)

138. Message (TSL), 7AF to CINCPACAF, Subject: "FAC Support, 221110Z JAN 68. (In AIRA-Operations files, Vientiane.)

139. Ibid.

140. Message (TSL), CINCPACAF to AIRA, Subject: "FAC Support," 202158Z MAR 68. (In AIRA-Operations files, Vientiane.)

141. Letter (SNF), AIRA to Ambassador Sullivan, Subject: "Forward Air Controller Personnel," 8 October 1968. (In AIRA-Operations files, Vientiane.)

142. Message (S), AIRA to CINCPACAF, Subject: Fighter Pilot Training for Pilots," 6 October 1968. (In AIRA-Operations files, Vientiane.)

143. Message (TSL), AIRA to CINCPACAF, Subject: "FAC Support," 181630Z MAR 68. (In AIRA-Operations files, Vientiane.)

144. Ibid.

145. Message (S), AIRA to CINCPACAF, Subject: "Fighter Pilot Training for Pilots," 6 October 1968. (In AIRA-Operations files, Vientiane.)

146. Letter (SNF), AIRA to Ambassador Sullivan, Subject: "Forward Air Controller Support," 8 October 1968. (In AIRA-Operations files, Vientiane.)

147. Ibid.

148. Message (S), AMEMBASSY 270530Z DEC 68.

149. AIRA Working Paper (S), Subject: "Steps to Improve USAF Air Support in Northern Laos in BARREL ROLL," 17 October 1968. (In AIRA-Operations files, Vientiane.)

150. Ibid.

151. Letter (S), AIRA to 56SOW, Subject: "Raven FACs," 5 December 1968. (In AIRA-Operations files, Vientiane.)

152. OUSAIRA Operating Instruction 55-1 (SNF), Subject: "Raven Forward Air Controller Program," 15 November 1969, p. 8. (Hereafter cited as AIRA OI 55-1.) (In AIRA-Operations files, Vientiane.)

153. Letter (U), Chief FAC, Mr. Hart, to OLs, Subject: Escape and Evasion Aids," 11 April 1969. (In AIRA-Operations files, Vientiane.)

Letter (S), AIRA to Raven Operating Locations, Subject: "Raven FAC Required Items of Identification," 18 April 1969. (In AIRA-Operations files, Vientiane.)

154. Op. cit., AIRA OI 55-1, p. 8.

155. Letter (U), Chief FAC, Mr. Hart to OLs, Subject: "Escape and Evasion Aids," 11 April 1969. (In AIRA-Operations files, Vientiane.)

156. Op. cit., AIRA OI 55-1, p. 8.

157. Conversation (SNF), with Mr. Thomas Shera, FAC Liaison Officer, AIRA Operations, at AIRA, Vientiane, 23 February 1972. (Hereafter cited as Shera Conversation, 23 Feb 72.)

158. Project CHECO Report (TS), USAF Operations in Thailand, January 1967-July 1968, Hq PACAF, 20 November 1968, p. 29.

159. Op. cit., CHECO 1, pp. 124-35.

160. Ibid., pp. 124-30.

161. 7AF Report (S), Subject: "Raven FAC Survey," 24 January 1969, p. 7. (CHECO Top Secret Microfilm 76, frs 21-4.) (Hereafter cited as Raven FAC Survey.)

162. Op. cit., CHECO 1, p. 132.

163. Message (S), 7/13AF/DO to CINCPACAF, No subject, 300230Z DEC 68. (CHECO Top Secret Microfilm 74, fr 213.)

164. Message (S), AMEMBASSY 270530Z DEC 68.

165. Message (SNF), AOC Luang Prabang to AIRA, No subject, 130230Z JAN 68. (In AIRA-Operations files, Vientiane.)

166. Message (SNF), DEPCHJUSMAGTHAI Bangkok, Thailand, to CINCPAC, Subject: "FAC and Training Aircraft," 161030Z DEC 68. (CHECO Top Secret Microfilm 74, fr 212.)

167. Message (S), AMEMBASSY Vientiane to DEPCHJUSMAGTHAI, Subject: "FAC and Training Aircraft," 021107Z DEC 68. (CHECO Top Secret Microfilm 74, fr 212.)

168. Ibid.

169. Message (SNF), DEPCHJUSMAGTHAI Bangkok, Thailand, to CINCPAC, Subject: "FAC and Training Aircraft," 161030Z DEC 68. (CHECO Top Secret Microfilm 74, fr 212.)

170. Ibid.

171. Message (S), AMEMBASSY 270530Z DEC 68.

172. Message (S), 7AF to CINCPACAF, Subject: "Raven FAC Program," 100930Z JAN 69. (CHECO Top Secret Microfilm 74, fr 213.)

173. Op. cit., Raven FAC Survey, pp. 1-2.

174. Memorandum of Understanding (S), Between the Commander 7AF, 13AF, The Air Attache Vientiane Laos, and Deputy Chief JUSMAG, Thailand, 5 August 1969, p. 2. (CHECO Top Secret Microfilm 76, frs 20-21.) (Hereafter cited Raven Memo of Understanding, 5 August 1969.)

175. Message (S), 7AF to CINCPAC, Subject: "FAC Aircraft for Laos," 100930Z JAN 69. (CHECO Top Secret Microfilm 74, fr 213.)

176. Message (S), 7AF to CINCPAC, Subject: "FAC Aircraft for Laos," 061100Z JAN 69. (CHECO Top Secret Microfilm 74, fr 213.)

Message (S), CINCPAC to DEPCHJUSMAGTHAI, Subject: "USAF Support for FAC Mission in Laos," 210027Z JAN 69. (CHECO Top Secret Microfilm 74, fr 214.)

177. Message (S), AIRA to 7/13AF and 504TASG, Subject: "Raven O-1 Maintenance Support," 041049Z JUN 69. (In AIRA-Operations files, Vientiane.)

178. Letter (U), AIRA (Command Post) to All Sites, Subject: "O-1 Maintenance (Site)," 8 August 1968. (CHECO Top Secret Microfilm 56, fr 14.)

179. Interview (TS), Subject: "Raven FAC," with Lt Colonel David L. Gray, Hq 7AF, DCS/Plans, by Project CHECO, 6 May 1969, p. 13. (CHECO Top Secret Microfilm 64, frs 112-6.)

180. Op. cit., CHECO 1, p. 34.

181. Ibid.

182. Message (S), Hq 13AF Clark AB to 7AF/DPP, No subject, 211009Z MAR 69, (CHECO Top Secret Microfilm 74, fr 214.)

183. Message (S), OUSAIRA Vtn to 7AF, Subject: "Requirement for Additional O-1 Pilots," 280315Z MAR 69. (In 504TASG files.)

184. Message (S), 7AF to 504TASG, Subject: "TDY of Raven FACs, 280900Z MAR 69. (In 504TASG files.)

185. Message (S), AIRA to 7AF, Subject: "Steve Canyon Personnel," 191000Z JUL 69. (CHECO Top Secret Microfilm 86, fr 21.)

Message (SNF), AIRA to 7AF, Subject: "Raven FAC Personnel," 060911Z JUL 69. (In 504TASG files.)

186. Message (S), AIRA to 7AF, Subject: "Steve Canyon Personnel," 191000Z JUL 69. (CHECO Top Secret Microfilm 86, fr 21.)

187. Ibid.

188. Ibid.

189. Message (S), 504TASG to AIRA, Subject: "TDY Assistance Project Steve Canyon," 241024Z JUL 69. (In AIRA-Operations files, Vientiane.)

190. Message (S), 7AF to AIRA, Subject: "Raven FACs," 020720Z AUG 69. (In AIRA-Operations files, Vientiane.)

191. Op. cit., CHECO 1, p. 150.

192. Ibid., p. 151.

193. Ibid., p. 156.

194. Ibid., p. 159.

195. Ibid., p. 162.

196. Ibid., p. 167.

197. Ibid., pp. 168-71.

198. Ibid., pp. 172-3.

199. Ibid., pp. 173-4.

200. Ibid., pp. 108-14.

201. Message (S), 7AF to 13AF Clark AB, Subject: "Memorandum of Understanding, Raven FAC Program," 280721Z SEP 69. (CHECO Top Secret Microfilm 76, fr 20.)

202. Letter (S), 504TASG to 7AF, Subject: "Steve Canyon Pilot Replacement," 15 October 1969. (In AIRA-Operations files, Vientiane.)

203. Ibid.

204. Message (SNF), AIRA to 7AF, Subject: "Raven FAC Personnel," 060911Z JUL 69. (In 504TASG files.)

Message (S), OUSAIRA to Hq TAC,Langley AFB, VA, Subject: "AIRA Vtn Augmentation," 060345Z JUL 69. (CHECO Top Secret Microfilm 74, fr 211.)

205. Message (S), OUSAIRA to Hq TAC,Langley AFB, VA, Subject: "AIRA Vtn Augmentation," 060345Z JUL 69. (CHECO Top Secret Microfilm 74, fr 211.)

206. Message (S), TAC to AIRA, Subject: "AIRA Vtn Augmentation," 121442Z JUL 69. (In 504TASG files.)

207. Letter (S), 504TASG to 7AF, Subject: "Steve Canyon Pilot Replacement," 15 October 1969. (In AIRA-Operations files, Vientiane.)

208. Message (U), 504TASG to 21TASS,Cam Ranh Bay, Subject: "Requirements, 221545Z DEC 69. (In 504TASG files.)

209. Message (S), 504TASG to 7AF, Subject: "Steve Canyon Program," 060600Z DEC 69. (In 504TASG files.)

Message (S), 7AF to CINCPACAF, Subject: "Officer Extensions for Steve Canyon," 100830Z DEC 69. (In 504TASG files.)

210. Ibid.

211. Op. cit., Shera Interview, p. 3.

212. Ibid.

213. Letter (SNF), DCS (Mr. Hurwitch) to AIRA (Colonel Tyrrell), Subject: "Supplementary Aircraft for FAC Missions," 3 October 1968. (In AIRA-Operations files, Vientiane.)

214. Letter (S), Requirements Officer to AIRA, Subject: "AIRA U-17 Aircraft Requirements," 13 January 1968. (In AIRA-Operations files, Vientiane.)

215. Message (S), AIRA to 7/13AF, Subject: "AIRA Vtn U-10s," 06245Z JAN 70 (SIC). (In AIRA-Operations files, Vientiane.)

216. Op. cit., Shera Interview, pp. 3-4.

217. Ibid., p. 4.

218. Message (S), DEPCHJUSMAGTHAI to AIRA, Subject: "U-17 FAC Operational Deficiencies," 121031Z DEC 69. (In AIRA-Operations files, Vientiane.)

Letter (U), AIRA to Requirements Office, Subject: "Modification to U-17 Aircraft," 10 December 1969. (In AIRA-Operations files, Vientiane.)

Message (S), WRAMA, Robbins AFB to AIRA, Subject: "U-17 FAC Operational Deficiencies," 171551Z DEC 69. (In AIRA-Operations files, Vientiane.)

219. Op. cit., Shera Interview, p. 3.

220. Letter (SNF), DC, (Mr. Hurwitch) to AIRA (Colonel Tyrrell), Subject: "Supplementary Aircraft for FAC Missions," 3 October 1968. (In AIRA-Operations files, Vientiane.)

221. Ibid.

222. Letter (U), 20A (Mr. Shubert) to AIRA, Vtn, Subject: "Suitability of the T-28 as a FAC Aircraft (Interim Report)," no date. (In AIRA-Operations files, Vientiane.)

223. Letter (SNF), AIRA to American Embassy-DCM (Mr. Russing/Mr. Archer), Subject: "FAC Aircraft, 15 August 1969. (In AIRA-Operations files, Vientiane.)

224. Letter (U), 20A (Mr. Shubert) to AIRA, Vtn, Subject: "Suitability of the T-28 as a FAC Aircraft (Interim Report)," no date. (In AIRA-Operations files, Vientiane.)

225. Letter (SNF), DCM (Mr. Hurwitch) to AIRA (Colonel Tyrell), Subject: "Supplementary Aircraft for FAC Missions," 3 October 1968. (In AIRA-Operations files, Vientiane.)

226. Op. cit., Shera Interview, p. 12.

227. Ibid., p. 3.

228. Letter (SNF), AIRA to American Embassy-DCM (Mr. Russing/Mr. Archer), Subject: "FAC Aircraft," 15 August 1969. (In AIRA-Operations files, Vientiane.)

229. Op. cit., Shera Interview, p. 3.

230. Message (S), 7/13AF to 7AF, No subject, 060830Z DEC 68. (In CHECO Top Secret Microfilm 74, fr 212.)

231. Message (S), 7AF to 7/13AF, Subject: "FAC Aircraft for AIRA Laos Program," 150920Z DEC 68. (CHECO Top Secret Microfilm 74, fr 212.)

232. Message (S), State Department to Vientiane, No subject, 27 November 1969. (In AIRA-Operations files, Vientiane.)

233. Message (S), AIRA to 7AF, 010345Z DEC 69. (In AIRA-Operations files, Vientiane.)

234. Message (S), AIRA to State Department, Subject: "Voice Call Sign Raven," 290520Z NOV 69. (In AIRA-Operations files, Vientiane.)

235. Message (S), State Department to Vientiane, Subject: "Voice Call Sign Assignment," 2 December 1969. (In AIRA-Operations files, Vientiane.)

236. Message (S), State Department to AIRA, Subject: "Voice Call Sign," 11 December 1969. (In AIRA-Operations files, Vientiane.)

237. Message (C), 7AF to AIRA, Subject: Voice Call Signs, 020806Z MAY 71. (In AIRA-Operations files, Vientiane.)

238. Message (S), CINCPACAF to 7AF, Subject: "Call Sign," 050122Z MAY 71. (In AIRA-Operations files, Vientiane.)

239. Memorandum for the Record (S), Subject: "SEATACS O-1 Pilot Requirements," by Captain Kenneth L. Gray, Staff, Weapons Forces Plans Branch, 1 September 1970. (CHECO Top Secret Microfilm 82, fr 159.)

240. Letter (U), 504TASG/DOX to 21TASS, Subject: "O-1 Aircrew Training," 2 December 1970. (In 504TASG files.)

241. Message (S), 504TASG to DEPCHJUSMAG/AF Bangkok Thailand, Subject: "504TASG Support of Raven FAC Program," 150517Z JAN 71. (CHECO Secret Microfilm 448, fr 146.)

242. Message (S), DEPCHJUSMAG Bangkok, Thailand, to AMEMBASSY AIRA Vtn, Subject: "Raven FAC Program," 200330Z JAN 71. (CHECO Secret Microfilm 448, fr 146.)

243. Message (S), OUSAIRA to DEPCHJUSMAG Bangkok Thailand, Subject: "Raven FAC Program," 290930Z JAN 71. (CHECO Secret Microfilm 448, fr 146.)

244. Message (S), OUSAIRA Vtn Laos to Det 1 56SOW Udorn RTAFB Thailand, Subject: "FAC O-1 Checkout Program," 300230Z OCT 71. (In AIRA-Operations files, Vientiane.)

Op. cit., Shera Interview, p. 10.

245. Message (SNF), 504TASG to 7AF and AIRA, Subject: "Raven FAC Requirements," 090345Z FEB 71. (In 504TASG files.)

246. Message (S), 7/13AF to 7DO, Subject: "Raven FAC Program," 021145Z MAR 71. (CHECO Secret Microfilm fr 118.)

247. Interview (SNF), Subject: "Raven FAC Program," with Lt Colonel Tilson, STEVE CANYON Project Officer, 504TASG, with Captain Henry S. Shields, Project CHECO, at Phan Rang AB, RVN, on 11 November 1971. (Hereafter cited as Tilson Interview.)

248. Letter (S), 504TASG/DOX to 504TASG/CC, Subject: "Steve Canyon Program," 20 July 1971. (In 504TASG files.)

249. Letter (S), OUSAIRA to Commander, Det 1, 56SOW, Subject: "Raven FAC Input Personnel," 27 September 1971. (In 504TASG files.)

250. Message (S), AIRA to 504TASG, Subject: "Meeting of Representatives from HQ 7/13/DO; Det 1, 56SOW; 504TASG; and AIRA at Udorn, 27 September 1971, 27/105Z SEP 71 (SIC). (In 504TASG files.)

251. Letter (C), 504TASG/DOX to (Blank), Subject: Steve Canyon Manning, 25 April 1971. (In 504TASG files.)

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255. Letter (S), Hq 7AF/DO to CINCPACAF DO/DPL, Subject: Support for Raven FAC Program, 13 June 1970. (CHECO Top Secret Microfilm 82, fr 156.)

Hq 7AF Command Correspondence Staff Summary Sheet (S), Subject: O-1 Resources for the Raven Program, by Colonel Malcolm E. Ryan Jr., Chief, Current Plans Division, 7 June 1970. (CHECO Top Secret Microfilm 82, fr 156.)

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258. Message (S), DEPCHIEFJUSMAGTHAI to 7AF, Subject: Class V Modification of MASF O-1 Aircraft for Fleet Standardization, 161030Z Jul 1971. (In AIRA-Operations files, Vientiane.)

Message (S), DEPCHJUSGMAGTHAI AFLO Udorn to DEPCHJUSMAGTHAI, Subject: O-1 Aircraft Modification, 031042Z Nov 1971. (In AIRA-Operations files, Vientiane.)

259. Message (S), Dir Mat Mgt Robbins AFB Ga to 7AF, Subject: O-1 Aircraft Modification, 161840Z Nov 1971. (In AIRA-Operations files, Vientiane.)

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260. Letter (U), AIRA/Ops to Col Curry, AIRA, Subject: Present FAC Aircraft Status-23 November 1971, 23 November 1971 (as corrected by Lt Col Joseph Aimo on 10 December 1971). (In DEPCHIEFJUSGMAG - DCH-ASB - files, Udorn).

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262. Op. cit., Aimo interview, p. 2.

263. Ibid.

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266. AIRA Operating Instruction 36-1 (U), Subject: Performance Reports, 30 July 1971. (In 7/13AF DO files.)

Letter (U), OUSAIRA to Major General Dewitt R. Searles, Deputy Commander, Hq 7/13AF, Subject: Performance Reports FACs, 23 August 1971. (In 7/13AF/DO files).

267. Op. cit., Raven Memo of Understanding, 5 August 1969.

268. Letter (U), Det 1, 56SOW/CC to Major General Dewitt R. Searles, Deputy Commander, Hq 7/13AF, Subject: Proposed AIRA OI 36-1, Performance Reports FACs (Ref Air Attache Ltr, 23 August 1971), 24 August 1971. (In 7/13AF/DO files.)

269. Memorandum of Understanding (S) Between the Commander, 7AF, 13AF, the Air Attache Vientiane Laos and Deputy Chief JUSMAG, Thailand (Proposed draft), 28 August 1971. (In 7/13AF/DO files.)

270. Op. cit., Shera Interview, p. 6.

271. Message (C), 56SOW to 7/13AF, Subject: Requirements for Command Assistance for Increased VR Coverage of Cricket West, 210505Z Nov 71. (In 7/13AF DO files.)

274. Message (S), 56 SOW to 7/13AF, Subject: Cricket West Coverage 021000Z Dec 71. (In 7/13AF/DO files.)

275. Ibid.

276. Op. cit., Shera Interview, p. 9.

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277. Ibid.

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281. Op. cit., Shera Conversation 23 Feb 72.

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Op. cit., Shera interview, pp. 11-12.

284. Ibid., pp. 10-11.

285. Interview/Conversation (SNF), Subject: "Raven FAC Activities," with various Raven FACs at Wattay Airport, Vientiane, and Det 1 56SOW, Udorn, on 9 December 1971. By Captain Henry S. Shields, Project CHECO, pp. 102. (Hereafter cited as Raven FAC interview.)

286. Ibid.

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Message (SNF), OURAIRA Vtn Laos to AIG 7183, Subject: OUSAIRA Laos DISUM, 261030Z Jan 1972.

289. Recommendation for Decoration (S) for 1Lt James Diguid III, Det 72, 1133 USAF Special Activities Squadron to 7AF (DPY), 10 September 1971.)

290. Ibid.

291. Ibid.

292. Message (S), 7/13AF to AIRA, Subject: Outstanding Performance, 020200Z Sep 1971. (In 7/13AF/DO files.)

293. Message (S), AIRA to 7/13AF, Subject: Gun Kill, 181100Z Mar 1971. (In AIRA-Operations files, Vientiane.)

294. Op. cit., Raven FAC interview, p. 2.

295. Ibid.

Op. cit., Shera interview, pp. 9-10.

296. Message (SNF), AIRA to 7AF, Subject: Raven Control Boxes, 120540Z Nov 1971. (In 7/13AF/DO files.)

297. Message (S), 7AF to 7/13AF, Subject: STEEL TIGER Temp Ops Rule Nbr 6, 020825Z August 1971. (In 7/13AF/INT files.)

Message (TS), 7AF to 7/13AF, Subject: BARREL ROLL Temporary Operating Rule Nbr 1C, 080205Z Dec 1971. (In 7/13AF/INT files.)

298. Op. cit., Shera Conversation 23 Feb 72.

299. Message (S), AIRA to 7/13AF, Subject: Use of USKAC 300, 140400Z May 1971. (In AIRA-Operations files, Vientiane.)

300. Letter (S), Mr. Patten/Chief FAC to Commander, Det 1, 56SOW, Subject: FAC Weapons (CAR 15), 21 August 1969. (In AIRA-Operations files, Vientiane.)

301. Op. cit., Shera interview, p. 13.

302. Op. cit., Raven FAC Interview, p. 3.

GLOSSARY

AAA	Antiaircraft Artillery
ABCCC	Airborne Battlefield Command and Control Center
ACS	Air Commando Squadron
ACW	Air Commando Wing
AD	Air Division
AF	Air Force
AFSC	Air Force Specialty Code
AGOS	Air Ground Operations School
AIRA	Air Attache
ALO	Air Liaison Officer
AMA	Air Material Area
AOC	Air Operations Center
APR	Airman Performance Report
CAS	Controlled American Source
CBD	Crash/Battle Damage
CIA	Central Intelligence Agency
CINCPAC	Commander in Chief, Pacific
CINCPACAF	Commander in Chief, Pacific Air Force
COIN	Counter-Insurgency
CONUS	Continental United States
CSAF	Chief of Staff, Air Force
DEPCHJUSMAGTHAI	Deputy Chief, Joint United States Military Advisory Group, Thailand
DISUM	Daily Intelligence Summary
E&E	Escape and Evasion
EOT	End of Tour
ETR	Estimated Time of Return
FAA	Federal Aeronautical Administration
FAC	Forward Air Controller
FAG	Forward Air Guide
FAR	Forces Armee Royal
FM	Frequency Modulation
FOL	Forward Operating Location
FY	Fiscal Year
HF	High Frequency
ID	Identification
IFR	Instrument Flying Rules
IP	Instructor Pilot

JUSMAAG	Joint United States Military Assistance and Advisory Group
KBA	Killed by Air
L	Lima
LOE	Letter of Evaluation
LP	Luang Prabang
LS	Lima Site
MAP	Military Assistance Program
MASF	Military Assistance Service Funded
MPC	Military Personnel Center
MR	Military Region
NVA	North Vietnamese Army
NVN	North Vietnam
OER	Officer Effectiveness Report
OI	Operating Instruction
OL	Operating Location
OUSAIRA	Office of the United States Air Attache
PDJ	Plaine des Jarres
PCS	Permanent Change of Station
PL	Pathet Lao
RLAF	Royal Lao Air Force
RLG	Royal Lao Government
ROE	Rules of Engagement
RON	Remain Over Night
R&R	Rest and Recreation
RTAFB	Royal Thai Air Force Base
RVN	Republic of Vietnam
SAR	Search and Rescue
SAW	Special Air Warfare
SAWC	Special Air Warfare Center
SEA	Southeast Asia
SGU	Special Guerrilla Unit
SOF	Special Operations Force
SOW	Special Operations Wing
SR	Sierra Romeo (Thai Artillery Battalion)
TAC	Tactical Air Command
tac air	tactical air
TACAN	Tactical Air Navigation

TASG	Tactical Air Support Group
TASS	Tactical Air Support Squadron
TCMS	Tactical Control Maintenance Squadron
TDY	Temporary Duty
TFW	Tactical Fighter Wing
TIC	Troops in Contact
UDL	Unit Detail Listing
UHF	Ultra High Frequency
UMD	Unit Manning Document
UPT	Undergraduate Pilot Training
U.S.	United States
USAF	United States Air Force
USAID	United States Agency for International Development
VCS	Voice Call Sign
VHF	Very High Frequency
VNAF	Vietnamese Air Force
VR	Visual Reconnaissance
WP	White Phosphorous, or "Willie Pete"

RESEARCH NOTE

The description of the 1964-67 evolution of the AIRA FAC program was based largely upon conversations with those U.S. and USAF personnel at AIRA-Vientiane, Udorn RTAFB, and the Air Force Advisory Group, Bangkok, Thailand, who had participated in the Butterfly program in one way or another. The historical background of the war in Laos was extracted from the Project CHECO reports listed in the footnotes.

Research material for the later period was found in the files of AIRA-Operations, Vientiane, in 7/13AF's Directorate of Operations files, and in the following CHECO microfilms: Top Secret: 30, 35, 56, 64, 74, 76, 82, 86, 94; Secret: 94, 443, 448. Other useful material was found in the files of the 504TASG at Phan Rang AB, RVN.