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SUMMARY

Although III MAF units initiated Operation PICKENS FOREST in central Quang Nam Province and sizable GVN forces continued Operations VU NINH 12 and HUNG QUANG 1/32B west of province populated regions, combat action in July remained relatively light. These operations, part of the allied summer campaign to sustain pressure on enemy base areas and disrupt NVA/VC capacity for combat, were in addition to thousands of small unit activities conducted by Marines, Combined Action Force and Combined Unit Pacification Program platoons, ARVN elements, and territorial forces. While Marine counter guerrilla and reconnaissance endeavor continued at approximately the same level registered throughout the year, enemy elements generally avoided contact, resulting in fewer enemy killed in July than during preceding months; 409 NVA/VC were killed plus 14 prisoners and 144 weapons were captured. Additionally, CAF and CUPP platoons killed 67 more NVA/VC, bringing the USMC 1970 total to 4,964.

Recent events, other than enemy losses, indicating a measure of success in the war included a reorganization which changed designations of RVN corps tactical zones to military regions. This rearrangement, intended to improve security, pacification, and development activities, brought the Regional and Popular Forces under the direction and control of the Army—a further step toward enhancing already viable local security organizations. While territorial forces in Quang Nam had a two-fold increase in operations this month, Quang Da Special Zone Headquarters—ever gaining in stature—demonstrated effectiveness in planning, coordinating, and executing varied operations, as the Headquarters employed forces equivalent to a division. The reorganization involving territorial forces, emergence of the new major tactical organization, and such other favorable signs as continued progress of the resettlement project on Go Noi Island dovetailed with Marine redeployment activities during July.

This month under KEYSTONE ROBIN ALFA, the fourth increment of redeployments, combat support and combat service support

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units left RVN, and in a related adjustment, the 4th Combined Action Group was disbanded. These moves were the first of a series which calls for some 18,000 Marines to leave the country by mid-October and will cause in-country unit location shifts similar to the July transfer of VMA-311 (an A-4E squadron) from Chu Lai to Danang.

Air operations continued to support III MAF Marines, other US forces, and allies with an array of fixed wing and helicopter missions. However, sorties out-of-country diminished considerably this month, largely due to redeployment of VMJ-1 and a reduction in A-6A flights with attendant fighter/flak-suppression sorties.

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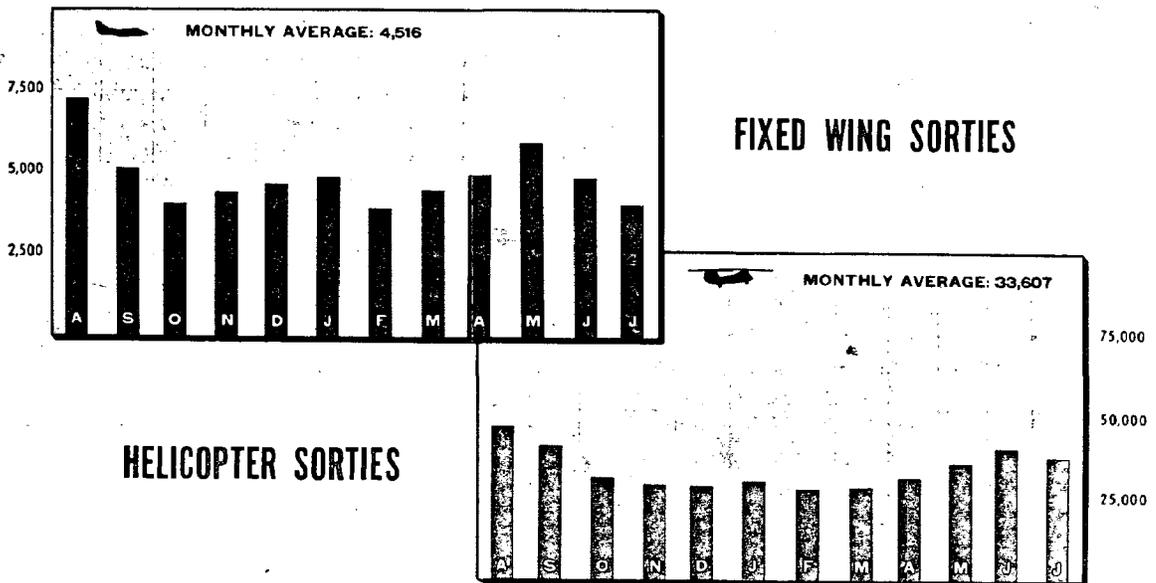
AIR OPERATIONS

July was marked by continued helicopter and fixed wing support of Free World operations, punctuated by stand down and redeployment of designated units of 1st Marine Aircraft Wing. In-country fixed wing sorties increased slightly over the previous month; however, combat support flights decreased by 32 percent. Also, out-of-country strike and escort missions were reduced, and photographic and electronic warfare flights were discontinued as of 30 June.

Over 36,800 of the 40,974 1st Wing sorties were flown by Marine Aircraft Group-16 helicopters to lift more than 93,300 passengers and 6,900 tons of cargo.

The following graphs compare 1st Wing air operations in July with totals since August 1969.

MARINE AIR OPERATIONS: AUG 1969 - JUL 1970



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In-Country Fixed Wing Operations

In MR 1, Marine fixed wing pilots flew 3,285 attack and airborne reconnaissance missions to support Free World ground forces. The major ordnance delivery efforts were focused on aiding units in contact, as more than 1,800 of the 2,572 combat flights were logged in the close air support category. Attack operations of Marine Aircraft Groups (MAG)-11 and 13 delivered 7,665 tons of bombs, 2,189 canisters of napalm, and 6,105 air to ground rockets. These munitions destroyed or damaged 695 bunkers and structures, ignited 441 secondary explosions or fires, and killed 19 NVA/VC.

There were many significant examples available of the results from air delivered ordnance during the month, such as those on 4 July. Three MAG-13 flights struck an enemy logistic area five miles west of Tam Ky--the first was by two F-4Bs, which flamed the area at midday with 14 napalm canisters, igniting three large and 25 smaller secondary explosions. A scheduled flight of two A-4Es hit the same target 15 minutes later. An airborne forward air controller reported three more secondary explosions and five fires. At approximately 1400, a pair of F-4Bs, responding to a request to strike a target in the same area, were launched from the Chu Lai alert pad. The flight dropped 14 500-pound bombs that caused another ten explosions and two fires. Two A-4Es, on another mission launched from the alert pad late in the afternoon, bombed and napalmed enemy mortarmen firing at FSB Ripcord, located 23 miles west of Hue. Five explosions and five fires were tallied as the mortar position was destroyed.

In all, 1st Wing flew 17 sorties against enemy positions harassing Ripcord by indirect fire. During the afternoon of 23 July, two flights of F-4Bs, one a preplanned mission and the other scrambled from an alert pad to exploit previous results, destroyed ten bunkers, ignited nine secondary explosions, and

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kindled seven sustained fires. Two A-6As, hitting the same locale two days later with 30 1,000-pound bombs, were credited with razing eight bunkers and causing four secondary explosions and one fire. A flight of F-4Bs demolished another 20 bunkers in the same general area later that day.

More extensive use of ground radar-guided bombing by A-6As was made in RVN during the month, as Intruder operations out-of-country were temporarily curtailed after the 9th. Of the 611 missions flown in-country by the two squadrons of A-6As, 303 were guided to designated targets by air support radar teams utilizing AN/TPQ-10 ground radar systems.

Since December, the pilots of Marine Observation Squadron-2 have averaged 596 sorties per month in OV-10As. The July total of 587, although a drop from last month, was consistent with operational needs. Visual reconnaissance (VR) of the 1st Marine Division operation area and enemy approach routes thereto was the primary mission as evidenced by 405 VR flights. Pilot-observer teams rapidly become familiar with topography by frequent missions; thus, any changes or indications of new enemy activity are readily apparent to the crews. As a secondary, but no less important mission, OV-10A aircrews averaged five forward air controller (airborne) flights per day in support of ground maneuver in Quang Nam province. During the month, VMO-2 passed the 30,000 combat flight hour mark--accumulated since entering the war in May 1965.

TA-4F pilots from Headquarters and Maintenance Squadron (H&MS)-11, in addition to Laotian missions, flew 125 sorties over the MR 1/Laos border area. Placing particular emphasis on lines of communication which connect enemy in-country operating areas to the Ho Chi Minh Trail, these VRs provided continuous intelligence information regarding enemy movement.

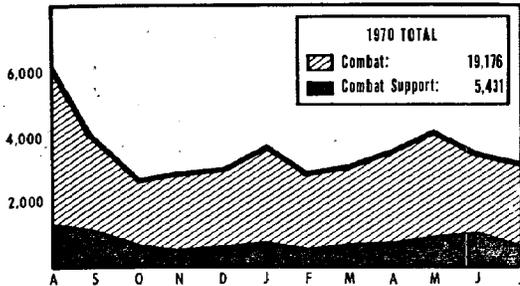
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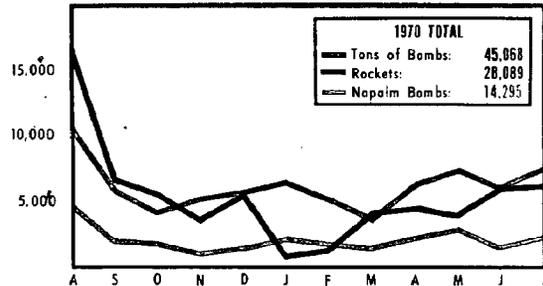
The graphs below show in-country fixed wing operations and ordnance delivered since August 1969.

**IN-COUNTRY FIXED WING SUPPORT BY MARINE AIRCRAFT
AUGUST 1969 - JULY 1970**

SORTIES FLOWN



ORDNANCE DELIVERED



Helicopter Operations

III MAF and other Quang Nam Free World ground forces have dominated combat by using the helicopter to gain mobility in both the lowland and mountain regions of the province. Marine Aircraft Group-16 helicopter squadrons provided the wherewithal for this mobility--36,887 sorties carrying 93,312 passengers and 6,968 tons of cargo during July.

The CH-46D Sea Knight transported over 45,900 passengers and 1,100 tons of materiel during 19,735 sorties. The usage level of the aircraft was steady throughout the month, as the versatile workhorse was used for combat and logistic troop and cargo lifts, casualty evacuation flights, search and rescue missions, and command and control requirements. The largest helilifts of the month were in support of III MAF Operation PICKENS FOREST and RVNAF Operation VU NINH 12. These maneuvers, discussed in the two previous chapters, took place beyond secure road networks and had to be supported entirely by helicopters.

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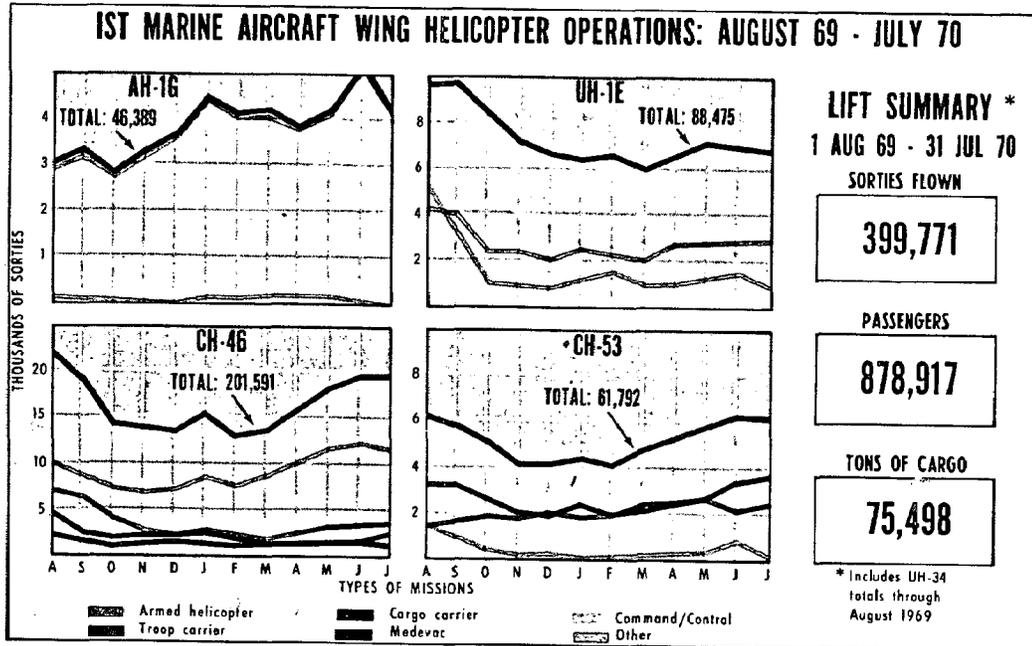
Flight operations for the CH-53Ds continued at a rapid pace, as the 20 Sea Stallions lifted over 5,800 tons of cargo and transported in excess of 43,500 passengers in July. Thirty-eight percent of the 6,108 flights this month hauled cargo and troops for specific combat operations, as opposed to general logistic lifts. Some of these sorties lifted ARVN units and equipment into LZs in the eastern Que Son mountains for a joint operation with two companies of 7th Marines in early July and, later in the month, supported RVNAF operations in Base Areas 112 and 127.

Flying escort for helicopters accounted for 7,113 armed helicopter sorties by AH-1G and UH-1E aircrews. Equipped with 2.75-inch rockets, 7.62mm machine guns, and a 40mm grenade launcher (the latter on AH-1Gs only), armed helicopters are a powerful weapons system flexible enough to provide escort coverage and quick response to troops in contact. There were several examples of significant armed helicopter attacks during July. Four AH-1Gs participating in a Pacifier operation on the 7th engaged an enemy element in bunkers three miles south of Hill 55. The Cobras expended rockets, grenades, and machine gun fire, killing six VC. A door gunner on a CH-46D killed one more in the same area 40 minutes later. Early in the morning on 26 July, two armed UH-1Es spotted a group of VC close-by Football Island, three miles north-northeast of An Hoa, and killed nine. Almost an hour later, the same UH-1Es located more of the enemy moving westward and killed an additional five.

The graphs on the following page compare July rotary wing operations, by helicopter type, with monthly totals for the past year.

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Out-of-Country Operations

There was a substantial reduction of out-of-country strike and combat support missions during July. Frequency of F-4B barrier combat air patrols and TA-4F flights, however, did not vary appreciably from recent monthly levels. Lessening of out-of-country activity was partially attributable to the 1 July stand down and subsequent redeployment of 1st Wing photographic and electronic warfare assets assigned to VMCJ-1.

A-6A aircrews flew 60 night strike missions in Laos before temporarily halting armed reconnaissance flights on 9 July. Before ceasing, A-6A aircrews had located and bombed 66 targets, which were detected by ground sensors or the aircraft's automatic moving target indicator, as well as 24 logistic storage areas along the Ho Chi Minh Trail.

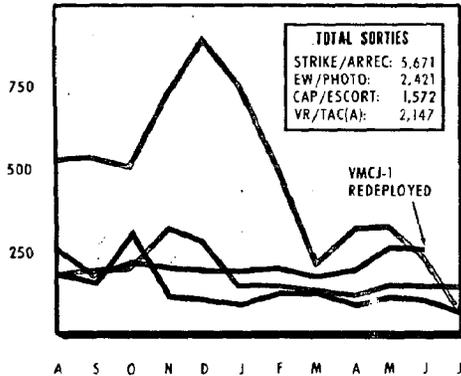
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Pilots flying TA-4Fs assigned to H&MS-11 again provided vital intelligence and tactical air controller (airborne) coverage over the web of roads and

MARINE OUT-OF-COUNTRY AIR OPERATIONS



trails in Laos adjacent to MR 1. These flights, which averaged nearly five per day, were the only 1st Wing operations in Laos continued on a daily basis throughout the month.

Most of the 16 F-4B sorties logged over Laos were armed escort missions for high air cover of TA-4Bs early in the month. These flights were discontinued because operations were hampered by bad weather in the

Steel Tiger area. Remaining out-of-country F-4B operations consisted of 48 missions flown over the Gulf of Tonkin as combat air patrols for Navy and Air Force elements.

Sortie Allocations

Although Marine aviation has been developed specifically for participation with USMC maneuver units and fire support agencies, the role of 1st Marine Aircraft Wing has been expanded significantly in the Vietnamese war. This has resulted, in part, from continuing availability of a diversified inventory of aircraft; a capability to operate from relatively austere shipboard or shore facilities; and a control apparatus to focus helicopter, fixed wing, and anti-aircraft assets on supported unit requirements. Starting in 1962 with the arrival of a helicopter squadron in the Mekong delta for support of ARVN forces, Marine aircraft elements have been tasked with a wide variety of missions which contribute to the overall war effort. First Wing involvement broadened markedly since 1965, as air units deployed to support more than two Marine divisions and provide concurrent support for other agencies, not only in MR 1 but also over North Vietnam, Laos, Gulf of Tonkin, and recently, Cambodia.

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The following chart depicts distribution of 1st Wing sorties, by aircraft and mission, during the 30-week period 2 January through 30 July 1970.

ALLOCATION OF 1ST WING SORTIES: 2 JAN - 30 JUL 1970

AIRCRAFT	USMC	ARMY	ARVN	ROKMC	SPECIAL FORCES	7TH AIR FORCE	NAVY TF-77	TOTAL
A-4E	2,372	2,564	454	74	0	106	5	5,575
A-6A	1,567	1,768	65	8	0	1,176	0	4,584
F-4B	4,314	5,390	733	116	0	1,123	320	11,996
FIGHTER/ATTACK TOTAL*	8,253	9,722	1,252	198	0	2,405	325	22,156
TA-4F	515	2	0	0	0	844	5	1,366
RF-4B	709	0	0	0	0	245	3	957
EA-6A	587	0	2	0	0	281	179	1,049
OV-10A	4,270	38	20	26	0	5	0	4,359
RECONNAISSANCE TOTAL*	6,081	40	22	26	0	1,375	187	7,781
CH-46	101,527	56	888	5,292	233	0	0	107,996
CH-53	27,898	339	1,070	4,433	154	0	0	33,894
COMBAT/LOGISTIC TOTAL*	129,425	395	1,958	9,725	387	0	0	141,890
UH-1E	35,865	861	248	6,026	180	0	0	43,180
AH-1G	26,107	396	673	927	142	0	0	28,245
COMBAT CONTROL/ARMED HELO TOTAL*	61,972	1,257	921	6,953	322	0	0	71,425

* Primary mission--includes small number other type missions.

Other forces were provided 62.7 percent (13,902) of the total fighter/attack sorties flown since 1 January by 1st Wing. Although many of these were provided to ARVN units, the majority went to support two and one-third US Army divisions in MR 1. Considering

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only attack sorties in-country, 57.5 percent were executed for Free World forces other than Marines.

In contrast, helicopter sorties were, for the most part, flown to support III MAF Marines since other Free World forces (except ROKMC) had helicopter assets to draw from. Less than ten percent of 1st Wing helicopter sorties went to other forces and most of these were provided to Korean Marines. Recently, as RVN forces have operated farther west in central Quang Nam province, an increasing number of 1st Wing helicopter sorties have been allocated to support them.

Aircraft Losses

One TA-4F and a UH-1E were lost to direct enemy action in July. The TA-4F was downed by hostile ground fire over the southern end of A Shau Valley on the 11th. On the 19th, the armed UH-1E crashed after receiving small arms fire causing a fire and separation of the tail boom.

Distribution of Aircraft

July marked the beginning of redeployments scheduled for increment four of the KEYSTONE series. On 1 July, VMCJ-1 stood down from combat operations and made final preparations to redeploy and fly the aircraft out of RVN. Some of the EA-6As were flown across the Pacific to Whidbey Island, Washington and then on to VMCJ-2 at Cherry Point, North Carolina. Six others and nine RF-4Bs were flight ferried to Iwakuni, Japan. During their 62-month tour in RVN, electronic warfare (EW) aircraft (including the EF-10Bs replaced by EA-6As) assigned to VMCJ-1 flew over 14,500 combat support sorties. Fulfilling Navy, Air Force, and Marine requirements, the aircrews conducted EW missions from western North Vietnam to Hai-phong and the DMZ to Hanoi, and provided support for Marine operations in Route Package One and Air Force

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strikes in the DMZ. Since the bombing halt north of the 17th parallel, the EA-6A has been a key to the highly successful drone reconnaissance of North Vietnam.

In addition to EW sorties, VMCJ-1 crew members flew photographic, infrared, and side looking airborne radar missions both in and out-of-country. The RF-8A provided photographic support from April 1965 until November 1966 when the arrival of the multi-sensor RF-4B expanded the squadron's capabilities. Imagery collection missions included flights over Vinh and Dong Hoi, North Vietnam, bomb damage assessment in Laos, and daily trips over A Shau Valley and the DMZ.

Signifying the effective performance of VMCJ-1, the unit was selected by the Marine Corps as its outstanding squadron during fiscal year 1967.

Another squadron movement in July was completed on the 26th, when VMA-311 flew 20 A-4Es from Chu Lai to Danang, thus completing transfer of the Squadron from MAG-13 to MAG-11.

Aircraft assignments and unit locations of the 1st Marine Aircraft Wing are depicted in the chart on the following page.

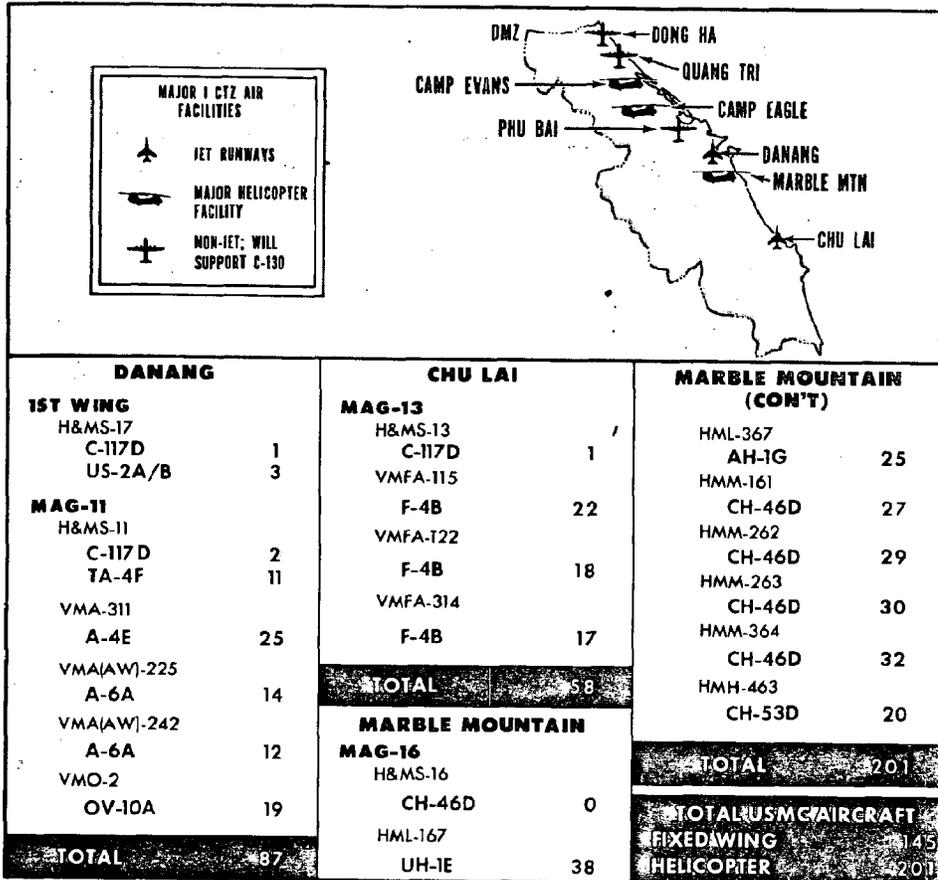
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1ST WING AIRCRAFT: JULY 1970



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SUMMARY

Throughout August, while remaining 1st Marine Division and Combined Action Force units conducted patrols, ambushes, and small unit operations at approximately the same rate as in preceding months, there was less contact with the enemy. Even in western Quang Nam, where 1st Reconnaissance Battalion teams sought NVA/VC activity, there were fewer sightings, engagements, and consequently, enemy killed. Similarly, activations of seismic intrusion devices and other unattended ground sensors, used extensively by III MAF to detect enemy presence, were less frequent. Operations PICKENS FOREST (ending late in the month) and LYON VALLEY (a nine-day, midmonth effort) also reflected enemy avoidance of contact. Nevertheless, III MAF Marines killed 305 NVA/VC and captured 25, including results from combined action platoons.

Further deactivations of Combined Action Force units reduced the Force to one combined action group employed in Quang Nam. Operations of this group, territorial forces, other ARVN elements, and Combined Unit Pacification Program units, coupled with GVN resettlement projects and Marine civic action, continued pacification and community development progress.

Much of III MAF attention was focused on activities related to fourth increment redeployments. By end-month, numerous combat support and service units had left RVN, mostly by 7th Fleet amphibious shipping for locations in WestPac, MidPac, and CONUS. In addition to decreased combat activity and a revision of sortie allocations, the shift of some 1st Marine Aircraft Wing units out of Vietnam resulted in reduced helicopter and fixed wing flight operations. Also related to redeployments were two logistic programs which proceeded smoothly in August. One redistributed excess materiel to Marine and other Free World forces to achieve economic usage of assets. The other, involving transfer of equipment to the RVNAF, furthered US efforts to modernize and equip Vietnamese forces.

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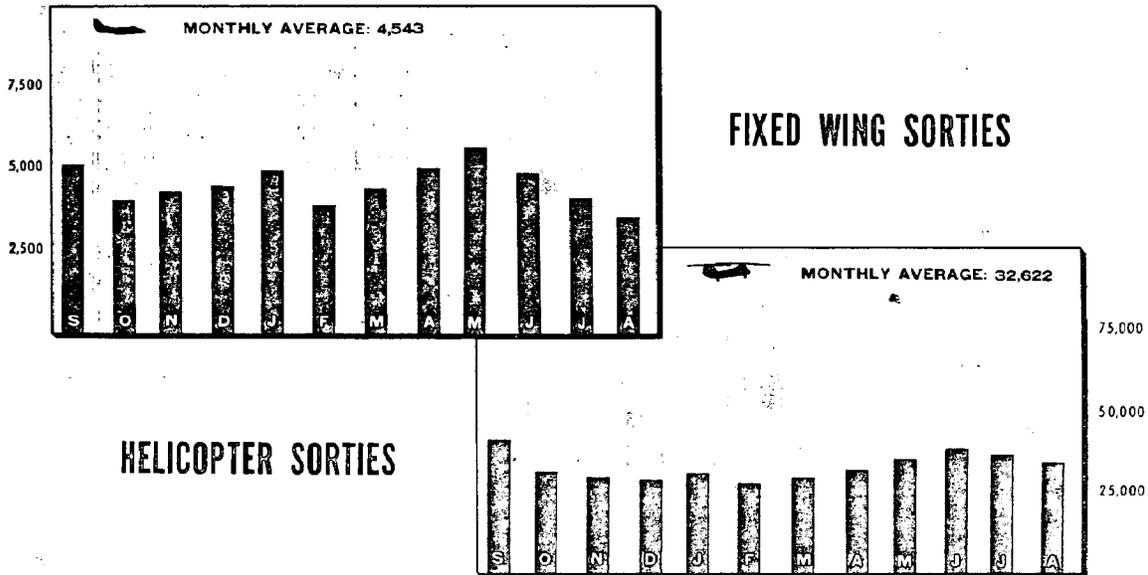
AIR OPERATIONS

The decline in flight operations executed during August is partially attributable to KEYSTONE ROBIN ALFA redeployments of 1st Marine Aircraft Wing elements. Fixed wing combat missions were significantly reduced after midmonth, while combat support flights approximated the level established in July.

Utilization of helicopter assets assigned to Marine Aircraft Group (MAG)-16 remained high, as 34,434 of the 38,024 sorties flown by 1st Wing fulfilled requests to lift more than 77,900 passengers and 6,200 tons of cargo. In view of stand down of a 26-plane CH-46D squadron on 5 August, the utilization rate for remaining Sea Knights increased to meet unabated requirements.

The graphs below show the relationship of 1st Wing operations in August to totals since September 1969.

MARINE AIR OPERATIONS: SEP 1969 - AUG 1970



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In-Country Fixed Wing Operations

First Marine Aircraft Wing supported Free World maneuver units throughout MR 1 with 2,787 combat and combat support sorties. Operations after 16 August averaged 43 attack missions per day in contrast to the 1970 average of 90 per day. Flying 2,069 combat sorties, the two fixed wing aircraft groups in-country, MAG-11 and 13, expended 6,085 tons of bombs, 1,799 napalm canisters, and 5,873 air to ground rockets (over 5,700 of which were fired by OV-10A pilots).

Marine air support, readily available with varied ordnance loads, continued to be much sought after as indicated by combat missions flown for all Free World forces in MR 1 and occasionally northern MR 2. Following are instances of flights during August resulting in representative bomb damage assessments as reported by forward air controllers. Mid-afternoon on the 1st, a flight of A-4Es from Marine Aircraft Group-11 struck an enemy logistic position in the southern half of the DMZ, eight miles north-northwest of the Rockpile. Sixteen 500-pound bombs dropped by the Skyhawks ignited seven secondary explosions and left two secondary fires burning in the target area. At noon the next day, two F-4Bs on a preplanned mission were targeted against a bunker complex nine and one-half miles northeast of Khe Sanh. The aerial observer reported 15 bunkers destroyed and six bodies among the debris. Shortly before noon on 5 August, two flights of F-4Bs were scrambled from the Chu Lai alert pad to hit a newly discovered enemy position six miles west-southwest of Hue in Thua Thien province. These flights razed 20 structures and 20 bunkers. The largest group of enemy killed by Marine air strikes during the month occurred on the 13th, when two MAG-13 F-4Bs accounted for 19 dead and an 82mm mortar destroyed eight miles southwest of FSB Ryder.

A-6A aircrews flew 480 combat sorties in RVN during the month--39 percent were interdiction missions flown under control of AN/TPQ-10 ground radar

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systems, and most of the rest were preplanned close air support sorties guided by a portable radar beacon called RABFAC (radar beacon, forward air control). This guidance system was developed by the Marine Corps to improve the capability to deliver ordnance in support of troops under conditions of reduced visibility.

The six-pound beacon is used in conjunction with the A-6A integrated attack-navigation system, composed of computers, three radars, and other devices, which provides steering commands and a signal for automatic release of weapons. Although the RABFAC can be powered by a generator, it is normally operated from a 16-pound battery; thus, it is easily transportable by forward air controller (FAC) teams.

Although the RABFAC/A-6A system is effective under periods of limited visibility, it has also proven valuable in ideal weather and light conditions. The system ensures quick and accurate location of the target without a marking round from supporting artillery, mortars, or OV-10As. Additionally, this bombing technique is compatible with the already extensive training syllabus required for aircrew employment of the sophisticated A-6A system.

As an A-6A arrives on station over the battlefield, the FAC activates the beacon and provides a target briefing to the pilot by radio. This consists of beacon location, positions of friendly troops, description of the target, number of bombs desired, heading of bombing run, and direction to pull out after ordnance is released. The beacon, coupled with the aircraft's systems, produces a readily identifiable image on the plane's radar scope. Once offset bombing mode has been selected by the aircrew, the system provides steering commands to a point from which automatically released munitions will strike the target. When a FAC can observe the target, and time permits, the aircrew will confirm target location with a simulated bombing run. On the second pass the plane will release only one or two bombs, after which the FAC sends corrections to bring the next drop on target; generally, the third run yields 100 percent target coverage.

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The unique all-weather and enhanced fair weather close air support capability resulting from the Marine RABFAC/A-6A combination has been extended throughout MR 1. During August, beacons were routinely used by 1st Marine Division; Americal Division; 101st Airborne Division; 1st Brigade, 5th Infantry Division (Mechanized); and 5th Special Forces Group, as A-6As were tasked to fly 10-12 RABFAC sorties per day.

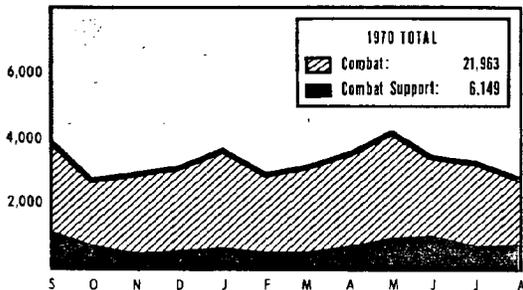
OV-10A aircrews from Marine Observation Squadron-2 continued intelligence and forward air controller (airborne) support by flying 597 sorties in August. Visual reconnaissance of the 1st Marine Division area of responsibility was their mission on 62 percent of the flights, while 32 percent controlled fixed wing strikes. Remaining flights included small numbers of escort, photography, and artillery spotting missions.

TA-4F pilots, tasked to collect intelligence information on visual reconnaissance flights, logged 132 in-country sorties during the period. Because of the TA-4F's high speed, coverage of large areas during a short period of time is possible; therefore, much of the intelligence from the flights was useful to other XXIV Corps elements in addition to III MAF.

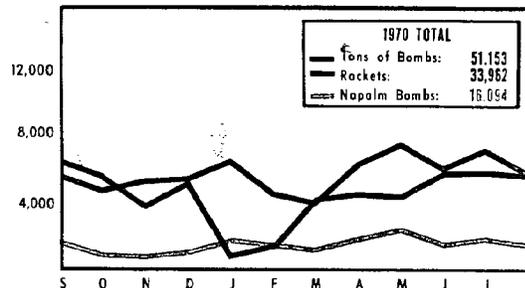
The following graphs reflect in-country combat and combat support operations and munition expenditures for the past year.

**IN-COUNTRY FIXED WING SUPPORT BY MARINE AIRCRAFT
SEPTEMBER 1969 - AUGUST 1970**

SORTIES FLOWN



ORDNANCE DELIVERED



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Helicopter Operations

Helicopter statistics for August show a decrease in flight operations for all types of rotary wing aircraft, except the AH-1G. Sortie rates of CH-53Ds and UH-1Es each declined by approximately 1,000 sorties, while CH-46Ds flew 701 sorties less than in July. The latter was attributed in part to Marine Medium Helicopter Squadron (HMM)-161 terminating combat support operations on 4 August.

HMM-262, 263, and 364--the CH-46D squadrons remaining in-country after stand down and redeployment of HMM-161--increased their operational tempo, as 19,034 monthly sorties carried 35,496 passengers and 1,112 tons of logistic supplies. Throughout the month, as in the past, these flights were primarily for III MAF, RVNAF, and ROKMC units.

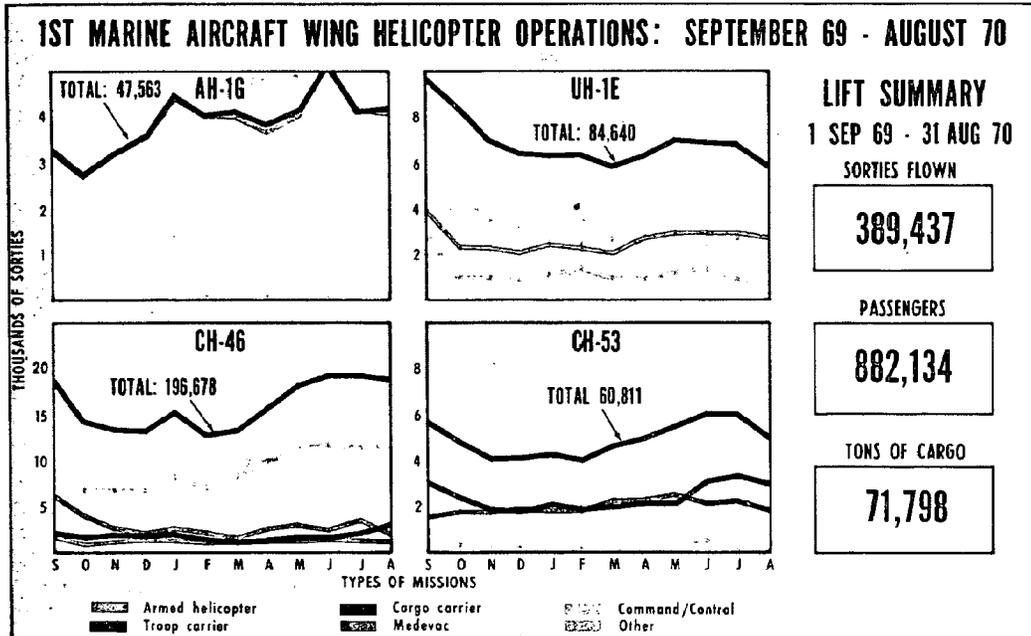
While total sorties for August dipped below the numbers compiled for each of the last three months, CH-53Ds flew 5,161 missions, carried 50 percent of all passengers, and helilifted 82 percent of the equipment during the month. The Sea Stallion's lift capability was relied upon frequently for artillery displacements this month; over 50 cannon and accompanying ammunition were moved. A typical example was the 12 August movement by two CH-53Ds of four 105mm howitzers, 600 rounds of ammunition, and 50 Civilian Irregular Defense Group (CIDG) personnel from FSB McNutt (21 miles northwest of An Hoa) to Hill 37 (seven miles north-northwest of An Hoa). Two other Sea Stallions returned the next morning and shuttled 500 more CIDG troops from the FSB to An Hoa combat base.

Many logistic and combat support missions by medium and heavy helicopters were accompanied by UH-1E or AH-1G armed escorts, as Marine Light Helicopter Squadrons-167 and 367 flew more than 7,800 armed helicopter flights. An additional 2,468 sorties by UH-1Es provided command and control support for various ground commanders.

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The following graphs compare rotary wing operations with monthly totals since September 1969.



On 5 August, Marine Medium Helicopter Squadron-161 stood down from combat operations and began final preparations to depart RVN on 18 August for Marine Corps Air Facility, Santa Ana, California. Initially introduced in-country on 12 June 1965, HMM-161 was equipped with UH-34D helicopters, until it rotated back to CONUS on 17 December 1966 for refitting with CH-46As. The Squadron returned to Vietnam in May 1968, when it joined Provisional Marine Aircraft Group-39 at Quang Tri to provide helilift support for 3d Marine Division in northern MR 1. After the Division moved to Okinawa in November 1969, HMM-161 transplated to Phu Bai and then to Marble Mountain Air Facility outside of Danang. While most of the Squadron's helicopters were shipped to MAG-36 at Futema, Okinawa, the squadron cadre and colors returned to re-form at Santa Ana. The redeployment completes another page of

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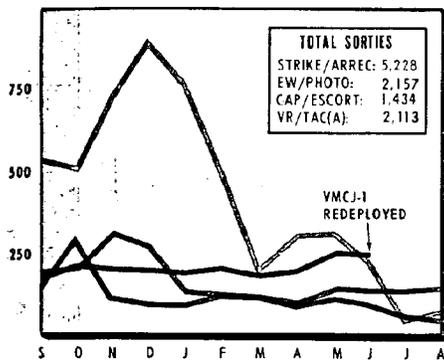
HMM-161 combat history, stretching back to 1951 in Korea, when it pioneered helicopter tactics as the first transport helicopter squadron to operate in a combat zone.

Out-of-Country Operations

First Wing missions out-of-country during August closely paralleled the reduced levels of activity established in July. Pilot and bombardier/navigator teams flying A-6As logged 87 night armed reconnaissance sorties over Laos, the majority of which were targeted against heavily traveled Route 912 of the Ho Chi Minh Trail, striking storage areas, transshipment points, and moving vehicles.

These strike operations were halted on 19 August due to a combination of revised sortie allocations, current redeployments, and high priority requirements in-country.

MARINE OUT-OF-COUNTRY AIR OPERATIONS



Pilots flying TA-4Fs compiled a total of 156 missions in August. These flights reconnoitered road networks and controlled daytime strikes on designated targets. Twelve F-4B escort sorties accompanying some of

the TA-4Fs completed the picture of Marine air operations over Laos; however, 48 barrier combat air patrols over the Gulf of Tonkin represented the dominant out-of-country role for Phantom II crews.

Aircraft Losses

Two helicopters were lost to direct enemy action in August. During a night medical evacuation flight on 7 August, a CH-46D was hit and downed by small arms fire while departing the landing zone. On the 18th, an armed UH-1E escorting a ROKMC resupply mission crashed and burned after making two runs to suppress hostile fire.

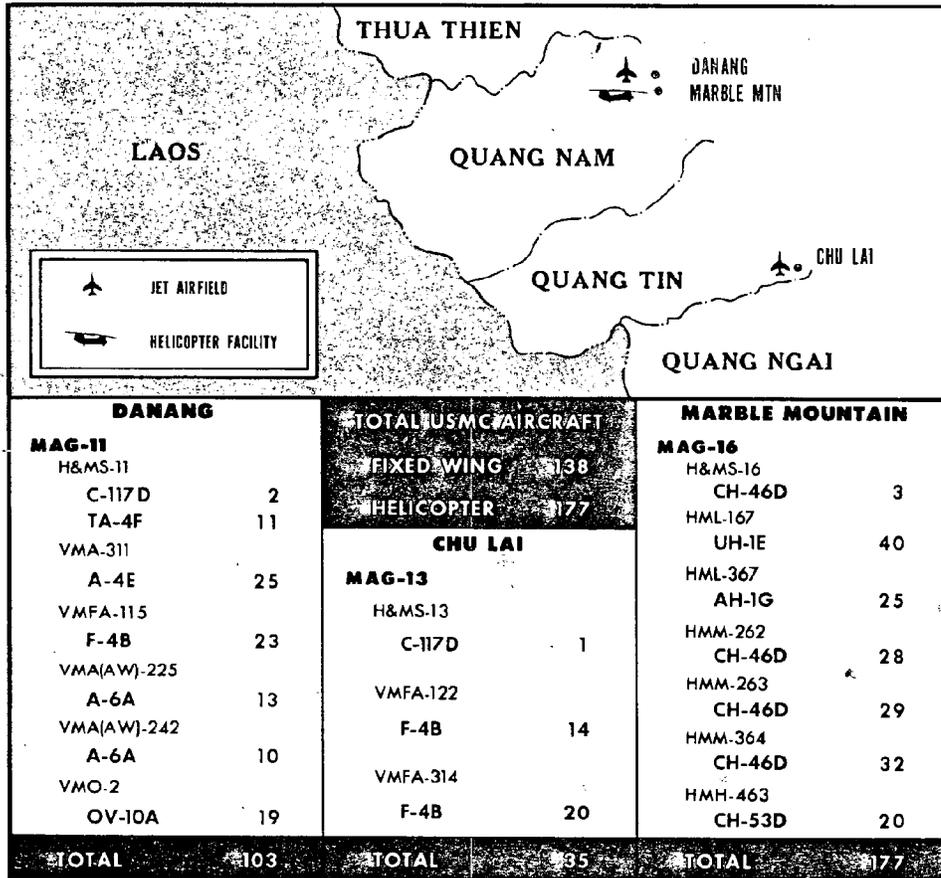
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Distribution of Aircraft

Following in the trace of VMA-311, VMFA-115 re-located to Danang from Chu Lai on 24 August and was placed under the command of Marine Aircraft Group-11. In addition to HMM-161, Marine Wing Support Group (MWSG)-17 redeployed from RVN during the month. As can be seen from the following end-month distribution of aircraft table, this shift removed three US-2Bs and one C-117D from 1st Wing. Additional information concerning MWSG-17 redeployment and functions is contained in the following chapter.

1ST WING AIRCRAFT: AUGUST 1970



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SUMMARY

Whereas combat activity continued to decrease during September, III MAF logistic endeavors proceeded at a high level, providing support for US and Korean Marines, redistributing and transferring materiel, and embarking units leaving RVN. Redeployment or stand down of the 7th Marine Regiment and combat and service support units brought about realignment of tactical areas of responsibility within III MAF. Concurrently, Force Logistic Command was streamlined, and 1st Marine Aircraft Wing constricted to bases at Danang and nearby Marble Mountain. Aircraft of the three squadrons redeploying during the month were flight ferried to Hawaii and California in Operation KEY GRASP, after overcoming complications caused by Typhoon Georgia. September also brought deactivation of the Combined Action Force, leaving in its stead one combined action group in Quang Nam province.

As assets of III MAF diminished, operations had to be reduced proportionately. Except for barrier combat air patrols over the Gulf of Tonkin, preplanned out-of-country air operations ceased at midmonth. Similarly, ground maneuver was lessened as only the 1st and 5th Regiments and 2d Battalion, 7th Marines remained in the field at end-month. These units, the 7th Marines prior to stand down, reconnaissance elements, platoons from the combined action group, and Combined Unit Pacification Program teams accounted for 182 NVA/VC killed, 19 weapons captured, and 25 prisoners taken, a sharp decline from past months—attributable to reduction in enemy forces, redeployments, and bad weather. The low tempo of fighting allowed GVN pacification and rural development programs to proceed without significant interruption.

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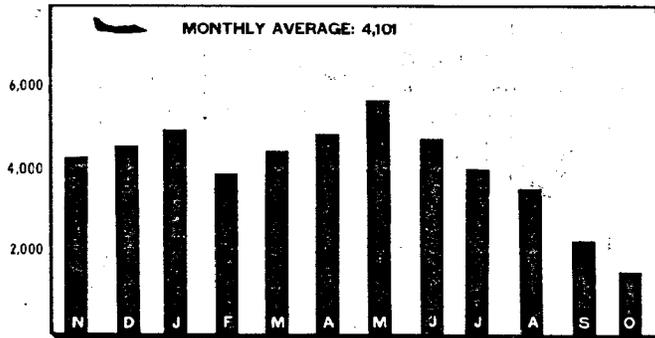
AIR OPERATIONS

The 1st Marine Aircraft Wing supported forces in MR 1 during October with 1,166 of the 1,503 fixed wing offensive air support, anti-air warfare, and visual reconnaissance sorties logged. Air operations were curtailed due to a lack of significant action and bad weather from four tropical storms, the last of which passed through Danang during the evening of the 29th.

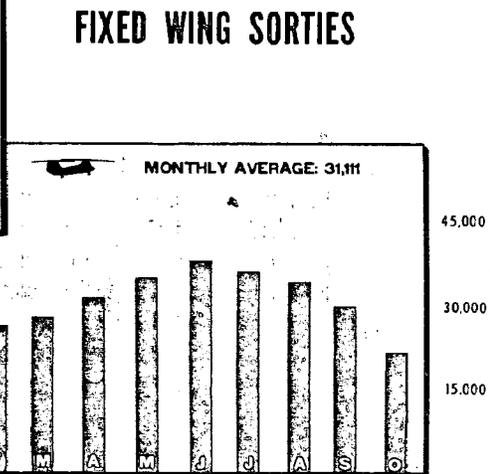
Rotary wing operations by Marine Aircraft Group (MAG)-16 decreased for the fourth consecutive month, although 1st Wing helicopter operations provided emergency relief in response to the devastating end-month floods, rescuing thousands of Vietnamese civilians. The 22,895 helicopter sorties by the Group transported more than 49,000 passengers and 3,800 tons of cargo this month.

The following graphs reflect fixed wing and helicopter sortie totals since November 1969.

MARINE AIR OPERATIONS: NOV 1969 - OCT 1970



HELICOPTER SORTIES



FIXED WING SORTIES

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In-Country Fixed Wing Operations

Restrained by a sortie limitation, typhoons Iris and Joan, tropical storms Kate and Louise, and limited enemy activity, the four Marine Aircraft Group-11 squadrons registered a low in fixed wing operations with 1,166 sorties. The preponderance of these missions, 482, was close air support for Free World forces in MR 1, while the remainder was interdiction, combat air patrol (CAP) missions, and direct air support (for example, landing zone preparations or strikes against enemy positions not close to friendly troops). Marine Fighter/Attack Squadron-115 flew 71 in-country CAP missions, which, when combined with the 65 out-of-country combat air patrols, represented 50 percent of the month's F-4B sorties--a definite shift in employment of F-4B assets to a fighter/air defense role.

Other support missions were also hampered by the storms as evidenced by a 43 percent reduction in TA-4F and OV-10A flights. TA-4F pilots flew 40 visual reconnaissance (VR) sorties during the month, and OV-10A aircrews logged 314 missions for escort, forward air controller (airborne), photography, and VR purposes.

Even though flight operations were sharply curtailed during October with more than 480 sorties cancelled due to foul weather in target areas, several MAG-11 flights reported significant bomb damage assessments. On the 5th just before noon, two F-4Bs struck a transshipment point in the Da Krong Valley 22 miles southwest of Quang Tri City. Ten 1,000-pound bombs demolished six bunkers and started a secondary fire. Three days later, two A-4E Skyhawks hit six miles to the west along the same infiltration route, dropping napalm and 500-pound bombs which caused two secondary explosions and destroyed a bunker. Shortly after noon the same day, a single A-6A delivered 22 500-pound bombs against an NVA bunker complex nine miles north-northwest of the

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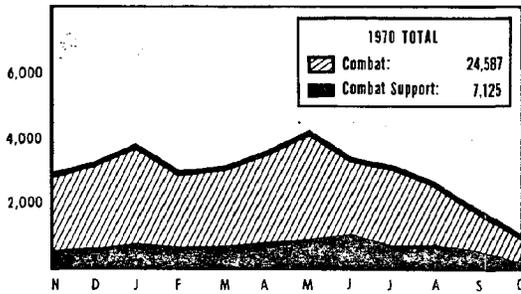
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Rockpile and just south of the Ben Hai river. An airborne controller counted ten bunkers destroyed by the strike.

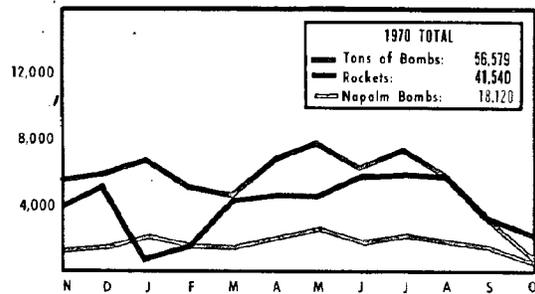
Ordnance expenditures and fixed wing operations for the past year are compared on the following graphs.

**IN-COUNTRY FIXED WING SUPPORT BY MARINE AIRCRAFT
NOVEMBER 1969 - OCTOBER 1970**

SORTIES FLOWN



ORDNANCE DELIVERED



Helicopter Operations

Continuing the four-months trend of decreasing helicopter operations, MAG-16 sorties dipped 25 percent from September. Notwithstanding, operations at end-month to support disaster relief added significantly to helicopter utilization.

During the afternoon of 29 October, the littoral south of Danang flooded as a result of several days of almost continuous rain added to saturation accumulated from other storms during the previous 25 days. With many low areas inundated, rising waters necessitated evacuation of military personnel and civilians to higher ground. Flying under hazardously low, 500-foot ceilings with visibility reduced to less than one-half mile by driving rain, MAG-16

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helicopter crews worked until after midnight, when zero visibility conditions forced them to cease. The relief operations, utilizing all available assets including US Army and VNAF helicopters, continued through the 31st with similarly difficult flying weather over hostile territory. During the two and one-half days, more than 11,000 people were moved to safe locations, and tons of food and clothing were delivered--a successful civic action accomplishment.

The CH-46D squadrons flew over 12,000 sorties that lifted 26,866 passengers and 544 tons of logistic items. In addition to 3,996 tactical and logistical transport sorties, the tandem-rotor aircraft conducted 1,717 medical evacuation, 480 reconnaissance, 1,056 command and control, and 973 search and rescue missions. More than 800 of the latter flights were logged during the last three days of the month in flood relief operations.

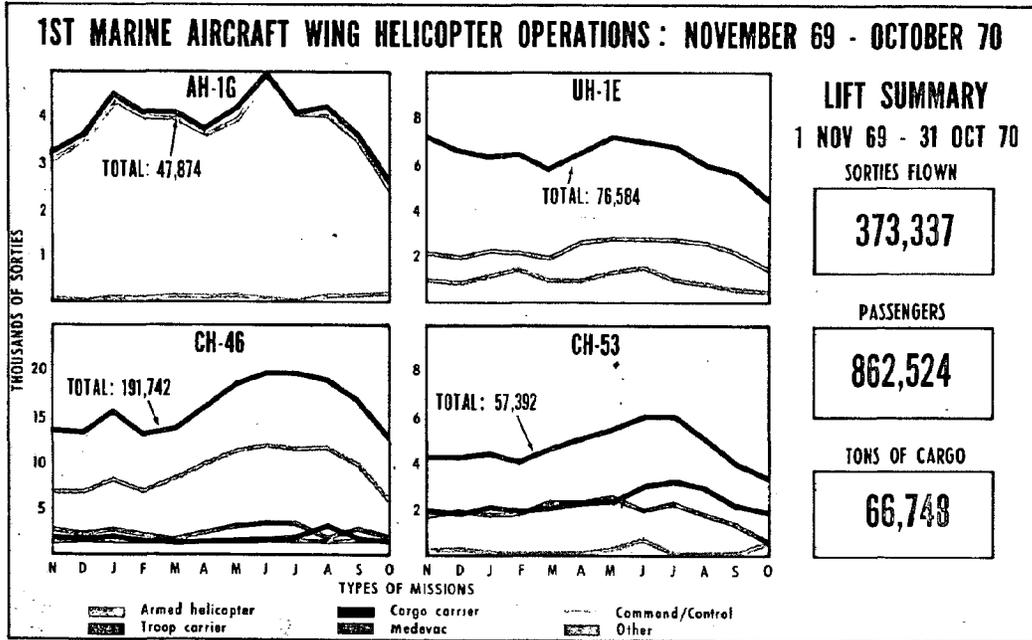
Because of their ability to move large groups of people, CH-53D Sea Stallions made an important contribution to flood relief operations. The 18 Sea Stallions of Marine Heavy Helicopter Squadron-463 moved 41 percent of the passengers and 86 percent of the cargo transported by USMC helicopters in October. Additionally, millions of dollars were saved by the 19 tactical aircraft recovery sorties that reclaimed salvageable helicopters downed in III MAF operational zones.

Tactical armed escort was the role of 4,247 UH-1E and AH-1G flights, as they accompanied transport helicopters on missions into landing zones where enemy fire was probable. The UH-1E was also used extensively for command and control tasks, and 2,329 such sorties were logged during the month.

The graphs on the following page portray the performance, by mission, of 1st Wing helicopters during the past 12 months.

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Out-of-Country Operations

Marine Fighter/Attack Squadron-115 flew all of the 65 out-of-country missions logged during the month. Scheduled for four six-hour barrier combat air patrol periods in October, VMFA-115 flew 32 sorties during the first three periods. The last barrier patrols, slated for the evening of 29 October, were cancelled because of poor weather at Danang.

Since departure of Chu Lai-based F-4B squadrons, VMFA-115 has maintained two aircraft daily on an air-defense alert pad. These aircraft have also been used to provide airborne fighter defense in case North Vietnamese MIGs attacked B-52s on Laotian strikes or other Free World aircraft operating in areas contiguous to NVN borders. Commencing 14 October, flights of F-4Bs were launched almost daily for these operations; a total of 33 sorties had been flown by end-month.

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KC-130F Operations

Recently, in a move associated with redeployment of 1st Wing units, KC-130F Hercules assets, operated from Danang Air Base by a detachment from Marine Aerial Refueler Transport Squadron (VMGR)-152, were reduced from four to three. These aircraft were deployed to Vietnam early in the war, primarily to refuel planes on extended flights such as BARCAP or attack aircraft poised on airborne alert for close air support requests. Plans call for a fourth aircraft (from Okinawa) to augment the three remaining in-country when BARCAP assignments necessitate.

For barrier combat air patrols, KC-130F crews maintain an orbit east of the controlling US Navy ship and refuel the fighters 10-40 minutes after they arrive on station, depending on intended BARCAP duration. Tanker periods are scheduled to ensure a KC-130F is enroute to/from or in the refueling track. This arrangement requires three KC-130Fs, each flying two sorties, to support a normal six-hour BARCAP cycle. In addition to scheduled tanker periods, the VMGR-152 detachment usually maintained one KC-130F in a 30-minute ground alert status to meet any emergency requirements for airborne refueling.

In addition to refueling barrier combat air patrols, the KC-130F has been used elsewhere to extend time on station or range for Marine fighter and attack aircraft. During periods of highest combat activity, an airborne flight of A-4Es or F-4B/Js was maintained over Hue during daylight hours for quick reaction to requests in MR 1 for immediate air support. KC-130F tankers were part of this package, refueling on-station aircraft or any others needing extension of flight time. In another instance of KC-130F refueler utilization, the tanker/transports were an integral part of operations at Chu Lai when wind conditions dictated launching A-4Es with reduced fuel loads from the short crosswind runway. Shortly after take-off, these planes received additional fuel from the orbiting tanker and proceeded on their missions.

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Although the primary mission of the detachment is aerial refueling, other type missions to support III MAF were included in more than 5,400 sorties flown during the past year. Full utilization of KC-130F tankers during periods of minimal refueling requirements was realized by using the Hercules for delivery of materiel to combat bases, shuttling of personnel, and flare drops. The plane's capability to remain airborne for long periods of time with large payloads of flares proved to be invaluable. Whether the flares were provided to light the battlefield for support of ground engagement, medical evacuation, reconnaissance team emergency extraction, or other situations, the illumination increased the effectiveness and facilitated the tasks of ground combat units.

On occasion, KC-130F aircrews have been called upon to provide air-delivered emergency resupply. When Khe Sanh was occupied by the 26th Marines, supplies were paradropped at low altitude, limiting exposure to hostile fire while ensuring delivery. Parachute resupply also has been used at mountain landing zones when foul weather prohibited normal helicopter delivery. In these instances, the AN/TPQ-10 operated by an air support radar team vectored the KC-130F to the appropriate release point.

Aircraft Losses

Three MAG-16 helicopters were destroyed as a result of direct enemy action during October. An AH-1G was burned by the enemy one hour and 45 minutes after an engine failure forced the crew to abandon it in an unsecure area. The second aircraft, a UH-1E section leader in a reconnaissance team extraction, crashed in mountainous terrain while attempting to locate the patrol in minimal weather. The third loss occurred late in the month, when a CH-46D on an emergency medical evacuation was destroyed after an engine failure during a hover extraction.

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Distribution of Aircraft

The following chart details distribution of aircraft and reflects minor assignment changes since the end of September. Continuing redistribution of TA-4Fs transferred two more out of RVN during the month. Seven aircraft shown in the "Other" column are involved in various modification or repair programs in-country.

STATUS OF 1ST WING AIRCRAFT: 31 OCTOBER 1970

Unit	Aircraft Model	Total Assigned	PAR	Damage Repair	Other	Total In-Country
MAG-11						
H&MS-11	C-117D	3	0	0	0	3
	TA-4F	6	1	0	0	5
VMA-311	A-4E	23	1	1	0	21
VMFA-115	F-4B	23	6	3	2	12
VMA(AW)-225	A-6A	13	0	0	0	13
VMO-2	OV-10A	19	0	1	3	15
TOTAL FIXEDWING		187	18	5	5	69
MAG-16						
H&MS-16	CH-46D	0	0	0	0	0
HML-167	UH-1E	39	6	2	0	31
HML-367	AH-1G	24	0	1	0	23
HMM-262	CH-46D	28	6	1	1	20
HMM-263	CH-46D	27	6	2	1	18
HMM-364	CH-46D	30	10	2	0	18
HMH-463	CH-53D	19	1	0	0	18
TOTAL HELICOPTERS		167	29	8	2	128

REPRODUCED AT GOVERNMENT EXPENSE

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SUMMARY

As III MAF elements continued ground operations coordinated with ARVN forces in Operation HOANG DIEU during November, Marine action consisted of infrequent, minor skirmishes. Vietnamese forces in HOANG DIEU, deployed virtually throughout populated regions of Quang Nam province, achieved noteworthy pacification and combat gains, while USMC units in counter guerrilla operations accounted for almost 100 NVA/VC killed. Combined Unit Pacification Program teams and Combined Action Group platoons focused more on improving village and hamlet security than on offensive operations. Nevertheless, their efforts, plus those of reconnaissance elements, brought the month's results to 141 NVA/VC killed, 22 prisoners taken, and 76 weapons captured.

These figures are once again lower than Marine results of any recent month—a fact largely attributable to strengthened Vietnamese forces and increasingly weaker enemy opposition in the province. Much of the latter stems from steadily progressing pacification programs, including a supplementary plan started in November designed to spark all concerned onto greater achievement this year and lay the groundwork for the 1971 program.

Marine aviation and logistical efforts, with but a few exceptions, continued much as in recent months. First Marine Aircraft Wing, after a two-month break, logged a considerable number of flights against targets in Laos, thus contributing to US interdiction efforts while maintaining high usage of allocated sorties. The aviation ordnance inventory was improved at midmonth, when a more effective weapon for clearing landing zones of vegetation and surprise-firing devices was introduced. Although logistic emphasis was toward providing routine service support and distributing excess materiel, engineer effort concentrated on cleanup and repairs necessitated by floods at end-October.

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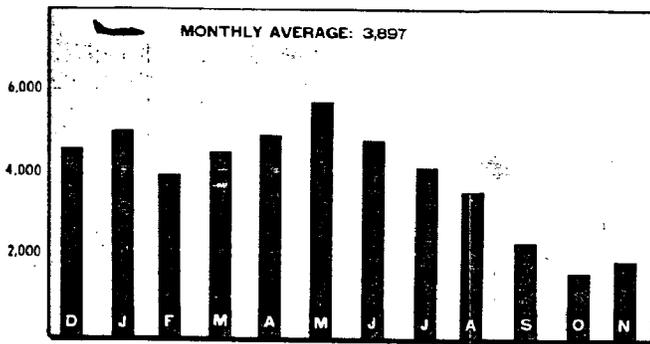
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AIR OPERATIONS

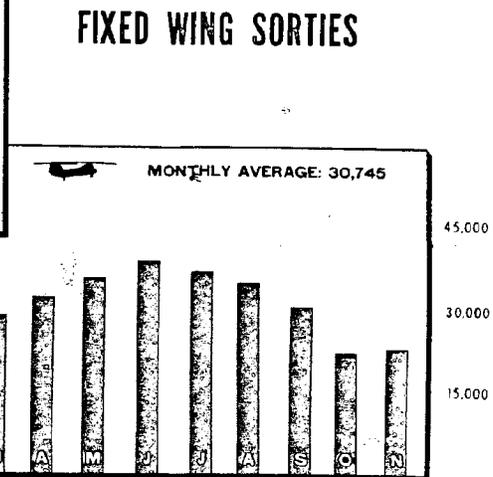
Tactical fixed wing aircraft of 1st Marine Aircraft Wing supported Free World forces with 1,253 offensive air to ground and air to air sorties during November; also logged were 340 reconnaissance missions. Marine strike and armed reconnaissance missions were resumed against targets in Laos on the enemy resupply routes emanating from NVN and terminating in RVN. In this regard, almost half of the fixed wing sorties were interdiction flights dedicated to destroying supplies destined for NVA/VC forces in-country.

As can be seen in the graphs depicting helicopter and fixed wing sortie totals for the past year, helicopter operations remained at approximately the same level registered in October. In a steady effort, 23,956 rotary wing sorties, lifting over 4,100 tons of cargo and 49,000 combat troops/passengers, were flown during the month.

MARINE AIR OPERATIONS: DEC 1969 - NOV 1970



HELICOPTER SORTIES



FIXED WING SORTIES

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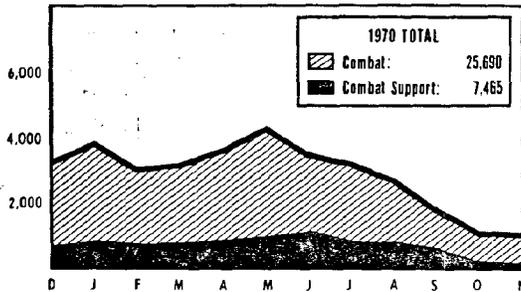
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In-Country Fixed Wing Operations

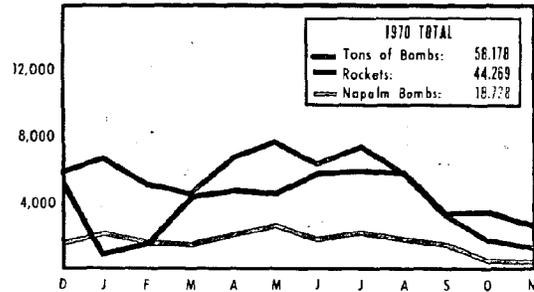
Marine Aircraft Group-11, with its mixed inventory of assets (F-4Bs, A-6As, A-4Es, TA-4Fs, and OV-10As), supported operations in MR 1 with 1,103 attack, fighter, and reconnaissance sorties. Flying activity in-country was much the same as last month--419 close air support, 243 interdiction, 35 direct air support, and 77 combat air patrol missions were logged. The tonnage of bombs and number of napalm canisters delivered during these flights are depicted below. Also shown is the number of aerial rockets expended, all except eight fired by OV-10A pilots from Marine Observation Squadron (VMO)-2.

**IN-COUNTRY FIXED WING SUPPORT BY MARINE AIRCRAFT
DECEMBER 1969 - NOVEMBER 1970**

SORTIES FLOWN



ORDNANCE DELIVERED



Of November combat support flights in the preceding graphs, aircrews of Headquarters and Maintenance Squadron (H&MS)-11 and VMO-2 accounted for 340 visual reconnaissance, forward air controller (airborne) (FAC(A)), and photography sorties. The majority, 288, were by OV-10A crews, while TA-4F pilots flew the remaining 52 to reconnoiter infiltration routes near the western border of MR 1.

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Marine Attack Squadron (VMA)-311, Marine Fighter/Attack Squadron (VMFA)-115, and Marine All-weather Attack Squadron (VMA(AW))-225 provided 686 in-country attack sorties. VMA-311 (A-4Es) logged 416 of the air to ground missions, some of which were scrambled from the alert pad manned solely by Skyhawk pilots. Strikes on the 3d and 5th exemplify effectiveness of A-4E operations. Just before dusk on the 3d, two Skyhawks struck an enemy position on Charlie Ridge nine miles northwest of An Hoa with 500-pound bombs and napalm. The VMO-2 FAC(A) controlling the mission observed four secondary fires ignited among logistic stores. Two days later, another section of Skyhawks carrying the same type ordnance hit a more extensive position 20 miles southwest of Quang Tri City. The aerial observer counted four structures and 14 bunkers demolished.

Approximately half the 160 F-4B in-country flights by VMFA-115 were combat air patrols for B-52s, while the remainder were divided between close air support and interdiction. The A-6As, flown by aircrews from VMA(AW)-225, accounted for the other 187 attack sorties, all of which were preplanned. On one such mission on the 5th, a single A-6A ripped 22 bombs across a bunker complex eight miles northwest of Dong Ha. The controller saw two secondary explosions, a sustained fire, and five bunkers destroyed by the 500-pounders.

Helicopter Operations

The November rate of Marine Aircraft Group (MAG)-16 helicopter operations, closely paralleling the October effort, was dictated largely by the low level of combat activity and monsoonal weather. The latter not only affected air operations directly but also reduced ground operations, thereby further diminishing helicopter usage.

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Despite the absence of major tactical heli-lift requirements this month, logistic resupply, medical evacuation, and reconnaissance team insertion/extraction required transportation of 49,629 passengers and 4,171 tons of cargo. Armed helicopter, command and control, and tactical aircraft recovery missions brought the combined total to 23,956 sorties.

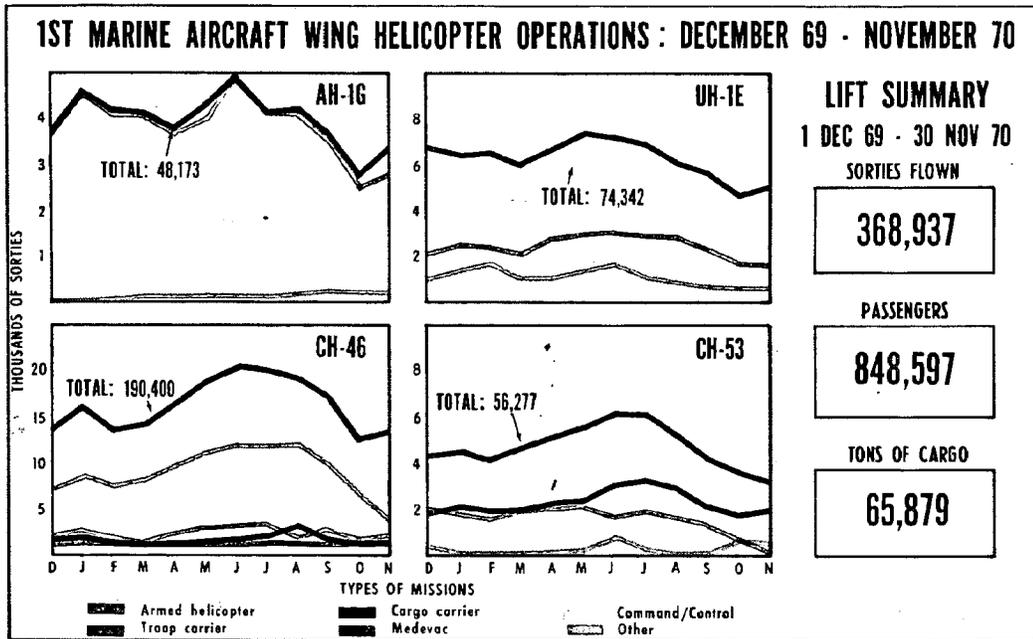
Medium and heavy lift requirements were handled by CH-46Ds and CH-53Ds operating from Marble Mountain Air Facility. HMH-463, an 18-plane CH-53D squadron, carried over 3,500 tons of cargo and 15,000 passengers in 3,095 sorties. CH-46Ds accumulated some 12,400 sorties, moving 63 percent of the troops and 16 percent of the cargo carried by USMC helicopters in RVN.

AH-1G Cobras and UH-1E Hueys of the light helicopter squadrons supported many of the medium and heavy helilift missions, flying 4,959 armed helicopter sorties. The Cobras continued to be especially valuable in escorting medical evacuation missions. In a typical mission, two AH-1Gs approach the landing zone approximately 2,000 feet above ground level. Upon arrival at the pickup point, the Cobras descend to 800 feet altitude and circle the zone 180 degrees opposite each other, prepared to deliver suppressive fire to within 15 yards of the friendly position.

In addition to the helicopter totals cited above, 2,735 command and control flights by UH-1Es were flown during the month. These, as well as other type missions flown by 1st Wing helicopters during the past year, are portrayed on the following page.

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Out-of-Country Operations

As a vital adjunct to in-country operations, obtaining full utilization of sortie allocations, Marine air support not required in-country was once again directed against input corridors in Laos. Onset of the dry season brought about improved trafficability and a higher rate of infiltration along the North Vietnamese lines of communication through Laos. Marine strike and armed reconnaissance sorties against the Ho Chi Minh Trail logistic network once more reached the level of operations flown in pre-monsoon months. During November, many of the sites struck were in designated interdiction boxes (IDB) at Mu Gia, Ban Karai, and Ban Raving passes. A-6A, F-4B, and A-4E aircraft participated in this program in addition to furnishing other flights against designated interdiction points (IDP) elsewhere along the Trail.

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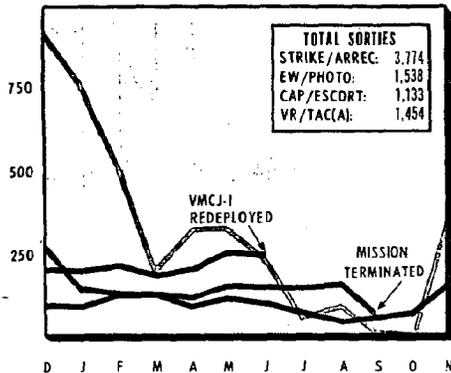
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Noteworthy this month was resumption of Marine A-4E preplanned strikes in the Laotian Steel Tiger region for the first time in eight months, averaging more than seven sorties per day after 8 November. Most of these two-aircraft flights were launched during daylight to bomb in the IDB program plus strike some IDPs.

After two months layoff, A-6A sorties out-of-country commenced on the 8th with four flights and subsequently averaged five armed reconnaissance/

MARINE OUT-OF-COUNTRY AIR OPERATIONS



strike sorties per night. Their primary mission was to detect and destroy trucks using the automatic moving target indicator of the aircraft's radar system. When the fuel state dictated a return to base, remaining ordnance was expended on designated secondary IDP or IDB targets.

F-4B flights were mostly for barrier combat air patrols over the Gulf of Tonkin and combat air patrols over Laos to protect B-52s. These fighter type missions totaled 153, while the attack capability of the F-4B was used on 54 occasions to hit ground targets in Laos.

Aircraft Losses

One aircraft, a CH-46D, was lost on the 18th as a result of direct enemy action during November. The helicopter crashed during a reconnaissance team emergency extraction in the Que Son mountains.

Distribution of Aircraft

Assignment and distribution of aircraft remained stable during the month. Minor changes in assignments and status are detailed in the following chart.

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STATUS OF 1ST WING AIRCRAFT: 30 NOVEMBER 1970

Unit	Aircraft Model	Total Assigned	PAR	Damage Repair	Other	Total In-Country
MAG-11						
H&MS-11	C-117D	3	0	0	0	3
	TA-4F	5	1	0	0	4
VMA-311	A-4E	23	2	0	0	21
VMFA-115	F-4B	23	6	2	4	11
VMA(AW)-225	A-6A	13	0	0	0	13
VMD-2	OV-10A	19	0	1	2	16
TOTAL FIXED WING		86	9	3	6	68
MAG-16						
H&MS-16	CH-46D	0	0	0	0	0
HML-167	UH-1E	39	5	4	0	30
HML-367	AH-1G	24	0	3	0	21
HMM-262	CH-46D	29	6	1	1	21
HMM-263	CH-46D	25	3	1	1	20
HMM-364	CH-46D	30	7	2	0	21
HMH-463	CH-53D	19	0	1	0	18
TOTAL HELICOPTERS		166	21	12	2	131

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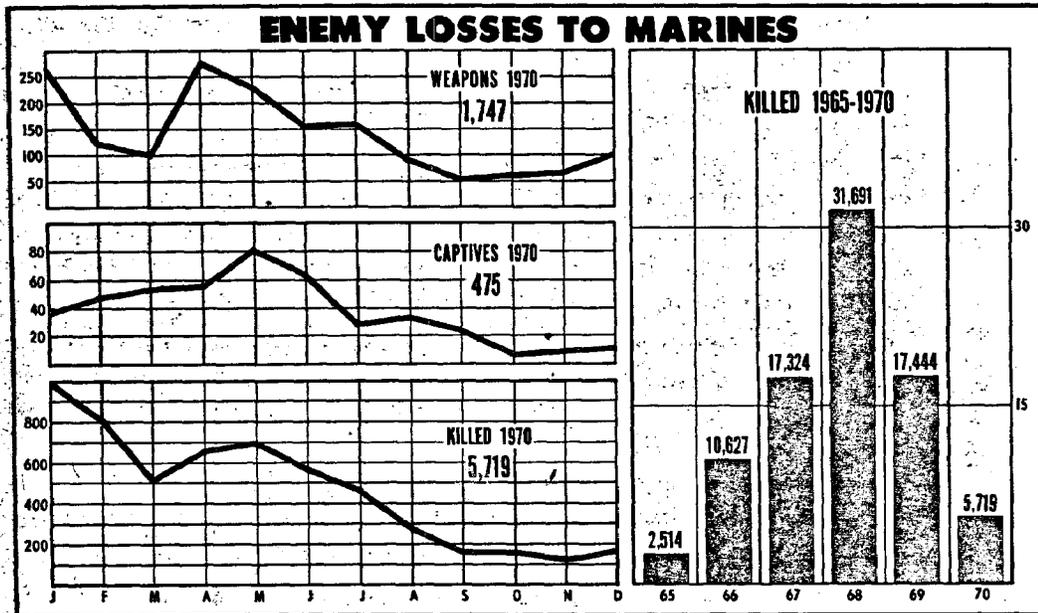
SUMMARY

While Marine activities in RVN during December essentially fell in line with operational trends evident for the past year, 1970 itself was a period encompassing many significant changes, either within III MAF or directly affecting the Force. In the main, these alterations—reduction of USMC forces, marked RVNAF improvement, reduction of enemy strength, tangible rural development and pacification progress, and a significant shift in enemy tactics—reflect dynamic progress toward achieving Pacific Command goals for Vietnam.

For III MAF, the year can be characterized as one of sweeping reductions, except burgeoning logistic endeavor associated with unit redeployments, redistribution or retrograde of materiel, and transfer of real estate and facilities. The decreases were evident in many areas, all of which add up to an impressively lower level of combat in December than a year ago. Although there are many indexes reflecting the drop in combat activity during the year—decreases in small unit contacts, enemy-initiated action, supporting arms employment, and Marine casualties, to name several—the trend is accurately portrayed by enemy losses to Marines. As can be seen in the following graphs, there was a fairly steady decline in NVA/VC killed and captured during the year as well as in weapons taken. December losses rose slightly as USMC forces, including 2d Combined Action Group platoons and Combined Unit Pacification Program teams killed 172 enemy, captured 13, and seized 105 weapons. A broader overview shows the trend since 1965. For the most part, this increasing quiescence mirrors steady progress toward meeting established in-country goals—enhancing RVNAF effectiveness; developing a secure environment; inflicting heavy losses on the enemy; denying base areas to NVA/VC; interdicting out-of-country supply routes; and restoring, opening, and securing lines of communication.

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The strides made toward achieving Pacific Command goals have made possible considerable reduction of III MAF strength, a process which has deeply affected operations this year. The Force, after extensive 1969 reductions, was diminished by approximately 50 percent during 1970; two infantry regiments and a proportionate share of supporting units (including two fighter/attack aircraft groups, a wing support group, and one reconnaissance and two helicopter squadrons) were moved to locales in Hawaii, CONUS, and WestPac. Nevertheless, Marines retained a complete combat team in RVN. The remaining 1st Wing, 1st Division, and Force Logistic Command elements are an air/ground force with the requisite balance of ground combat and support units; a good ratio of helicopters to supported units; and a mix of fighter, reconnaissance, and attack aircraft.

The tempo of Marine helicopter and fixed wing aircraft operations fluctuated from month to month in 1970, but by December both were off considerably from the previous year. Although rotary wing sortie rates varied primarily due to weather, tactical requirements, and redeployments, other factors

REPRODUCED AT GOVERNMENT EXPENSE

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influenced fixed wing operations. Chief among those was a paucity of targets in-country towards the latter months of the year. This factor was largely responsible for 1st Wing resumption of preplanned interdiction missions in Laos—a task that had been discontinued from August until November. Other out-of-country roles terminated during the year were visual reconnaissance/airborne controller missions using TA-4Fs and photographic reconnaissance and electronic countermeasure flights performed by RF-4Bs and EA-6As respectively. The latter two ended in July when the only Marine reconnaissance squadron in RVN stood down and redeployed. Although the size of the Wing constricted considerably this year, sufficient air control assets were retained to ensure responsive support and aircraft safety for III MAF and other service requirements.

By the end of the year, the NVA/VC appeared to be having extreme difficulty in Quang Nam. Losses and pacification successes forced him once again to rely primarily on guerrilla tactics, disestablish many units, and focus on rebuilding the infrastructure which was badly depleted in 1968 and since has been further disrupted by the GVN Phung Hoang Program and combat operations.

In December, III MAF and GVN forces were keeping pressure on the enemy in Quang Nam—much as had been done all year—with Operation HOANG DIEU 101. This operation, like its predecessor HOANG DIEU, virtually saturates the populated regions with small units to root out or intercept the enemy. In addition to these maneuvers, 1st Marine Division and ARVN forces conducted counter guerrilla operations throughout the province during the year, providing requisite security for across-the-board pacification progress achieved. Supplementing small unit operations were a number of large unit maneuvers executed to disrupt enemy base areas; Operation IMPERIAL LAKE continuing through end-year in the Que Son mountains and VU NINH 12, a Vietnamese maneuver well west of the lowlands, were typical. The latter also points up improvement of RVNAF units, now with central direction from Quang Da Special Zone Headquarters which last summer became the command element of a division-equivalent force comprised of most ARVN units in the province.

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Another closely related 1970 improvement was the noticeable progress in the Regional and Popular Forces—in part fostered by Marine Combined Action and Combined Unit Pacification Programs (CUPP). The Combined Action Program reached its apogee early in the year and then decreased rapidly to an effort localized in Quang Nam by end-year. The Combined Action Force Headquarters, established last winter to control four combined action groups, was deactivated in the fall leaving but one combined action group with 34 platoons working with territorial forces. Like combined action, CUPP has been extremely effective in enhancing village security and preparing Vietnamese units to stand alone. Throughout the year, CUPP units provided security for a steadily increasing number of Vietnamese, thus contributing substantially toward GVN rural development programs.

Highlighting pacification developments were the large number of Viet Cong infrastructure neutralized and refugee resettlements. In both of these areas, especially the latter, province and district governments have shown their ability to manage complex operations. III MAF projects in 1970 such as medical assistance; provision of building materials, technical advice, and other civic actions; and extensive road upgrading complemented recently evidenced GVN viability in rural development activities.

While pacification endeavors moved forward during the year and combat activity dwindled, III MAF logisticians were exceptionally busy with supporting normal operations and tending to redeployment-associated tasks with an eye toward economy and efficiency. With stand down and redeployment of many units, a variety of installations and real estate had to be transferred to other US or GVN agencies—a complex process taken over by III MAF. Even more complicated, however, were interrelated actions taken to identify, screen, and redistribute materiel either made excess by redeployments or simply made available to fill RVNAF needs. These processes, plus those incident to embarkation of redeploying units, were effectively executed, thus achieving maximum economy, facilitating RVNAF improvement, and smoothly shifting units out of Vietnam.

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Although the balance of III MAF operations started to tip away from combat activity toward heightened logistic endeavor this year, Marine innovative contributions to successful prosecution of the war were much in evidence. Massive flame drop operations were conceived and successfully executed. Arresting gear, developed as part of the Short Airfield for Tactical Support, was used extensively to save aircraft and lives. Air support radars and transponder beacons—developed by the Marine Corps—were used to guide planes through bad weather and darkness to strike the NVA/VC. EA-6As and A-6As, both highly sophisticated aircraft systems, were employed in a variety of out-of-country roles. On the ground, sensors, Integrated Observation Devices, the Surveillance/Reconnaissance Center, and the combined action concept were all used during the year to aid in defeating the communists. Similarly, Kingfisher/Pacifier/quick reaction force tactics were refined and employed successfully—offshoots of vertical assault concepts pioneered by Marines.

While a number of redeploying units repostured in WestPac as Pacific Command's force in readiness and others shifted to the US to reestablish expeditionary preparedness, the year concluded with indications of progress throughout III MAF's tactical area of responsibility. 1970 pacification and rural development gains, combat success, and the extent to which redeployment was feasible are positive signs that the Vietnamese may soon be able to go it alone.

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AIR OPERATIONS

December air operations by 1st Marine Aircraft Wing followed the pattern first seen in October, except that in-country attack sorties (539) decreased, and out-of-country strike/armed reconnaissance missions (748) reached a level not flown since the period late-1968 through January 1969. Helicopter squadrons of Marine Aircraft Group-16, based at Marble Mountain Air Facility, fulfilled III MAF taskings with 24,079 sorties that lifted over 48,600 passengers and 3,100 tons of cargo. Although the number of sorties increased slightly over the past two months, passengers and cargo lifted during December--a fair barometer of combat activity--was the lowest registered this year.

A review of 1970 events and records clearly indicates 1st Wing provided requisite air support while gradually scaling down operations as necessitated by participation in KEYSTONE redeployments. During each increment, special consideration was given to keeping a balanced structure of aircraft, maintenance, and control assets for continued operations. Early months of the year saw helicopter units gradually removed from northern MR 1 until, at end-year, remaining rotary wing squadrons were consolidated at Marble Mountain, with the primary mission of supporting the 1st Marine Division. During the same time frame, one helicopter and two fixed wing squadrons were translocated to California bases. Also, Marine Aircraft Group-12 (two support units and one fixed wing squadron) redeployed to Iwakuni, Japan. In mid-1970, more aircraft and support units left RVN. However, it was not until 13 October, as final elements of a second Marine aircraft group departed Chu Lai, that 1st Wing constricted to its end-year posture. Thus in ten months, 1st Wing had redeployed 15 squadrons in the third and fourth redeployment increments.

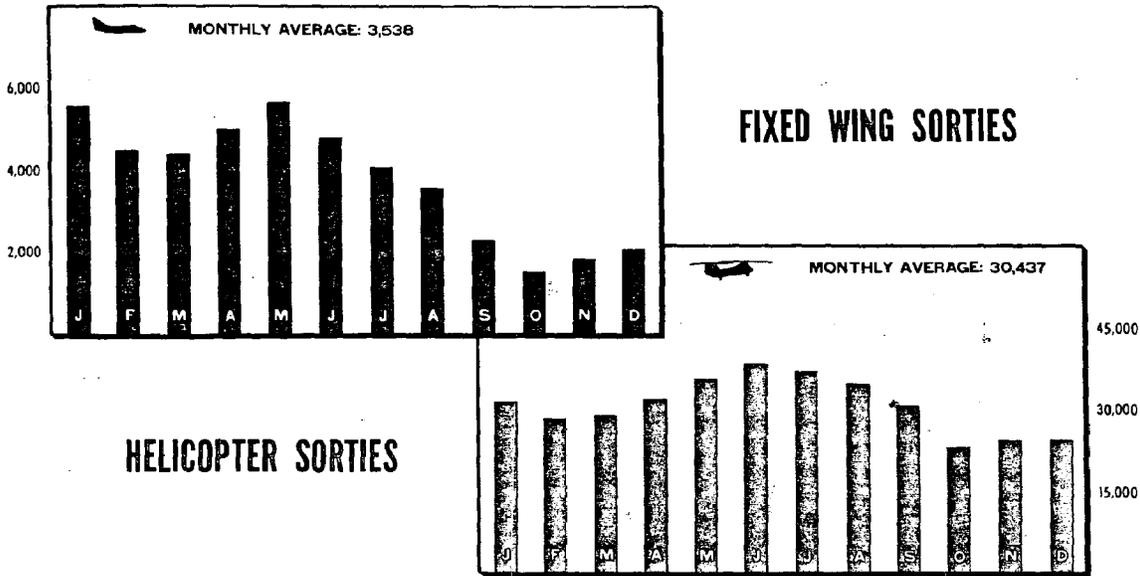
Dips and increases in fixed wing and helicopter sortie totals, shown on the following graphs,

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correlate with readily identifiable causes. The lows in February were directly attributable to squadrons redeploying in the third KEYSTONE increment, while subsequent rises reflect improved flying conditions in MR 1. Fixed wing decreases after May relate to a combination of the fourth redeployment increment, a limitation of 1,300 attack sorties per month imposed on 1st Wing after 17 August, and onset of the monsoon season in Laos. The slight fixed wing sortie rise during November and December resulted from resumption of interdiction of supply routes in Laos, since lucrative in-country targets were few and MR 1 weather had deteriorated. Helicopter sorties reached the 1970 high in June, then steadily decreased until the low was established in October. Major factors contributing to this effect were fourfold--redeployments, adverse weather, reduction of support required by 1st Marine Division, and the 1st Wing management policy to bring utilization rates down to match programed supply and maintenance support.

MARINE AIR OPERATIONS: 1970



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Force Reduction and Consolidation

During the first half of 1970, 1st Marine Aircraft Wing had assets to perform a complete array of functions--offensive air support, anti-air warfare, aerial reconnaissance, assault support, and control of aircraft and missiles. As the year progressed, enemy activity declined and aviation units were selected for redeployment. Among the many considerations in this process, primacy was given to retaining aviation units capable of providing balanced offensive air support. Thus, remaining fixed wing squadrons had three basic capabilities--day attack, all-weather attack, and fighter. With this mix, ground units were assured of not only close air support considered an essential, integral part of Marine combat power but also fighter protection to maintain air superiority. Likewise, a multicapable helicopter force was selected for retention in RVN. The resultant group had light, medium, heavy, and armed helicopters.

A comparison of 1969 and 1970 in-country fixed wing support by Marine aircraft points up a 51 percent reduction of close air support, direct air support, interdiction, and combat air patrol flights this year. Combat support sorties (multisensor imagery, electronic and visual reconnaissance, forward air controller (airborne), artillery spotting, and escort) also declined at about the same rate. Redeployments had the largest impact on reducing fixed wing operations; however, the 1,300-sortie ceiling placed on attack missions was a strongly contributing factor. The former is readily apparent from a look at tactical aircraft population of 1st Wing for the year--a 182 fixed wing aircraft in-country inventory on 1 January was reduced to 73 by end-year.

Marine Aircraft Group (MAG)-11 at DaNang was the sole remaining fixed wing group in-country at year end. MAG-12, the first group to depart in 1970, left in February. One of its squadrons, Marine Attack Squadron (VMA)-223, commenced aircraft flight

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ferry to El Toro, California in late January, and another, VMA-311, was transferred from MAG-12 to MAG-13 (both at Chu Lai) then to MAG-11 at Danang in July. VMA-211, along with Headquarters and Maintenance Squadron (H&MS)-12 and Marine Air Base Squadron (MABS)-12, accompanied the administrative and tactical command element of MAG-12 to Iwakuni in February.

The second fixed wing aircraft group to redeploy, MAG-13, closed out operations as final elements of H&MS-13 and MABS-13 departed Chu Lai in mid-October, and control of the airfield was transferred to the US Army. Before that, however, two of the Group's squadrons (Marine Fighter/Attack Squadron (VMFA)-115 and VMA-311) were reassigned to MAG-11, an evolution completed in late August. Then during September, the two remaining fighter/attack squadrons, VMFA-122 and 314, flight ferried their planes to Kaneohe, Hawaii and El Toro, California, respectively. Thus, a chapter of Marine aviation history which saw the SATS (Short Airfield for Tactical Support) operational in a combat environment was brought to a close. After an austere beginning in May 1965, from scratch to a fully operational SATS within three weeks, Chu Lai Air Base grew to an all-weather jet strip with a 10,000-foot concrete runway by October 1966. MAG-12's A-4 squadrons were the sole tenants during that first year, followed by MAG-13 with F-4 squadrons when the permanent runway was completed.

With the transfer of Chu Lai Air Base, all fixed wing assets of 1st Wing were located in MAG-11 at Danang. This concentration of planes facilitated maintenance, liaison, and control matters. Additionally, the central location was optimal for performance of support tasks flown for non-USMC units.

Sortie Allocations

After the departure of Marine Composite Reconnaissance Squadron-1 in July, 1st Wing could no longer provide multisensor imagery and electronic reconnaissance missions used primarily out-of-country.

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Nevertheless, 1st Wing continued to provide diversified air support for other forces--combat air patrols over MR 1, Laos, and Gulf of Tonkin; close air and helicopter support for all Free World forces in MR 1; and interdiction/armed reconnaissance strikes against supplies moving over the Ho Chi Minh Trail.

The following chart depicts the number of 1st Wing sorties flown in support of allied forces during the year.

ALLOCATION OF 1ST WING SORTIES: 2 JAN - 31 DEC 1970

AIRCRAFT	USMC	ARMY	ARVN	ROKMC	SPECIAL FORCES	THAIR FORCE	NAVY JTF-77	TOTAL
A-4E	3,976	3,366	685	118	0	644	5	8,794
A-6A	2,237	2,632	126	14	0	1,609	0	6,618
F-4B	5,135	6,118	1,003	158	0	1,588	574	14,576
FIGHTER/ATTACK TOTAL	11,348	12,116	1,814	290	0	3,841	579	29,988
TA-4F	939	2	5	0	0	1,022	41	2,009
RF-4B	709	0	0	0	0	245	3	957
EA-6A	587	0	2	0	0	281	179	1,049
OY-10A	6,832	82	57	42	0	5	0	7,018
RECONNAISSANCE TOTAL	9,067	84	64	42	0	1,553	223	11,069
CH-46	171,983	110	1,447	9,889	405	0	37	183,871
CH-53	41,765	469	3,212	7,926	361	6	2	53,741
COMBAT/LOGISTIC TOTAL	213,748	579	4,659	17,815	766	6	39	237,612
UH-1E	59,031	866	601	10,674	186	0	0	71,358
AH-1G	43,567	434	1,232	1,377	338	48	0	46,996
COMBAT/CONTROL/ARMED HELICOPTER TOTAL	102,598	1,300	1,833	12,051	524	48	0	118,364

* Primary mission--includes small number other type missions.

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Of the 18,640 fighter/attack sorties flown by 1st Wing since 1 January, all but 38 percent were in support of other Free World forces. While many were provided for interdiction in Laos, the majority were flown for US Army and ARVN units in MR 1.

Since the US Army--and increasingly the ARVN--has organic helicopter assets, 89 percent of USMC rotary wing sorties were utilized for assault support of III MAF in Quang Nam. The majority of the remaining 11 percent satisfied helilift requirements of 2d ROKMC Brigade, with a small number of missions supporting ARVN combat assault operations.

In-Country Fixed Wing Operations

In line with the tempo of December combat activity, fixed wing air support in-country declined to the 1970 low as Marine aircraft flew only 890 attack and reconnaissance sorties in MR 1. A breakdown of missions flown shows 299 for close air support (CAS), 190 for interdiction, and 50 for direct air support. All but 100 were provided to 1st Marine Division, and 92 of these went to US Army elements. Paralleling the low sortie rate was a proportionate reduction in air munition expenditures by attack aircraft--1,440 tons of bombs and 411 napalm canisters were delivered against in-country targets. Additionally, 3,306 2.75-inch aerial rockets were fired by Marine Observation Squadron (VMO)-2 pilots flying OV-10As. Most of these had white phosphorus war heads to mark targets, as Bronco crews logged 84 forward air controller (airborne) (FAC(A)) sorties. VMO-2 continued to provide valuable intelligence information, enabling ground commanders to assess enemy capabilities and activities in Quang Nam, by logging 222 visual reconnaissance and 15 photograph missions during December. Also complementing other intelligence collection means were TA-4F flights providing surveillance of hinterland enemy resupply routes in and leading to Quang Nam. On one such mission on 11 December, information gathered revealed Route 548, which runs

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the length of A Shau Valley, was being heavily trafficked by vehicles. Other flights confirmed Routes 926 and 922 in Laos, which lead to Routes 616 and 9222 in MR 1, also open to traffic.

Missions launched from the alert pad have consistently produced some of the best results. December was no exception, as evidenced by the destruction wrought by some of the 46 scramble sorties contributing to the 253 attack missions flown in MR 1 by Marine Attack Squadron-311. One of three sections of A-4Es launched from the alert pad on the 12th struck an enemy position seven miles southwest of An Hoa, destroying nine structures, damaging three more, and obliterating three bunkers with 500-pound bombs. On the 24th, another section of Skyhawks attacked a bunker site on Route 9662 near Base Area 614 on the RVN/Laos boundary. After the smoke had cleared, the airborne controller counted seven bodies and a destroyed field fortification.

Some 290 other in-country attack flights were logged by Marine Aircraft Group-11: 126 by F-4Bs, 157 by A-6As, and three by TA-4Fs. Forty percent of these were interdiction missions, and the remainder were for CAS. On one of the latter flights in the afternoon of 3 December, two A-6As from Marine All-weather Attack Squadron-225 dropped 22 500-pounders onto a position on the east bank of the Thu Bon river 13 miles south-southwest of An Hoa. Visible damage reported by the VMO-2 FAC(A) was 25 structures and one bunker demolished. A section of F-4Bs from Marine Fighter/Attack Squadron-115 also obtained other notable results 24 miles southwest of Quang Ngai City with six 500-pound, high-drag (snake eye) bombs and three napalm canisters on the afternoon of the 22d. An Americal Division airborne controller counted eight structures destroyed, eight damaged, and two secondary fires blazing amidst the rubble.

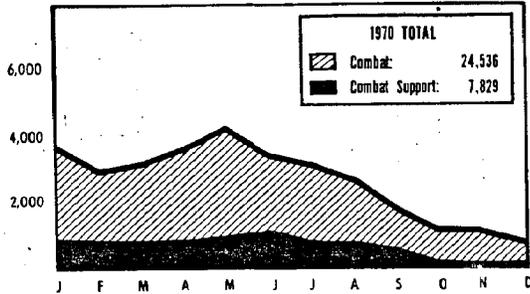
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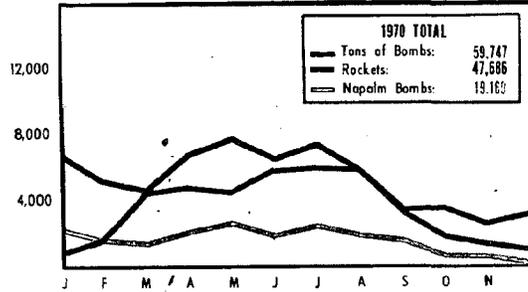
The following graphs compare December in-country air operations with totals since the first of 1970.

IN-COUNTRY FIXED WING SUPPORT BY MARINE AIRCRAFT : 1970

SORTIES FLOWN



ORONANCE DELIVERED



MONTHLY SORTIE TOTALS

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
COMBAT	3,036	2,349	2,486	2,920	3,316	2,497	2,572	2,056	1,190	812	763	539
COMBAT SUPPORT	735	605	641	763	928	1,046	713	731	622	354	340	351

Helicopter Operations

Rotary wing operations by squadrons of Marine Aircraft Group-16 in December followed the two-month downward trend in support required by ground units. Although flying a few more sorties (24,079) than logged in each of the previous two months, the 48,676 passengers and 3,569 tons of cargo carried were lows for the year. Conforming with the 1970 pattern of operations, almost 88 percent of this month's sorties supported III MAF. While RVNAF helicopter capability and assets have steadily improved, they have none powerful enough to move items such as artillery pieces. Therefore, the greatest percentage of December flights for other forces was logged by CH-53D aircrews helilifting logistic materiel for ROKMC and ARVN units in Quang Nam.

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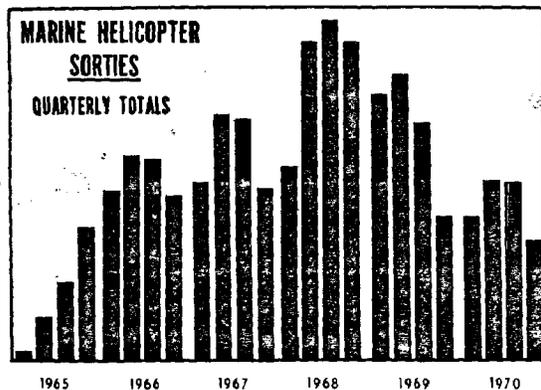
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The three CH-46D squadrons and one CH-53D squadron hauled all the cargo and all but 3,285 passengers, which were transported by UH-1Es. These lifts, plus medical evacuation, command and control, and reconnaissance team insertion/extraction missions flown by the four squadrons, accounted for more than 15,300 of the MAG-16 sorties.

UH-1E-equipped Marine Light Helicopter Squadron (HML)-167 and HML-367 with AH-1Gs flew the other 8,735 sorties recorded during December. All of the 3,471 flights by HML-367 and nearly 1,400 by HML-167 were armed helicopter missions escorting CH-46Ds and CH-53Ds. Further flights tallied by UH-1E aircrews included 3,172 for command and control of ground operations. Included in these are daily reconnaissance flights which often produce immediate results. For example, on the morning of 26 December, two UH-1E armed helicopters flying a visual reconnaissance of likely rocket firing areas were directed to an area seven miles south-southwest of Danang to confirm a ROKMC sighting. Two VC were observed preparing six 122mm rockets for firing. The VC were killed, one rocket was destroyed, and the site neutralized by 2.75-inch rockets and machine gun fire from the helicopters.

During 1970, 1st Wing helicopters flew 29 percent fewer sorties (365,247) and transported one percent (6,637) more pas-



engers, but 42 percent (47,674 tons) less cargo than in 1969. These variations were caused by a combination of factors, the most significant of which was late-1969 redeployment of the 3d Marine Division, which depended largely on helicopters for movement of men and some supplies.

Withdrawal of 26th Marines, 7th Marines, and supporting artillery units-- as well as fewer large unit operations in 1970--

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strongly influenced the decrease in cargo tonnages. First Division quick reaction tactics capitalizing on intelligence-developed targets contributed to increases in passengers carried.

1970 was also highlighted by continuing efforts toward developing innovative and improved air support tactics and techniques. One especially noteworthy evolution was CH-53D flame drop operations that confirmed the feasibility and effectiveness of helicopter-delivered napalm in 55-gallon drums. This technique was used on a large scale in an operation which integrated fixed wing aircraft, command and control planes, transport and armed helicopters, and Marine aviation expertise for a coordinated attack effort that enabled ARVN units to move freely over terrain previously denied.

Another tactic involved coaxial mounting of a Night Observation Device (NOD--AN/TVS-4) with a searchlight (AN/VSS-3) on the side of a UH-1E. At an altitude of 500 feet and speeds of 40 to 60 knots, the NOD UH-1E was followed by one or two gunships, which flew 1,000 and 2,000 feet in trace, keeping station on the red beacon of the forward aircraft. When a NOD operator acquired a target, this information was broadcast to the escorts, and the observation helicopter took up an optimum observation pattern. The armed helicopters reported when in position, whereupon the NOD observer turned on the searchlight, clearly illuminating the target for gunship firing runs. This tactic proved to be especially effective when reacting to specific target intelligence vis-a-vis random searching of a large area.

Use of the XM-3 Airborne Personnel Detector (APD) was continued during 1970. This device was also carried by a UH-1E to collect information concerning enemy movement and locations and was particularly useful in mountainous, non-populated regions. The APD was designed to locate enemy presence by sensing their ammonia effluence or condensation nuclei generated by combustion associated with human

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activity, such as perspiration, fires, and engine emissions. Initially during APD missions, armed helicopters escorted the UH-1E flying a zig-zag pattern into the wind to collect air samples at treetop level. Positive readings were broadcast to one of the escorts and plotted on a map. As experience was gained, an OV-10A was added to the package allowing a FAC(A) to direct immediate artillery fire or air strikes on the target. Targets not attacked during a mission were evaluated in light of other intelligence data and, if warranted, subsequently hit with artillery barrages or AN/TPQ-10 bombing missions.

Only two helicopter squadrons redeployed out of MAG-16 and RVN in the past 12 months. The first was Marine Heavy Helicopter Squadron (HMH)-361, which departed 29 January with 14 CH-53As embarked aboard the USS Tripoli (LPH-10) for relocation to Santa Ana, California. This left HMH-463 with 23 aircraft, three CH-53As and 20 of the more powerful D models, to provide the heavy lift capability for III MAF.

To consolidate all MAG-16 helicopter assets at Marble Mountain and increase the safety of operations at that field, Marine Observation Squadron-2 was transferred to MAG-11 at Danang Air Base. This movement, along with the departure of HMH-361, made room at Marble Mountain for the two Phu Bai-based CH-46D squadrons (HMM-161 and 262), thus positioning these units closer to supported forces.

The structure and composition of MAG-16 remained unchanged from January until August when the colors and a few personnel of Marine Medium Helicopter Squadron-161 were shifted to Santa Ana for reestablishment. Some of the Squadron's helicopters were reassigned within MAG-16, but most of them were shipped to MAG-36 at Futema, Okinawa. Despite these redeployments, the ratio of helicopter assets available to supported units was more favorable in 1970 than 1969--a factor which greatly enhanced 1st Division operations.

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-Medical Evacuation Missions

During 1970, 1st Marine Aircraft Wing maintained two medical evacuation helicopter packages ready for rapid response to requests for aid. From 0700 to 1900, each package consisted of two CH-46Ds and two armed helicopters, located at Baldy combat base and Marble Mountain Air Facility on a 15-minute alert status. Since there were normally fewer calls for medical evacuation after 1900, the Baldy medevac package returned to base, and only the Marble Mountain crews remained on alert at night.

To reduce response time upon request for daylight medical evacuation, one pilot of each aircraft readies the helicopter for flight, while the other obtains a quick briefing on the mission. The flight leader normally designates the armed helicopter section leader as the flight coordinator whose enroute responsibilities include obtaining flight clearances, navigating, maintaining communication, and receiving a landing zone (LZ) brief, including identification of the zone. If the zone is not secure, the armed helicopters quickly identify all friendly positions and locate the enemy. After suppressing enemy fire, a smoke screen is often built up with white phosphorus rockets to obscure the LZ for about two minutes under normal wind conditions. The pick-up helicopter makes the extraction covered by suppressive fire, if needed. On climbing to a safe altitude, contact is made with the Direct Air Support Center or medical regulator who provides information as to which facility to deliver the patient.

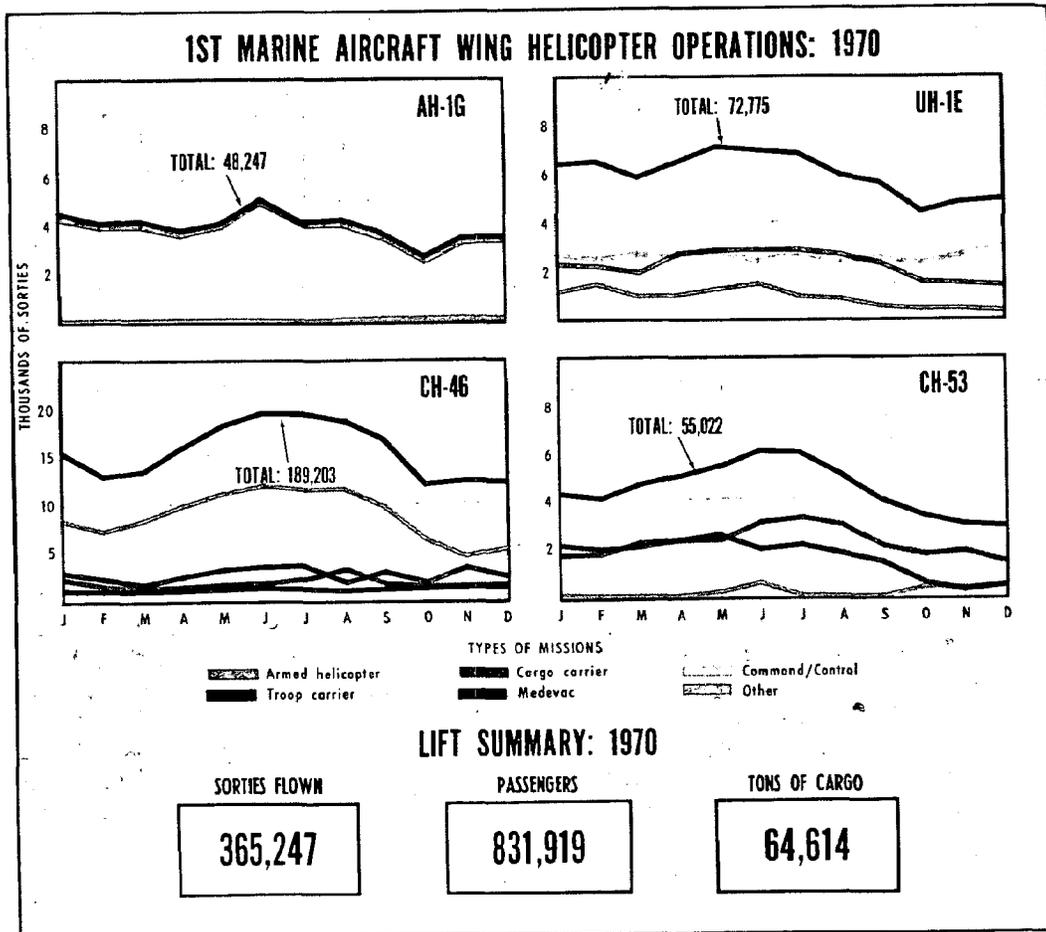
Night medical evacuation operating procedures are essentially the same. If weather conditions are adverse, the flight is monitored by radar which can provide position information and bearing/distance to the LZ. When weather ceilings of less than 500 feet prevail, only one transport and one armed helicopter are launched, reducing risk to aircraft and crews. The two other aircraft start engines and monitor events over radios, but remain on the ground unless

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required. On occasion, fixed wing aircraft or CH-53Ds provide illumination of the landing zone and surrounding area with flares.

Using the tactics described above, some 20,464 medical evacuation sorties were flown by 1st Wing helicopters during 1970. These medevac flights transported more than 17,951 casualties to medical facilities in a total effort designed to provide timely medical treatment. The medevac missions are included in the graphs showing MAG-16 helicopter operations for 1970.



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Out-of-Country Operations

In an increased effort to destroy logistic items before they reach enemy troops in RVN, Laos, and Cambodia, utilization of Marine assets escalated to 748 interdiction and armed reconnaissance sorties during December for strikes against lucrative trans-shipment areas, trucks hauling supplies, and lines of communication. Major attention was again focused on the four entry interdiction boxes near the Mu Gia, Ban Karai, and Ban Raving passes. In addition to destroying enemy supplies, the bombing also forced temporary storage of materiel, potentially increasing the productivity of strikes against backlogged truck parks and storage areas. During the month, 1st Wing aircraft flying these missions scored 191 secondary fires and explosions, 47 trucks destroyed and 15 damaged, 165 road cuts and slides, and 25 barrels of petroleum destroyed.

Pilots of VMA-311 logged 368 of these deep support missions against Laotian targets. Launched in flights of two to hit preplanned interdiction point targets during daylight, each Skyhawk carried eight 500-pound bombs. When sent out against storage areas, the A-4Es were normally loaded with two 500-pounders and four CBU-24s (cluster bomb units that dispense bomblets over a large area).

This month, A-6A aircrews of VMA(AW)-225 continued their role of striking NVA trucks which shuttle supplies during the night. A total of 212 strike/armed reconnaissance sorties--averaging approximately seven per night--were flown by the Intruders, loaded with a combination of 12 to 22 500-pounders and four to eight Rockeye IIs. One A-6A crew, shortly after midnight on the 5th, located a convoy of trucks on Route 912 just south of the Ban Karai pass, utilizing the automatic moving target indicator of the Intruder's radar system. On the initial run, the crew dropped 12 bombs and two Rockeye IIs, as NVA gunners filled the air with 23/37mm AAA fire. Despite the NVA defenses, the aircraft completed the run unharmed, and the crew observed 11 secondary explosions, one fire, and at least six trucks destroyed.

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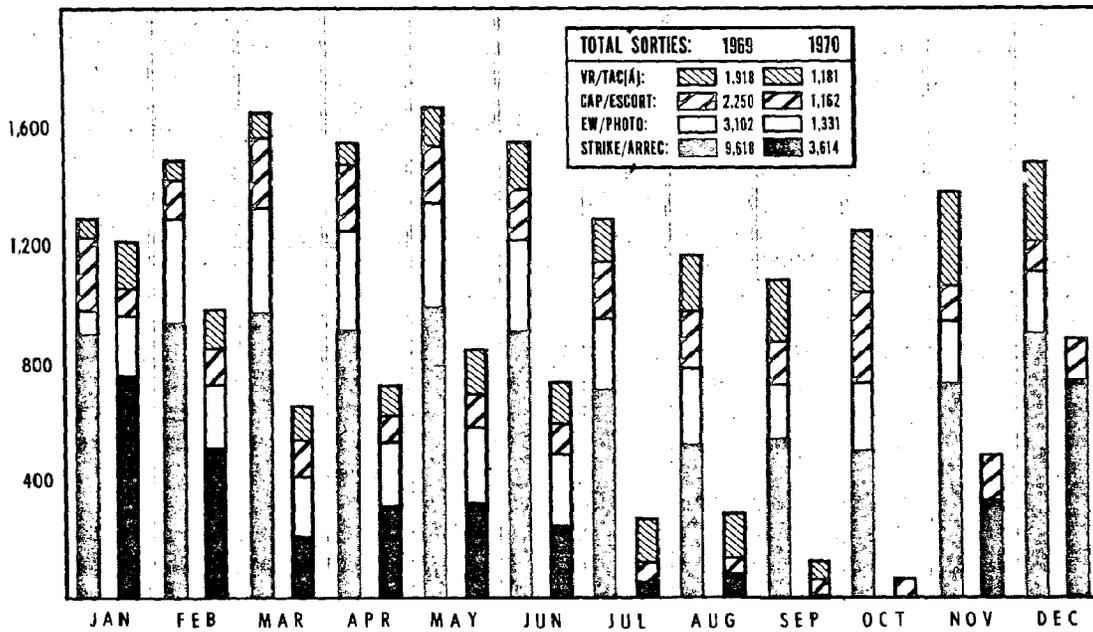
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VMFA-115 flew the other out-of-country missions during the month. These flights included 168 strike sorties over Laos, 84 combat air patrols for B-52s hitting supply routes in Laos, and 42 barrier combat air patrols (BARCAP) over the Gulf of Tonkin. BARCAP sorties flown during mid-December were refueled by 12 Marine KC-130F tanker missions, necessary to extend time on station:

MARINE OUT-OF-COUNTRY AIR OPERATIONS: 1969 AND 1970



As can be seen in the preceding graph, during 1970, there was a 57 percent reduction in sorties flown by 1st Marine Aircraft Wing over Laos. Only the combat air patrol/escort function was flown every month during the year; however, strike/armed reconnaissance missions of 1st Wing were required most often, as indicated by 3,614 such sorties flown. Although preplanned strike flights were discontinued for September and October as a result of a combination of factors, requirement for

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Marine all-weather A-6As and other jets brought about resumption of the interdiction mission in November. The resumption responded to the NVA's dry season push to move logistic materiel through to RVN and, this year, Cambodia. MACV/ARVN cross-border operations into communist sanctuaries in Cambodia during May and June seriously depleted enemy stockpiles, which in turn also caused a drawdown on RVN caches. With re-supply routes through southern Cambodia cut off, the NVA expanded use of LOCs (lines of communication) and the transportation system in the southern Laotian panhandle. This expected escalation was confirmed in late October as the monsoon ended, and Marine aviation was once again utilized against NVN input corridors and associated road networks.

Aerial reconnaissance--which included multi-sensor imagery, electronic warfare (EW) and communication countermeasures, and visual reconnaissance--of the LOCs through Laos by Marine Composite Reconnaissance Squadron (VMCJ)-1 was terminated during the year, as Marine RF-4Bs and the electronically sophisticated EA-6As were redeployed following stand down on 1 July. Prior to cessation, these aircraft had flown 1,331 sorties in support of Free World air operations over Laos, Gulf of Tonkin, and North Vietnam.

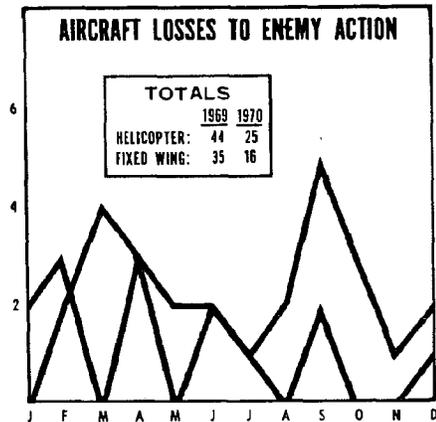
On 14 September, another unique, out-of-country function terminated; TA-4F aircrews discontinued visual reconnaissance/tactical air coordinator (airborne) flights. On a reduced scale, the same mission was continued in-country through December. The 1st Wing had pooled all TA-4Fs at Headquarters and Maintenance Squadron-11 to accrue the benefits of centralized maintenance and supply support. After redeployment of Marine Wing Support Group-17 and MAG-12, some TA-4Fs reverted to their control, reducing in-country assets. During 1970, the TA-4F crews logged 1,181 VR/TAC(A) sorties over Laos.

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Aircraft Losses

Three 1st Wing aircraft were destroyed as the result of direct enemy action during December. MAG-16 lost an AH-1G and a CH-46D, bringing to 25 the total of rotary wing aircraft lost in 1970. Nineteen other helicopters damaged during the year were repaired and returned to operation.



MAG-11 also had a loss in December, as an F-4B's flight controls froze shortly after departing the target on a Laos interdiction mission, bringing 1st Wing's 1970 fixed wing losses to 16. However, ten fighter/attack aircraft sustaining minor or substantial damage from enemy

antiaircraft artillery fire during the year landed safely and were repaired.

Expeditionary Aircraft Arresting Gear

During the 1950s, Marine Corps efforts to develop a satisfactory expeditionary airfield resulted in the Short Airfield for Tactical Support (SATS), comprised essentially of an aluminum mat airstrip, catapult, and arresting gear--all capable of rapid installation. Its first combat application was at Chu Lai in 1965. Continuing in use long after Chu Lai was expanded to a permanent airfield, the SATS arresting gear (M-2 and later M-21) has proven valuable in averting aircraft damage or destruction in the course of landing operations--in 1970 alone, some 250 planes with malfunctions or critical emergencies were arrested.

Initially, the M-2 arresting gear, an integral part of the SATS system, was installed at Chu Lai in 1965. By the end of 1966, it was replaced by

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the M-21 equipment which is superior, lightweight, high capacity, and portable. During this year, Marines installed six sets of M-21 equipment on the runways at Danang (two) and Chu Lai (four). In 1967, two others were placed on the crosswind runway at Chu Lai, and another on Phu Bai's 5,500-foot runway to provide an additional emergency field for jet aircraft. Also, two sets of E-28 (non-expeditionary arresting gear) equipment were installed at Chu Lai during 1967, giving the field a capability to stop an aircraft safely if it had to abort take-off.

Since May 1965, the several types of arresting gear operated by Marine air base squadrons with MAG-11, 12, and 13 have been used 60,741 times to save aircraft with problems on take-off or landing. However, most of the 8,333 aircraft arrestments in 1970 were performed as an extra safety precaution when runways were wet and slippery. Other typical cases during the year resulted from conditions such as blown tires, brake failures, and control problems. In one instance, a TA-4F from H&MS-11 was hit by enemy fire over Laos which caused a loss of fuel. The plane, unable to reach Danang safely, was arrested on the shorter field at Phu Bai.

Air Support Radar Teams

The air support radar team (ASRT) is an integral part of 1st Wing's capability to deliver ordnance on enemy targets under all weather conditions. During the first eight months of 1970, Marine Air Support Squadron-3 had five ASRTs deployed--the northernmost at Quang Tri and the farthest south at Chu Lai. In order to complete coverage of MR 1, the remaining teams operated from FSB Birmingham (eight miles west of Phu Bai airfield), Danang, and An Hoa. Utilizing the AN/TPQ-10 radar, each team could control a transponder beacon-equipped aircraft out to a range of 50 miles. This radar-controlled bombing system was used primarily during periods of darkness or otherwise restricted visibility, particularly during

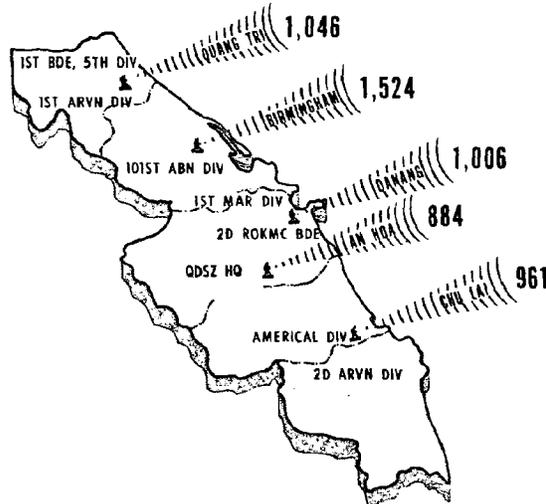
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monsoon seasons. Although developed to control ordnance-delivering aircraft, ASRTs also guided supply helicopters to friendly ground units when rain, clouds, or fog obscured hazardous mountain landing zones. This technique, fully exploited in February and March 1969 to support Operation DEWEY CANYON in the Da Krong Valley, became standard procedure during 1970 monsoon weather.

As a part of the phasedown of forces, two ASRT sites were closed during August and September 1970--first An Hoa, then Chu Lai. The sites at Da-nang, Quang Tri, and FSB Birmingham continued to operate and provide support for Free World forces between Quang Nam and the DMZ. By year end, a total of 5,421 missions, many involving more than one aircraft, had been controlled. The number of missions per ASRT site and the forces each site primarily supported are shown below.

ASRT CONTROLLED MISSIONS: 1970



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Transpacific Deployments

Exercising the capability of Marine fighter and attack aircraft to be flight ferried long distances with the aid of in-flight refueling from KC-130F tankers, 1st Marine Aircraft Wing transferred assigned planes of five squadrons to bases in the United States during 1970. The US-bound transfers (code named KEY WALLOP and KEY GRASP) took place in February and September, moving 65 aircraft to Marine Corps air stations in Hawaii and California. In addition, two other squadrons, VMCJ-1 and VMA-211, flew their aircraft to Iwakuni, Japan, via the Republic of the Philippines and Okinawa.

KEY WALLOP commenced from Naval Air Station, Cubi Point, Republic of the Philippines on 1 February with VMA-223 (Phase I, 20 A-4Es), followed in trace by VMFA-542 (Phase II, 15 F-4Bs) on 3 February. VMA-223 completed the movement on the 9th, and the final F-4B landed as scheduled on 11 February.

With all aircraft in place by 13 September at Okinawa (used instead of Cubi Point because of Typhoon Georgia), KEY GRASP commenced on the 14th with VMA(AW)-242 (Phase I, four A-6As), VMFA-122 (Phase II, nine F-4Bs), and VMFA-314 (Phase III, 17 F-4Bs). Unlike KEY WALLOP, squadrons participating in this move stopped at Midway Island for refueling and required in-flight refueling only between Hawaii and California. KEY GRASP II ended on the 18th when the last two F-4Bs of VMFA-122 arrived in Hawaii, and KEY GRASP I and III finished on 19 and 22 September, respectively, when VMA(AW)-242 and VMFA-314 completed the last leg of the journey to El Toro.

Distribution of Aircraft

There has been no major shift in 1st Wing aircraft population since MAG-13 departed Chu Lai in October. The distribution of fixed wing aircraft in MAG-11 and helicopters in MAG-16 are detailed in the chart on the following page.

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STATUS OF 1ST WING AIRCRAFT: 31 DECEMBER 1970

Unit	Aircraft Model	Total Assigned	PAR	Damage Repair	Other	Total In-Country
MAG-11						
H&MS-11	C-117D	3	0	1	0	2
	TA-4F	6	1	0	0	5
VMA-311	A-4E	26	1	1	0	24
VMFA-115	F-4B	24	5	4	2	13
VMA(AW)-225	A-6A	13	0	0	0	13
VMO-2	OV-10A	19	0	1	0	18
TOTAL FIXED WING		91	7	7	2	75
MAG-16						
H&MS-16	CH-46D	0	0	0	0	0
HML-167	UH-1E	35	6	3	0	26
HML-367	AH-1G	23	0	3	0	20
HMM-262	CH-46D	27	6	0	0	21
HMM-263	CH-46D	24	5	1	0	18
HMM-364	CH-46D	24	3	2	0	19
HMH-463	CH-53D	20	0	2	0	18
TOTAL HELICOPTERS		153	20	11	0	122

REPRODUCED AT GOVERNMENT EXPENSE

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