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AIRMOBILE COMPANY IN COUNTERINSURGENCY OPERATIONS (U)

OFFICE OF THE DIRECTOR
JOINT RESEARCH AND TEST ACTIVITY
APO 143, San Francisco, California

REPORT EVALUATION BY DIRECTOR, JRATA

The conclusions of the report are adequately supported by the documentation and are concurred in. The value of the report is enhanced by the fact that initiation of the data collection effort coincided with the introduction of the airmobile company in Vietnam. Consequently, the problems normally associated with the introduction of a new concept and the molding of an effective combat unit were observed during development and subsequent operational employment. The experience data collected encompasses airmobile company combat operations against an insurgent enemy in varied geographical locations and under diverse weather and terrain conditions. The requirement for a heavily armored and armed helicopter and a heliborne command post are reflected in the report. The results of the evaluation substantiate the requirement for the airmobile company and the concept of its employment in counterinsurgency operations.

APPROVED:

John K. Boles, Jr.

JOHN K. BOLES, JR.
Brigadier General, USA
Director

25 July 1964

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ARMY CONCEPT TEAM IN VIETNAM
APO 143, San Francisco, California

AIRMOBILE COMPANY IN COUNTERINSURGENCY OPERATIONS (U)

25 July 1964

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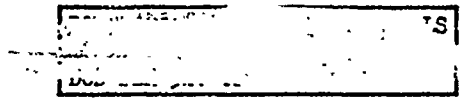

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(U) AUTHORITY

Letter, AGAM-P(M) 381 (31 Oct 62), DCSOPS, DA, 6 Nov 62, subject: Army Troop Test Program in Vietnam (U), as amended.

CINCPAC Msg DTG 240216Z Sep 63.

Letter, MACJ311, Hq COMUSMACV, 21 Oct 63, subject: Evaluation of Airmobile Company in Counterinsurgency Operations (U).

(U) ACKNOWLEDGMENTS

Acknowledgment is made of the cooperation and assistance received from the officers and men of the 114th, 118th, and 119th Airmobile Companies, under the capable leadership of Major Edwin S. McClure, Major David B. Hayes, and Major Donald A. Smith, respectively.

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(U) FIGURES

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I. (C) PREFACE

A. ABSTRACT

From 15 October 1963 to 15 February 1964, the Army Concept Team in Vietnam (ACTIV) conducted an evaluation of the airmobile company (light) TOE 1-77E (draft) during counterinsurgency operations in the Republic of Vietnam.

Data upon which the evaluation is based were produced by three airmobile companies: the 114th, the 118th, and the 119th, each having assigned 25 UH-1B helicopters. Aircraft of these companies flew a total of 37,294 sorties, 16,696.7 hours, and carried 44,602 troops and passengers and 533.1 tons of cargo between 17 October 1963 and 6 February 1964. The companies performed 43 combat assaults and 23 eagle flights, carrying 13,522 troops into 130 assault landing zones. Since each of the airmobile companies was located in a different geographical area of Vietnam, data were obtained during mountain, jungle, and delta operations. No mission was conducted solely or primarily for the purpose of providing evaluation data.

The evaluation revealed a requirement for a rocket which possesses a greater casualty producing effect than the 2.75-inch rocket now in use, and which has a greater variety of warheads and fuzes. It also reflected a requirement for an armed and armored helicopter.

The evaluation indicates that the airmobile concept is appropriate for counterinsurgency warfare in Vietnam.

B. OBJECTIVES

1. Objective 1 - Tactics, Techniques, and Procedures

Determine tactics (including formations), techniques, and procedures suitable for use by an airmobile company (TOE 1-77E).

2. Objective 2 - Troop and Cargo Movement Capability

Determine the capability of the company to move troops and cargo.

3. Objective 3 - Command and Control Within the Airmobile Force

Identify procedures that facilitate effective control of, and coordination between, the airmobile company and other elements of an airmobile force.

4. Objective 4 - Helicopter Armament Requirement and Distribution

Determine the best distribution of armament for self-escorted missions; assess the requirement for escort aircraft armed with both machineguns and rockets; determine the need for armament for troop-carrying aircraft.

5 Objective 5 - Adequacy of Company TOE for Non-Divisional Employment

Evaluate the unit table of organization and equipment when the company operates as a separate (non-divisional) element.

6. Objective 6 - Displacement and Extended Field Operations

Measure the capability of the unit to displace rapidly and to operate for prolonged periods in areas where no fixed facilities exist.

7. Objective 7 - Logistics

Determine the effectiveness of current logistical support concepts and procedures.

C. SUMMARY OF CONCLUSIONS

The airmobile companies adequately supported combat operations in the counterinsurgency situation in Vietnam.

The tactics, techniques, and procedures used by the airmobile companies were suitable for use in counterinsurgency operations in Vietnam.

Each airmobile company had the capability of lifting the assigned strength for operations of one ARVN rifle company in a single lift.

There is a requirement for a heliborne command post.

There is a requirement for an armed helicopter which mounts both machineguns and rockets either of which can be fired selectively.

There is a requirement for a rocket which has a greater casualty producing effect than the 2.75-inch rocket currently in use. It should have a variety of warheads and fuzes.

There is also a requirement for armed and armored helicopters which have a sufficient payload, range, and speed capability for a minimum aircrew and required armament and armor protection against caliber .50 projectiles.

Transport helicopters require some means of self-protection. Door gunners used by the airmobile companies appear to satisfy this requirement.

The use of door gunners should be the subject of further evaluation to determine under what circumstances they are required.

TOE 1-77E must be augmented in order to provide necessary support when operating as a separate element.

No conclusions were determined for objective 6 because the airmobile companies were not requi ed to move or operate for extended periods away from their fixed bases.

The logistical support concepts and procedures used during the evaluation were adequate for the requirements of the airmobile companies.

II. (C) INTRODUCTION

A. BACKGROUND

In March 1963, information was received that an airmobile company was to be operationally deployed to the Republic of Vietnam (RVN). A plan to evaluate the effectiveness of this unit in support of counter-insurgency operations was developed in July 1963 and forwarded to CINCPAC for approval.

At the time the evaluation plan was written, only one airmobile company, the 114th, was programed for deployment to Vietnam. Subsequent decisions converted other companies, within Vietnam, to the airmobile company TOE. Because these units operated in different types of terrain, ACTIV decided to evaluate the operations of two additional airmobile companies to permit coverage of similar units operating under different geographical conditions.

The 114th arrived in Vietnam in May 1963. It was previously equipped with UH-1B helicopters. The unit was stationed at Vinh Long and operated throughout the Mekong Delta region of the IV ARVN Corps.

The 118th arrived in Vietnam in September 1962. At that time it was the 33rd Transportation Helicopter Company. In October 1963, the unit converted from CH-21C to UH-1B helicopters. The unit was stationed at Bien Hoa and operated in the plateau, delta, and mountains of the III ARVN Corps.

The 119th arrived in Vietnam in September 1962. At that time it was the 81st Transportation Helicopter Company. In July 1963, the unit converted from CH-21C to UH-1B helicopters. The 119th was stationed at Pleiku and operated in the highland, coastal, and mountain regions of the ARVN II Corps.

Each of the airmobile companies was organized into one armed platoon consisting of eight UH-1B helicopters with installed weapons systems, and two transport platoons with eight UH-1B helicopters each.

While three airmobile companies were selected for the evaluation, other airmobile and aviation companies were located throughout Vietnam performing essentially the same type missions. The Marine helicopter squadron at Da Nang received armed helicopter support from the 52d Aviation Battalion and the Utility Tactical Transport Helicopter Company (UTTHCO). The aviation companies having CH-21 helicopters received armed helicopter support from adjacent airmobile companies and the UTTHCC

B. METHODOLOGY

An evaluator was placed with each of the three airmobile companies throughout the evaluation period. Operational activities were observed and data were collected on all operational aspects of the company. The evaluators had access to records and reports pertaining to the units at all echelons of command.

The evaluators were rotated between companies in order to observe similar operations in each type of terrain. All of the evaluators were both fixed- and rotary-wing rated, and all but one (a captain) were in the grade of major.

Corps, division, and special zone senior advisors, within whose areas of responsibility the evaluated companies operated, were queried as to their opinion of the effectiveness of the support provided by the airmobile companies. Their comments are contained in annex A.

C. LIMITATIONS

Letter, MACJ311, Hq COMUSMACV, 21 October 1963, subject: Evaluation of Airmobile Company in Counterinsurgency Operations (U), specifically prohibited the airmobile company from engaging in activities for the primary or sole purpose of producing evaluation data.

The following rules of engagement were applicable during the evaluation:

1) All helicopters would carry US markings.

2) Helicopter gunners were authorized to use their weapons only to suppress insurgent fire encountered enroute, in the landing zone, or if the helicopter or crew were threatened by an identified insurgent.

3) Each armed helicopter would carry an an ARVN observer.

III. (C) DISCUSSION

A. OBJECTIVE I - TACTICS, TECHNIQUES, AND PROCEDURES

The missions performed by the airmobile companies included combat assault, troop and passenger lift, resupply, medical evacuation, command liaison, and reconnaissance.

While combat assault missions were fewer in number than the others, the discussion under this objective has been limited to combat assault missions because they provide the best basis for a consideration of tactics, techniques, and procedures used in airmobile operations. Other missions were usually performed by only one or two helicopters and did not encompass all aspects of an airmobile operation.

During the evaluation, the criterion used to assess the success or failure of an airmobile assault was based entirely on the capability of the airmobile company to deliver troops and supplies to the selected landing zones, as planned. No attempt was made to evaluate the tactics or plans of the ground commander or to determine the success of the ground operation after the airmobile assault was completed.

The senior advisors of the II, III, and IV Corps and of the divisions and special zones of the three corps expressed the opinion that the airmobile companies were successful in accomplishing their purpose (annex A).

A frequently used variation of a combat assault has been termed an eagle flight and is defined by Headquarters MACV in "Lessons Learned Number 32: Eagle Flight Operations" (U), dated 19 October 1963, as:

> A tactical concept involving the employment of a small, self-contained, highly trained heliborne force. Tactical planning emphasizes the use of this force to locate and engage the enemy or to pursue and attack an enemy fleeing a larger friendly force. As an airmobile force, "Eagle" is also prepared to engage an enemy force located or fixed by other friendly forces. The inherent flexibility of the eagle flight as a force ready for immediate commitment, either alone or in conjunction with other forces, is its most significant feature.

Eagle flights were flown by two of the observed companies, the 114th and 118th. Extracts from the 118th Airmobile Company SOP on the conduct of eagle flights are presented in annex C. Although the units used slightly different techniques of employment, the eagle SOP is generally applicable to all airmobile companies.

For a description of a single-ship mission and a combat assault mission which included an eagle flight, see annex B.

The adequacy of organic armed helicopters is discussed in objective 4.

1. Factors Affecting Tactics, Techniques, and Procedures

a. Weather

Annex D contains a detailed analysis of the area of operations. The evaluation began in the final stages of the wet season, which is characterized by a period of fair weather over most of the operational areas. Out of a total of 43 combat assaults and 23 eagle flights conducted by the 3 airmobile companies during the period of evaluation (table 1), there were 11 weather delays, each averaging 1 hour in duration. In no instance were these flights required to fly at contour because of low ceiling conditions. One scheduled operation was diverted because of weather.

TABLE 1

COMBAT ASSAULTS (CA) AND EAGLE FLIGHTS (E)

Unit	15 to 31 Oct		Nov		Dec		Jan		1 to 15 Feb		Total	
	CA	E	CA	E	CA	E	CA	E	CA	E	CA	E
114th	6	3	6	1	3	3	4	5	3	5	22	17
118th	1	2	2	2	4	2	2	0	1	0	10	6
119th	0	0	4	0	2	0	3	0	2	0	11	0
									Total		43	23

The dry season in the Mekong Delta and plateau regions permits greater flexibility in selection of landing zones than is possible during the wet season.

Morning ground fog in the mountains sometimes obscured the valleys, causing airmobile operations to be delayed or to be planned for

the late morning hours. Late afternoon low clouds also hampered operations in peaks, saddles, and high plateaus.

b. Terrain

The flat and generally open terrain of the delta provides numerous large areas for selection as landing zones. The mangrove swamps bordering the delta offer only limited landing zones.

In the mountain and forest regions, landing zones are usually small and separated from each other by considerable distances. This necessitates special consideratio. of available landing areas when airmobile operations are planned.

Terrain has a pronounced effect on contour flying. In the delta it is difficult to achieve surprise or avoid detection by flying at contour level because of the sparseness of vegetative cover. In the mountains, in addition to the inherent hazards of low-level mountain flying, the enemy can occupy high ground overlooking the flight path.

c. Enemy Capabilities

The single most important factor in the development of tactics, techniques, and procedures for airmobile units in the Republic of Vietnam has been the lack of significant enemy air defense capability, either ground or air. The ground-based threat has been essentially from small arms and automatic weapons fire. On rare occasions reports were received that caliber .50 or 12.7mm machinegun fire was encountered. As a result, tactics, techniques, and procedures have been developed for use against an enemy equipped with small caliber weapons. It is essential that this fact be kept in mind when studying the tactics used by the airmobile units.

Viet Cong antiaircraft doctrine, as outlined in captured documents, is based on the use of small arms fire. Viet Cong troops have been instructed as to the effective range and altitude for engaging helicopters, the vulnerable points on both fixed- and rotary-wing aircraft, and techniques for applying lead.

During the evaluation period, when possible, flights were made at altitudes of 1500 feet or higher to reduce the chance of being hit by ground fire. Should the Viet Cong employ air defense weapons capable of effectively engaging aircraft at altitudes above 1500 feet, the current procedures may require modification. It may then become necessary for airmobile operations to be conducted at contour, accepting the small arms fire hazard as the lesser of the two risks.

Company records show that 61 helicopters received a total of 100 hits from ground fire from 1 October 1963 through 31 January 1964 (table 2). There were no aircraft destroyed by this fire.

TABLE 2

AIRCRAFT HIT EXPERIENCE

Unit	Oct		Nov		Dec		Jan		Total	
	Hit	Hits	Hit	Hits	Hit	Hits	Hit	Hits	Hit	Hits
114th	7	23	5	15	7	12	1	1	20	51
118th	4	8	7	7	10	12	7	7	28	34
119th	6	7	2	2	3	3	2	3	13	15
								Total	61	100

Hit = Number of helicopters hit

Hits = Total number of rounds that hit the helicopters

As brought out in the previous armed helicopter evaluation report from this headquarters, the Viet Cong often place stakes in likely landing zones, particularly in the mountain and mangrove areas where there are a limited number of suitable landing zones. On occasion, they wire together or mine the stakes and cover the areas by fire. During the evaluation period, fire was received in 48 out of a total of 130 airmobile assault and eagle flight landing zones. The type and degree of resistance varied. In some instances, only 1 or 2 Viet Cong were observed, while in others up to 60 were seen.

2. Planning the Airmobile Assault

Planning for airmobile assaults was initiated when the aviation battalion received a mission request from the corps tactical operations center (TOC). Each aviation battalion organized an Army aviation element which habitually operated as a part of the supported corps TOC. Missions were assigned to aviation companies by the aviation battalion commander.

a. Response Time

Companies usually received daily mission requirements by 1800 hours the previous evening. Out of 66 combat assaults and eagle flights conducted, there were 11 occasions when the units were given over 24 hours prior notice, and 4 instances in which the warning period was less than 1 hour. These figures do not include the instances when units were alerted

for quick reaction missions which were subsequently canceled nor do they include the number of times a last minute change in the ground tactical plan necessitated a complete revision of the air movement plan. Ideally, units accomplished all the preplanning steps outlined below. If, however, the time element was critical, some of the steps were eliminated or abbreviated.

b. Preplanning

The 118th Airmobile Company provided a full-time liaison officer to the division it normally supported. Liaison for the other companies was provided by the parent battalions.

Upon receiving the order for an airmobile operation, an aerial reconnaissance was conducted by the airmobile company commanding officer or his designated mission commander, a representative of the battalion, and a representative from the supported unit. During the reconnaissance, approach and departure routes were selected, condition and size of the landing zone were noted, and flight formations, checkpoints, and altitudes to be flown were determined. Air traffic over the intended landing zone was closely controlled in order to achieve the element of surprise.

c. Briefing

A briefing was conducted by the mission commander for all pilots and crew chiefs, and for representatives of the supported unit, the aviation battalion, the Air Force, the medical detachment, and the maintenance and recovery unit. See figure 1 for a typical flight operations briefing form.

d. Logistics

Planning for airmobile operations also included consideration of requirements for maintenance, POL, ammunition, rations, medical and other logistical support. Insofar as possible, existing facilities were used as staging areas.

3. Executing the Airmobile Assault

Preparation for departure from the unit base field included final briefing of crews, starting engines, and opening communication nets. Following the communications check, the flights departed for the staging area.

a. Staging Area

The staging area or loading zone is an airfield or landing site where troops are loaded aboard aircraft for air movement into a landing zone. Its location is jointly agreed upon by the ground and flight commanders.

FLIGHT OPERATIONS BRIEFING

1. SITUATION

   a. Enemy _____

   b. Friendly _____

   c. Organization (flts, etc) _____

   d. Weather _____

2. MISSION _____

3. EXECUTION _____

   a. Concept of operation _____

   b. Flight plan _____

      Route _____ Formation _____

      Altitude _____ Air speed _____

   c. Movement control _____

      (1) Start engines _____

      (2) Commo check _____

      (3) Take off time _____

      (4) Loading zone _____

      (5) Station time _____

      (6) Take off time _____

   d. Air control _____

      (1) IP _____

      (2) ACP _____

      (3) Release point _____

FIGURE 1

Flight operations briefing form

e. Landing plan _____

(1) Zone _____

(2) Schedule _____

(3) Control _____

f. Coordirating instructions _____

(1) Air cover _____

(2) Reporting enroute check points _____

g. Emergency procedures _____

(1) Downed aircraft _____

(2) SAR aircraft _____

4. ADMINISTRATION AND LOGISTICS

a. POL (amount at each refueling) _____

b. Special equipment _____

c. Aircraft loads (number of troops _____, amount of cargo _____)

5. COMMAND AND SIGNAL

a. Signal _____

(1) Frequencies

Frequencies	Primary	Alternate	Call Signs
[illegible]	_____	_____	_____
[illegible]	_____	_____	_____
[illegible]	_____	_____	_____

Code authentication _____

a. Weapons load _____

b. Weapons secure _____

c. Change frequencies _____

FIGURE 1 (Cont)

(3) Radio failure

(4) Air support

(a) Frequency

(b) Call signs

b. Command

(1) Mission commander

(2) Ground commander

(3) Control

(4) Chain of command

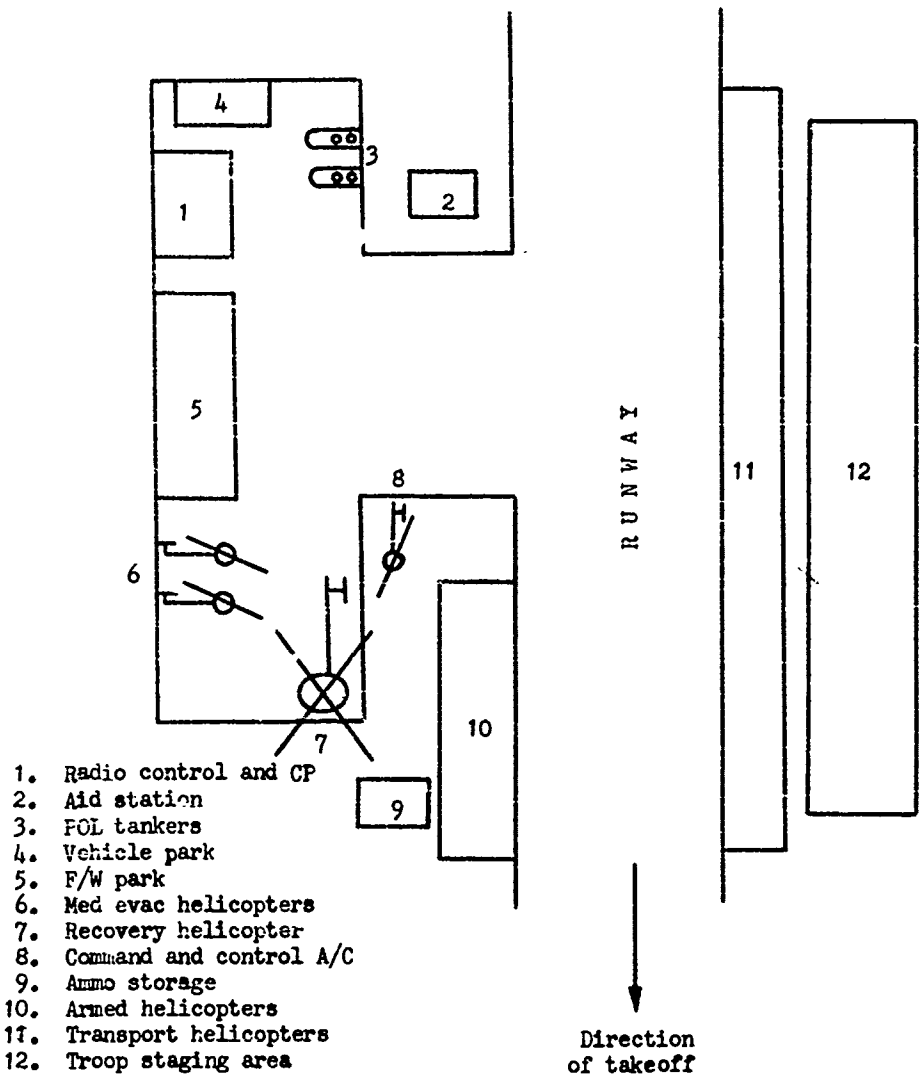
FIGURE 1 (Cont)

When the staging area was not located at the base field, helicopters normally used the same formation enroute to the staging area and to the landing zone. The most direct route was usually used. Altitudes flown varied from 1500 to 2500 feet above the terrain.

Figure 2 illustrates a typical layout of a staging and parking area. Within the staging area were located all elements essential for command, control, coordination, and support of the airmobile operation. Depending upon the size of the operation, either the aviation battalion or the company established and controlled the staging area. A checklist of duties and responsibilities of key aviation personnel in a staging area appears as figure 3.

(1) Marking

The three airmobile companies tried various methods of marking individual helicopters and loads. Some chalked numbers on the ships while others placed numbered stakes next to the desired touchdown point in the staging area. Both methods had serious shortcomings. Chalk numbers were lost or obliterated, and last minute aircraft substitutions necessitated changes in the aircraft lineup. Numbered stakes, particularly on dirt fields, were blown over or hidden by dust. The most workable method was to verbally inform each group of troops which ship in the line of helicopters they would occupy.



1. Radio control and CP
2. Aid station
3. POL tankers
4. Vehicle park
5. F/W park
6. Med evac helicopters
7. Recovery helicopter
8. Command and control A/C
9. Ammo storage
10. Armed helicopters
11. Transport helicopters
12. Troop staging area

FIGURE 2

Staging and parking area

STAGING AREA CHECKLIST OF DUTIES

1. Mission: To establish, operate, and close forward staging areas for heliborne assaults, and maintain coordination and communication between aviation units, ground units, and higher headquarters.

2. Concept: The staging officer (usually the battalion S-3 or company operations officer) is responsible for all command and control within the staging area.

3. Duties and Responsibilities:

a. Battalion S-3 or company operations officer

(1) Controls all air traffic within and adjacent to the staging area.
(2) Controls vehicle traffic at the staging area.
(3) Maintains a flight log of all aircraft missions.
(4) Maintains a journal for the operation (DA Form 1594).
(5) Maintains a current situation map.
(6) Maintains radio and telephonic communications with higher, lower, and adjacent units (this includes aircraft).
(7) Ensures that the aviation liaison officer is at the staging area CP of the airlifted force commander.

b. Maintenance Officer

Ensures that first and second echelon mechanics, other than crew chiefs, are available to provide limited maintenance support, and that the supporting field maintenance detachment provides equipment and personnel. As a minimum, one qualified technical inspector should be provided. Operations of sufficient size to warrant additional maintenance support will receive such support through the area direct-support company. This organization provides heavy lift aircraft for recovery and necessary third echelon maintenance personnel.

c. Communications Officer or NCO

(1) Establishes communications, via radio or telephone, with the headquarters of higher, lower, and supported units.

(2) Provides necessary personnel to establish and operate communications equipment

FIGURE 3

Staging area duties

4. Ammunition and POL: Battalion normally is responsible for prestocking POL and ammunition at the staging area. Companies may, however, be directed to transport stocks to the staging area.

FIGURE 3 (Cont)

(2) Cargo

Cargo that was to be carried inside the helicopters was broken down into single aircraft loads and placed near the desired touchdown point. In preparing cargo for internal loading, weight and bulk was estimated so that the load would not exceed helicopter capability. Even though cargo was not carried externally on assault missions during the evaluation period, provisions were available for such cargo movement. External loads require equipment such as nets, slings, pallets, straps, and clevises. A ground party of two men per ship is also required to guide the helicopters and hook up the load.

(3) Troops

Troops were not manifested. They were, however, arranged into groups representing single helicopter loads. Aircraft commanders ensured that the helicopters were properly loaded and ready for flight. Prior to loading the troops, the safety on each weapon was checked, and grenades were inspected for loose or pulled pins. To reduce fatigue, troops were loaded just before or just after starting engines. If time permitted, troops practiced exiting from the aircraft in order to expedite unloading in the landing zone.

b. Air Movement Phase

Terms used are as follows:

1) Element - Two or more aircraft under control of a single commander.

2) Element Commander - A commander appointed by the flight commander for a specific mission.

3) Flight - Two or more elements with a common mission under control of a single commander.

4) Flight Commander - A commander appointed by the mission commander to exercise command over a particular flight.

5) Mission Commander - A commander designated by the battalion or company commander to exercise tactical control over all flights on a particular mission.

(1) Formations

Companies used various transport helicopter formations enroute. A major consideration in the selection of a formation was the size and shape of the landing zone and the ground commander's requirements for disembarking his troops after landing. The 119th, operating primarily in wooded and mountainous terrain with small landing zones, used a 2-ship staggered trail formation with 4 ships in a flight. They flew with 30-second intervals between elements and a 1-minute interval between flights. This formation permitted an uninterrupted flow of troops into the small landing areas. The 118th used most of the standard patterns shown in figures 4 through 10.

The formation most frequently used was the "V". The "V" formation proved to be versatile, easy to control, and adaptable to change. It is relatively easy to fly, and each aircraft is within sight of another aircraft. It permits landing of the flight in a minimum of time without bunching. All formations were flown with sufficient distance between ships to minimize pilot fatigue. Exact ship-to-ship distances varied between companies. Helicopters normally flew about 45 degrees to the side and rear (approximately 50 to 100 feet) of the lead ship, and high enough to be out of its rotor wash.

Armed helicopters used standard formations in the conduct of their enroute escort role and operated at the same altitude as the escorted force. A reconnaissance element of two to four armed helicopters preceded the transports by one to five minutes. The remaining escorts normally flanked the transports in a trail formation. If additional armed ships were available, they were positioned in rear of the transports to engage targets under the flight. If the formations were required to fly at contour, provisions were made for the flank escorts to be located adjacent to, or slightly behind and adjacent to, the last troop transport aircraft in the formation, so they could effectively fire on targets threatening the flight.

(2) Routes

Companies attempted to plan return routes that were different than the approach routes. For subsequent lifts, routes were varied slightly to avoid flying over a given area more than once. If one landing zone was used several times, the final approach and entry for each lift was varied in order to lend deception as to the intended landing point. In mountainous areas, terrain often limited landing zone access to a single route. In delta or jungle areas, the same route was used more than once when there were few identifiable terrain features or check points, when there was a requirement to reach the landing or staging area in the shortest possible time, or when no enemy fire was received. Although primary routes were varied from time to time alternate routes were seldom planned and supplemental routes were never planned. Flights were avoided over known

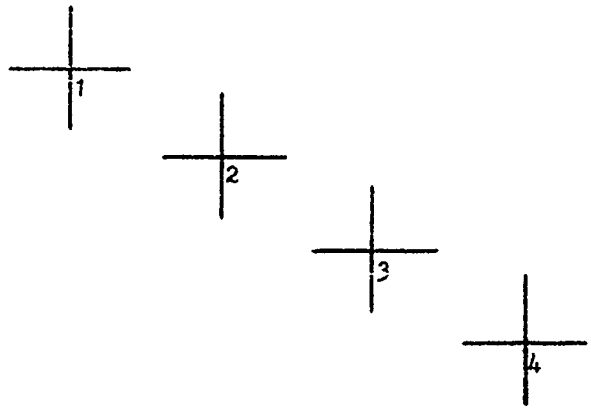


FIGURE 4
Right echelon (or left)

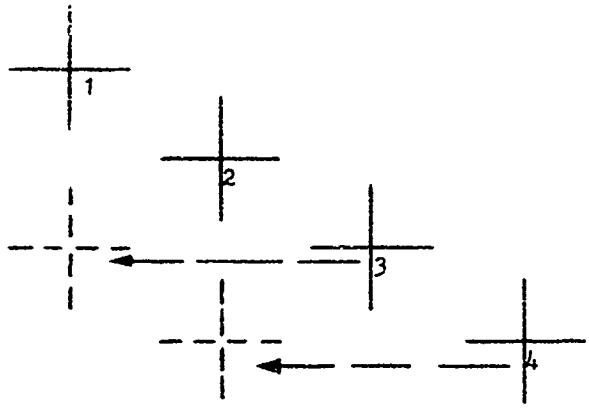


FIGURE 5
Right echelon (or left) tc staggered trail

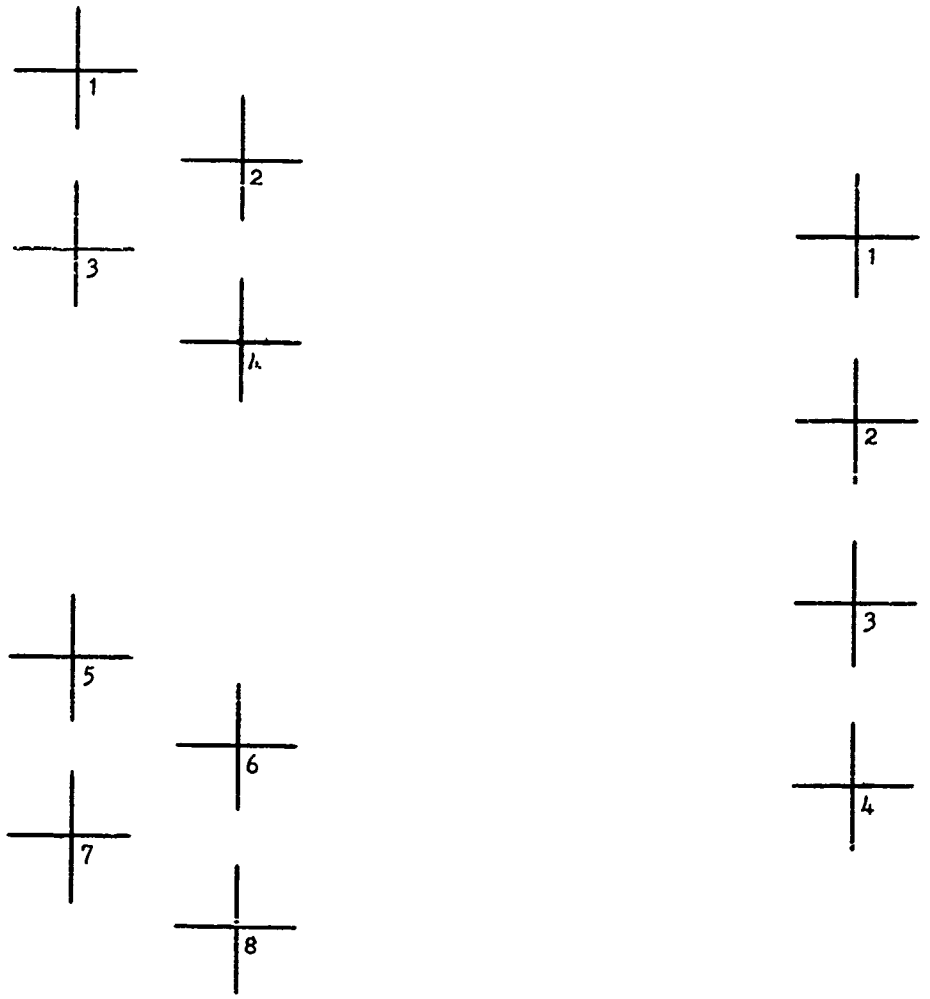


FIGURE 6

Staggered trail, trail

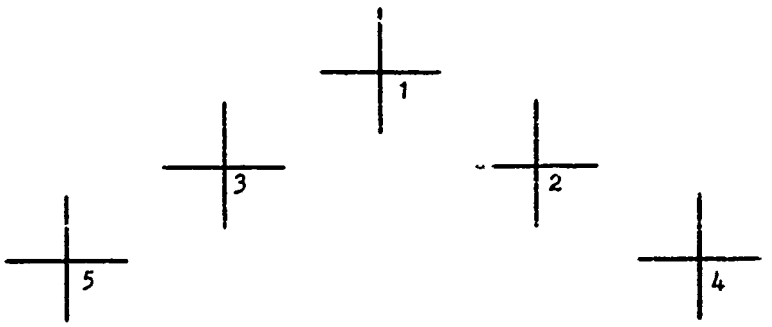


FIGURE 7
"V" formation

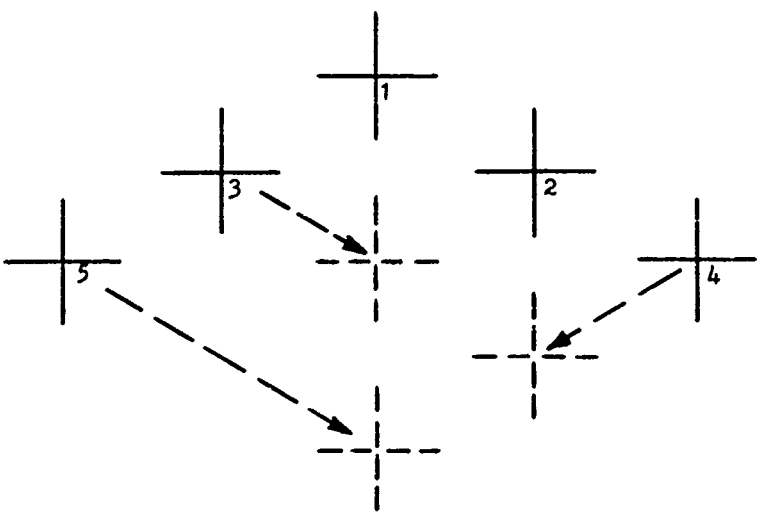


FIGURE 8
"V" formation to staggered trail

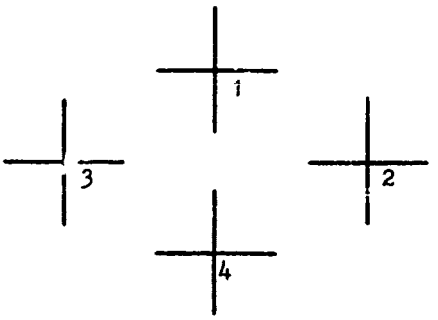


FIGURE 9
Diamond formation

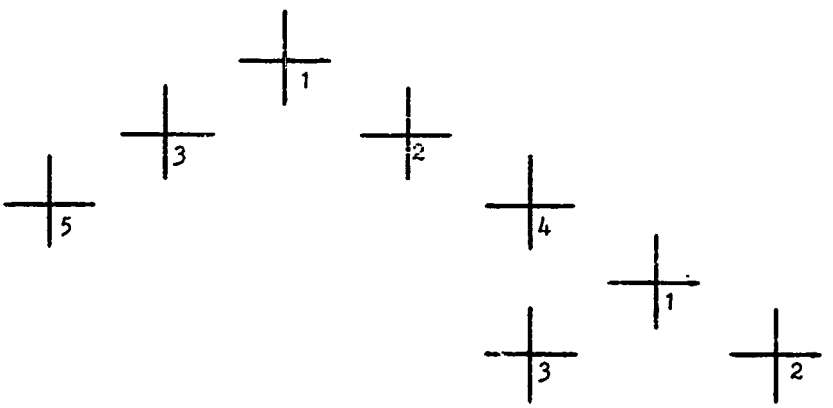


FIGURE 10
"V" formation used in right echelon

or suspected Viet Cong forces that were capable of interfering with the operation.

(3) Control Points

Air control points (ACP) were frequently used. They were usually identifiable terrain features or manmade objects. The 119th used initial points (IP), release points (RP), and ACP's for each combat assault. The other two airmobile companies did not always designate actual IP's or RP's; rather, they used ACP's throughout the flight. The first and the last ACP functioned as an IP and RP, respectively.

(4) Altitude and Airspeed

Enroute altitudes were 1500 to 2500 feet above the terrain. Final descents were made directly into the landing zone from this altitude. In only one instance during the evaluation did the companies fly contour during the final enroute phase. Airspeed after takeoff was usually 60 knots until all elements of the flight were formed and the formation reached altitude. An airspeed of 70 knots was usually maintained enroute.

(5) Air Force Escort and Support

Fighter aircraft (B-26, AD-6, and T-28) provided enroute support whenever it was requested by the aviation battalion and allocated by the ASOC. Fighter aircraft prestrikes were used on 27 of the 43 combat assault missions. The prestrikes averaged 15 minutes in duration.

(6) Command and Control

The airmobile company organizational structure provided a basis for command and control of airmobile operations. See figure 11 for the company organization chart. The section leaders functioned as element commanders, and the platoon leaders served as flight commanders. Normally the company commander acted as mission commander. The mission commander positioned himself where he could best control the entire flight. The 114th and 119th Company commanders usually flew in the lead transport helicopter, while the 118th Company commander flew with the armed escorts. The commander had communications with all elements of the airmobile force and supporting units. Airmobile company TO-1D's were effectively used to monitor most operations. One TO-1D was often employed near the landing area as a preassault weather advisory ship, and then used to monitor the prestrike and to vector helicopters into the landing zone. If subsequent lifts were required, the TO-1D remained in the area and the crew maintained communications with the ground commander and provided radio relay to ground control and to the helicopter formation. Another TO-1D was used frequently with the main body of transports to monitor the flight or to remain on station in the event a helicopter went down. A command and control helicopter with additional radio equipment was available to the

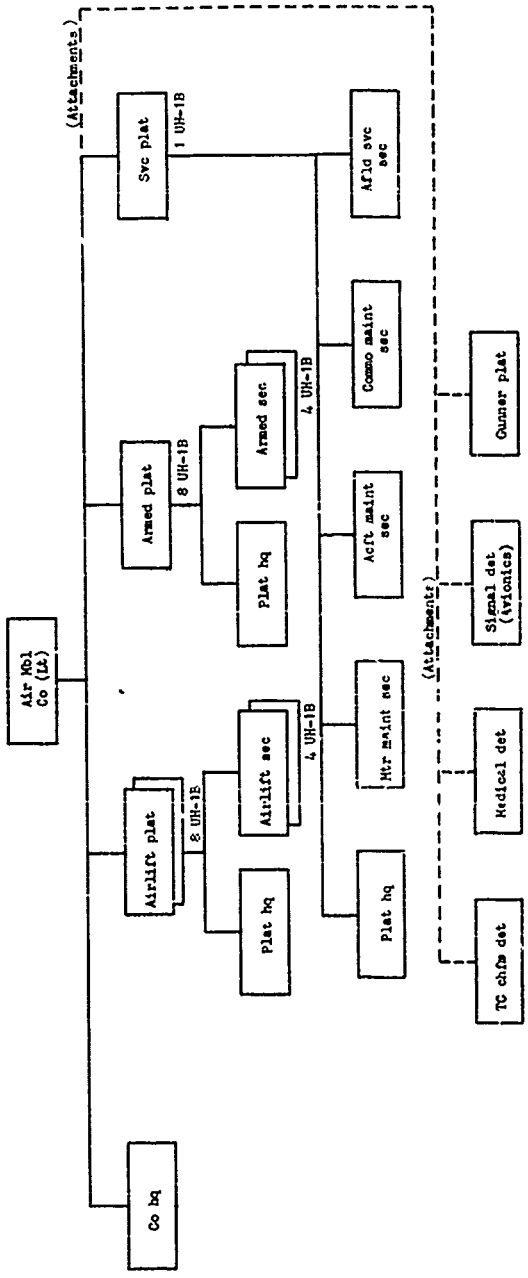


FIGURE 11

Company organization chart

companies and was used on several operations. A special communications console that has been designed for use in a heliborne command post is now under evaluation by ACTIV and will be the subject of a future report.

(7) Changes of Plan Enroute

Any deviation from the original air movement or landing plan was coordinated with the commander of the airlifted force prior to execution. If the landing zone was heavily defended, the mission commander could notify the commander of the airlifted force and proceed to a preplanned alternate landing zone.

(8) Procedures for Downed Aircraft

During the evaluation period no aircraft within the evaluated companies were forced down during airmobile operations. However, the provisions as stated below were made in case of emergency.

If a helicopter of the 118th or 119th Companies was downed enroute, the ship immediately to the rear followed to assist in securing the area or, if required, to evacuate casualties. If the downed helicopter was last in the formation, the ship preceding it assisted. In the 114th, the wingman or the following aircraft did not automatically follow the disabled helicopter; rather, the flight commander determined what assistance was to be provided. Fighter aircraft, armed helicopters, and additional transports could also be used to assist depending on such factors as density of VC in the area, the condition of the downed ship, the length of time before recovery could be effected, and the availability of aircraft. Other factors such as terrain, time, and weather also influenced the degree of assistance provided.

The armed helicopter is well-suited to protect downed aircraft because of its capability to provide continuous and close-in fire support, and to respond immediately to the desires of the mission commander.

When US personnel could not be left with the downed aircraft, all weapons, ammunition, and radio equipment were to be removed. Intentional destruction of downed aircraft was to be considered only after all hope of repair or recovery had been abandoned. The decision to destroy a downed aircraft was to be made by the aviation battalion commander or higher authority unless it was obvious that the aircraft could not be saved from the insurgents and an on-the-spot decision was required. In such case the senior aviator present from the unit to which the aircraft were assigned was to make the decision.

c. Landing Phase

During the evaluation 130 landing zones were used on combat assaults and eagle flights. Photographs of typical landing zones are shown

in figures 12 through 15. The number of landing zones used on any one combat assault varied from one to five (figure 16). The number of transport helicopters that landed at the same time in a given landing zone varied from 1 to 16 (figure 17).

(1) Control

Preplanning was the essential element of landing zone control. As previously stated, an aerial reconnaissance of the landing zone was usually conducted prior to the operation. Aerial photographs were provided for eight of the combat assault operations. In many instances the companies did not request aerial photographs either because of prior familiarity with the landing zone area or because the time necessary for photography exceeded the available mission preparation time. Landing zone control was usually limited to the preselection of landing areas, the use of vector aircraft, and marking with pyrotechnics. On subsequent lifts, air-ground radio communication with the airlifted commander was sometimes used.

(2) Approach and Landing

The enroute formation normally was not changed during the approach and landing phase. Eagle flight formations varied depending on the desires of the flight commander or the requirements of the airlifted force commander. Armed escort tactics and formations during this phase of the operation are outlined in ACTIV reports, "Operational Evaluation of Armed Helicopters," dated May 1963, and "Armed Helicopter Escort of Transport Helicopters," to be published.

Transports used a steep descending approach into the landing zone. In mountainous areas, the 119th used a normal rather than a steep approach for pinnacle landings.*

The approach phase was initiated by all transports at the same time in an attempt to place all aircraft on the ground simultaneously, but this was difficult to accomplish because of the stepped attitude of the formation, the rotorwash encountered during descent, and the difficulty of finding a suitable touchdown spot for each ship. The terrain in the landing zone sometimes slowed the disembarking of troops. In the delta, water was sometimes chest deep and the ship had to be held with the skids just under the water level or had to maintain a low hover. In jungle areas grass 10 to 12 feet high was often encountered. Another factor that affected the length of time the helicopters were in the landing zone was the amount of training or experience the troops had had in heliborne operations. From the moment

*There are three types of approaches to a landing zone: steep, normal, and shallow.

FIGURE 12 (U)
Wet rice paddy landing zone

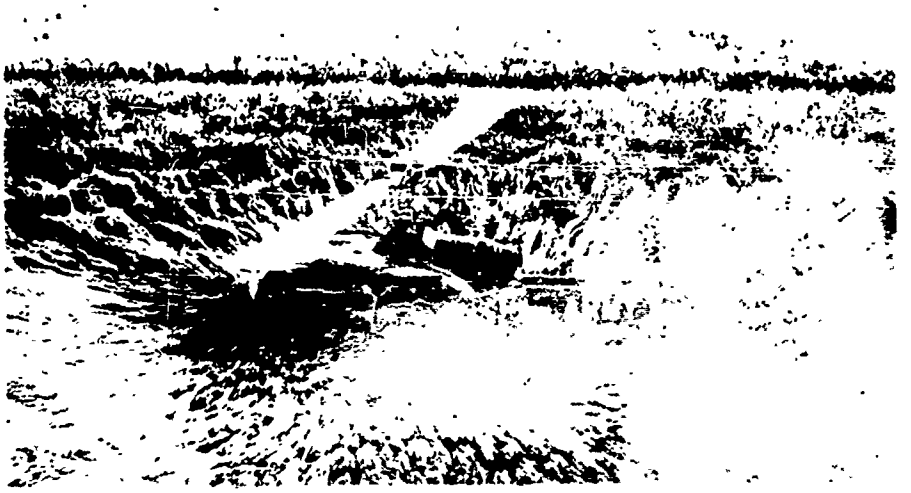


FIGURE 13 (U)
Mekong plateau landing zone

FIGURE 14 (U)
Interior highlands general area

FIGURE 15 (U)
Interior highlands landing zone

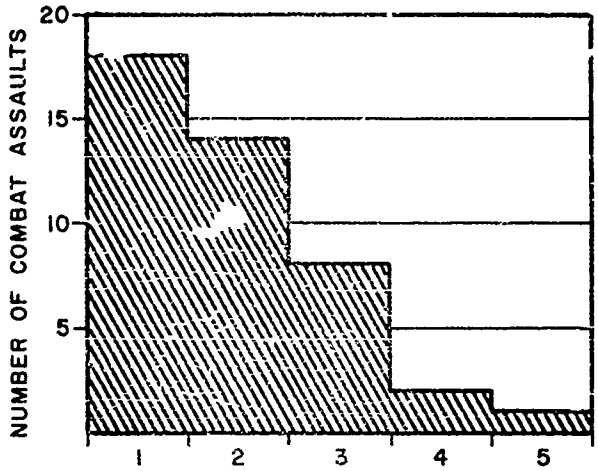


FIGURE 16
Frequency of number of landing zones used

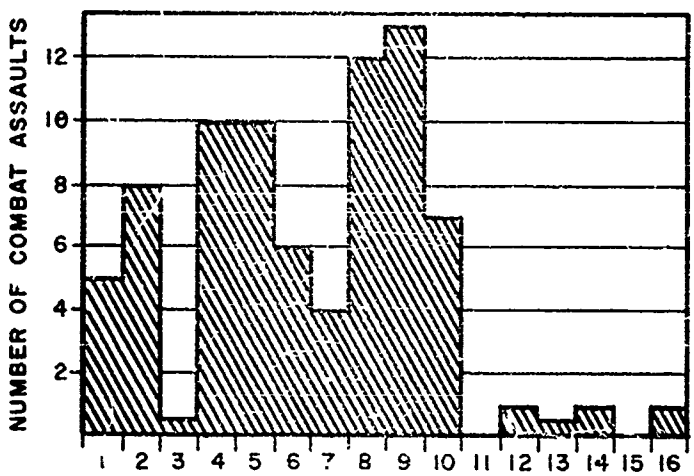


FIGURE 17
Frequency of number of transports landed at one time in a single landing zone

the first helicopter touched down until the last ship lifted off, 2 minutes were considered to be not an excessive unloading time for a 12-ship formation.

d. Return Phase

To lessen the possibility of fire being concentrated on a single ship all helicopters attempted to depart at the same time. The direction of takeoff was often varied when subsequent flights into the same landing zone were required. A minimum altitude of 1500 feet was obtained as quickly as possible. Airspeed was increased to 80 knots after the flight was formed at altitude. Formations were sometimes varied to lessen pilot fatigue. They usually remained the same, however, as those flown enroute to the landing area. Escorts used the same tactics on the return route with the exception that the ships originally used for the reconnaissance were the last to leave the landing zone, and consequently, usually brought up the rear. If another lift was required, the formation returned to the loading area for troops. When required, aircraft were refueled and rearmed between lifts.

e. After-Action Reports

The flight commander or individual pilots were required to prepare after-action reports upon returning from a mission. Units were required to submit daily, monthly, and quarterly operational reports to higher headquarters. As applicable other reports such as intelligence debriefing reports, ground fire damage reports, and narrative summaries were also prepared. In order to obtain information for these required reports, various forms of mission and progress reports were filled in by the pilots or flight commanders. An example of a mission and flight data form is shown in figure 18. Paragraph 1 was completed by company operations personnel prior to the flight. Paragraph 2 was filled out when the information became available, and paragraph 3 was completed as the mission progressed.

f. Night Operations

Although night training was conducted by all airmobile companies, only one night assault conducted with nine transports and five armed escorts was flown during the evaluation period. A narrative of this operation is attached as annex B. Many missions other than assaults, however, were flown during the hours of darkness.

4. Conclusion

The tactics, techniques and procedures used by the airmobile companies during the evaluation were successful and are suitable for use by airmobile companies operating in the counterinsurgency environment in Vietnam.

MISSION AND FLIGHT DATA REPORT

1. MISSION:

a. Msn No _____ : Ln Off _____

b. Rec'd By _____ : Rec'd From _____

c. DTG Rec'd _____ : DTG Exp TO _____

d. Type & No. A/C _____ : Unit Spt'd _____

e. Person To Be Cont·'ted _____

f. When _____ : Where _____

g. Special Instructions _____

_____

2. FLIGHT DATA:

a. CA Time _____ : CA Sorties _____

b. CS Time _____ : CS Sorties _____

c. No. Msns _____ : Total Fuel Exp _____

d. Pass Miles Flown _____ : Cargo Lbs _____

e. Total Dist Flown _____ : Total Time on Msn _____

f. No. Delays _____ : Reason _____

g. If A/C was fired at _____ : Coord _____

ALT When Fired At _____ : AS When Fired At _____

h. Remarks _____

_____

i. A/C No: _____ FC: _____ CP: _____ CE: _____ GUN: _____
A/C No: _____ P: _____ CP: _____ CE: _____ GUN: _____
A/C No: _____ P: _____ CP: _____ CE: _____ GUN: _____
A/C No: _____ P: _____ CP: _____ CE: _____ GUN: _____
A/C No: _____ P: _____ CP: _____ CE: _____ GUN: _____
A/C No: _____ P: _____ CP: _____ CE: _____ GUN _____
A/C No: _____ P: _____ CP: _____ CE: _____ GUN. _____

FIGURE 18

Mission and flight data report

3. FLIGHT PROGRESS REPORT

FROM (INCLUDE TAKE-OFF TIME)	TO (INCLUDE LANDING TIME)	TYPE MISSION	DISTANCE	TYPE & AMT CARGO	TYPE & NR. PASSENGERS	FLYING TIME (MINUTES)		ALTITUDE	FIRED AT YES/NO	REMARKS
						AT CONTOUR	AT ALTITUDE			

FIGURE 18 (Cont.)

B. OBJECTIVE 2 - TROOP AND CARGO MOVEMENT CAPABILITY

Troop and cargo movement capability of single UH-1B helicopters and airmobile companies will be discussed in terms of actual accomplishments and desired capabilities as expressed by senior advisors.

1. Individual Helicopter Troop Lift Capability

At the beginning of the evaluation each transport helicopter usually carried 10 combat-equipped Vietnamese troops on combat operations. At times they carried as many as 1[illegible]. Before the evaluation terminated, transports were not permitted to carry more than eight on combat assaults. An investigation determined that the helicopters had frequently been operating with overloads.

A study of the weight and balance characteristics of the 8 armed and 17 transport helicopters (UH-1B) of the 114th Airmobile Company was conducted in late 1963. The transport helicopters were weighed with full fuel load (approximately 1000 pounds), 10 combat-equipped Vietnamese troops (average, 167 pounds per man), a US Army crew of 4, air crew protection kit (consisting of tipping plates of aluminum/magnesium, stretched plexiglass, and perforated steel stripping plates backed by Doron), tool box, container of water, a case of emergency rations, weapons, and armored vests for the crew. The average weight of the 17 transports was 8,699 pounds which is 2,099 pounds over normal gross weight, 1,099 over alternate gross weight, and 199 pounds over maximum operational (or gross) weight. The average weight of the same troop transport helicopters with 9 Vietnamese troops aboard was 8,532 pounds (5 of the 17 helicopters weighed less than 8,500 pounds). In referring to loading in excess of the maximum gross weight of 8,500 pounds, TM 55-1520-208-10 states that this loading "should not be used except under conditions of extreme emergency when safety of flight is of secondary importance."

Transport helicopters fully prepared for flight were also weighed without the crew and passengers. They averaged 6,275 pounds, which is 325 under the normal operating weight of 6,600 pounds.

The center of gravity of loaded helicopters must remain within acceptable limits. The UH-1B helicopter has a minimum allowable forward center of gravity of 125.00 inches, and aft center of gravity limits that vary from 136.00 to 138.00 inches.

The average center of gravity with nine Vietnamese troops aboard was 125.15 inches. Four of the 17 helicopters had an unsafe center of gravity condition. With eight troops aboard, all but one helicopter remained within allowable center of gravity limits.

A similar investigation was conducted in the 119th Airmobile Company using 5 UH-1B helicopters with a full fuel load, a US crew of 4, and

10 combat equipped Vietnamese soldiers (averaging 173 pounds per man). The average weight of the helicopters was 8,508 pounds and the average center of gravity station was 124.32 inches.

The added weight of wet and muddy clothing had to be considered when retrieving troops in the delta areas. Also, allowance had to be made for the weight of water entering the skids and bottom of the fuselage when helicopters were landed in flooded terrain.

The armed helicopters of the 114th Airmobile Company, each with a crew of 4 US personnel, an ARVN observer, and the installed weapons system and basic load, did not weigh over 8,500 pounds. All helicopters were, however, operating in the area of progressively increasing risk where care must be exercised because performance and flight load factors decrease. The lightest armed helicopter weighed 8,340 pounds, which is 160 pounds under the maximum gross weight. The average center of gravity station was 128.38 inches, while the minimum center of gravity station was 126.90 inches.

In January 1964, as a result of the above-mentioned investigations, USASCV issued instructions that each transport would carry no more than eight combat-equipped troops on combat assaults. On eagle flights, when the troops carry only a weapon and a basic load of ammunition, the companies were authorized to carry a maximum of nine troops per ship. The 119th Airmobile Company carried between six and eight troops per helicopter depending upon the density altitude (pressure altitude corrected for nonstandard temperature) in the area of operation. These instructions also directed that all armed helicopters would carry no more than the normal complement of five personnel and armament with basic load.

2. Company Lift Capability

During the evaluation the airmobile companies had the capability of airlifting the assigned strength for operations of one ARVN rifle company in a single lift. The authorized strengths of ARVN ranger, airborne, and infantry companies were 143, 156, and 157 men, respectively. The assigned strength for operations was, however, usually 20 to 50 percent under the authorized strength. The RVN marine rifle company with an authorized strength of 201 usually exceeded the single lift capability of the airmobile company.

Assuming 100 percent aircraft availability, the maximum number of troops that could have been carried in a single lift at the start of the evaluation was 187 troops. With the reduction of the load in January 1964 to 8 combat-equipped troops, this lift capability was reduced to 136 troops or an equivalent cargo. The average helicopter availability of the evaluated airmobile companies was 83 percent. With this average availability, the above mentioned capability was reduced to 154 troops at 11 per aircraft and 112 troops at 8 per aircraft.

3. Movement of Troops and Cargo

The airmobile companies flew a total of 33,651 sorties in 15,974.1 hours during the evaluation in support of the ground forces. This included both combat support (CS) and support (Spt) missions. They carried a total of 44,602 troops and lifted 533.1 tons of cargo. In addition, they flew 3,643 sorties in 722 hours on training, administrative, transition, and maintenance flights.

Effectiveness of the airmobile company cannot be measured entirely in terms of troops and cargo carried and hours flown. Because of the types of missions performed, such as medical evacuation, command liaison, and emergency resupply, the helicopters were not always filled to capacity. The requirements of the supported force and the types of missions assigned by corps were determinants in the total number of sorties and hours flown, and passengers and cargo carried. Often a helicopter would be away from base field over eight hours when the actual flying time was less than two hours. While the airmobile companies had the potential of carrying additional men and material, mission requirements dictated total accomplishments.

The total number of sorties and hours flown, and troops and cargo carried by each of the airmobile companies is contained in tables 3 through 5. Table 6 contains a summary of these data.

A total of 13,522 troops were carried by the three companies on the 66 combat assaults and eagle flights during the evaluation. The frequency of the number of troops lifted on all combat assaults is shown in figure 19.

It was the company commander's responsibility to ensure that helicopters were not overloaded and that they remained within maximum allowable weight and center of gravity limitations. However, because of operating requirements, the pilot was delegated this responsibility and would estimate the load to be lifted, surpervise loading and tiedown, and ensure that the aircraft was safe for flight. To verify the estimated safety factor, the helicopter was brought to a hover to check available cyclic range and power prior to departure.

On occasion the companies used external loading on combat support missions. Records were not maintained, however, as to the amount of cargo carried externally.

4. Desired Capabilities

The senior advisors generally agreed that the lift capability of the airmobile companies was adequate. They pointed out, however, that a single helicopter should be capable of lifting one squad (annex A). In Vietnam the authorized strength of a rifle squad varied from 9 in an airborne rifle squad to 13 in a Marine rifle squad.

TABLE 3

114TH AIRMOBILE COMPANY SORTIES, HOURS FLOWN, AND TROOPS AND CARGO CARRIED

Period	Sorties				Troop & Cargo Lifted		Flying Hours			
Armd	Total	CS	Spt	Trng	Trps	(Tons) Cargo	Total	CS	Spt	Trng
1	519	314	118	87	44	0	327.7	252.1	62.1	13.4
2	457	326	[illegible]	69	45	0	297.7	232.6	41.3	23.8
3	473	303	128	42	60	0	372.0	258.5	102.2	11.3
4	546	282	211	53	35	.1	337.2	191.6	128.9	16.7
Total	1995	1225	519	251	184	.1	1334.6	934.8	334.6	65.2
Trans										
1	2530	587	1575	368	4822	40.6	1098.1	344.3	700.7	53.1
2	3024	861	2025	138	6338	64.7	1183.5	340.4	802.0	41.1
3	2595	604	1886	105	5263	34.0	1152.5	353.[illegible]	771.5	27.3
4	2985	560	2273	152	6291	56.3	1247.0	242.[illegible]	939.3	65.5
Total	11134	2612	7759	763	22714	195.6	4681.1	1280.5	3213.5	187.0
TO-1D										
1	112	17	95	0	40	.3	73.0	14.8	58.2	0
2	69	10	57	2	25	.3	41.0	4.2	35.8	1.0
3	90	18	72	0	39	.5	66.3	24.6	41.7	0
4	67	14	41	12	21	.2	34.7	8.2	20.2	6.3
Total	338	59	265	14	125	1.3	215.0	51.8	155.9	7.3
Grand Total	13467	3896	8543	1028	23023	197.0	6230.7	2267.2	3704.0	259.5

Period 1 = 17 Oct 63 to 14 Nov 63

Period 2 = 14 Nov 63 to 12 Dec 63

Period 3 = 12 Dec 63 to 9 Jan 64

Period 4 = 9 Jan 64 to 6 Feb 64

TABLE 4

118TH AIRMOBILE COMPANY SORTIES, HOURS FLOWN, AND TROOPS AND CARGO CARRIED

Period	Sorties				Troop & Cargo Lifted		Flying Hours Time			
Armed	Total	CS	Spt	Trng	Trps	(Tons) Cargo	Total	CS	Spt	Trng
1	529	132	397	0	0	0	221.5	58.0	163.5	0.0
2	591	326	256	9	13	0	367.4	210.5	174.4	2.5
3	636	283	325	26	5	0	315.6	163.1	152.5	0.0
4	966	71	779	116	0	0	387.7	37.2	336.8	13.7
Total	2720	812	1757	151	18	0	1312.2	468.8	827.2	16.2
Trans										
1	2453	146	1953	354	3522	[illegible]	888.1	132.3	695.1	60.7
2	2861	843	1787	231	4751	22.3	1239.5	531.8	682.6	25.1
3	2794	841	1683	270	2904	11.0	970.5	317.1	607.6	45.8
4	3237	153	2818	266	3378	34.0	1031.2	58.5	941.4	31.3
Total	11345	1983	8241	1121	14555	96.4	4129.3	1039.7	2926.7	162.9
TO-LD										
1	81	14	53	14	9	0	71.7	21.3	44.7	5.7
2	125	52	55	18	11	0	125.4	77.2	39.5	8.7
3	100	12	77	11	5	0	64.8	14.5	47.4	2.9
4	47	10	35	2	1	0	55.7	10.0	31.3	14.4
Totals	353	88	220	45	26	0	317.6	123.0	162.9	31.7
Grand Total	14418	2883	10218	1317	14599	96.4	5759.1	1631.5	3916.8	210.8

Period 1 = 17 Oct 63 to 14 Nov 63

Period 2 = 14 Nov 63 to 12 Dec 63

Period 3 = 12 Dec 63 to 9 Jan 64

Period 4 = 9 Jan 64 to 6 Feb 64

TABLE 5

119TH AIRMOBILE COMPANY SORTIES, HOURS FLOWN, AND TROOPS AND CARGO CARRIED

Period	Sorties				Troop & Cargo Lifted		Flying Hours Time			
Armed	Total	CS	Sot	Trng	Trps	(Tons) Cargo	Total	CS	Sot	Trng
1	245	168	57	20	27	.1	233.0	186.3	40.2	4.5
2	661	324	151	186	85	1.0	289.8	179.3	72.5	38.0
3	413	345	34	34	54	.3	305.4	273.3	26.3	5.8
4	631	320	113	198	94	.6	376.4	262.2	91.3	22.9
Totals	1950	1157	355	438	270	2.0	1204.6	903.1	230.3	71.2
Trans										
1	1583	1164	304	115	1411	50.5	725.7	592.8	121.4	11.5
2	1576	1224	185	167	2008	62.7	780.3	617.7	111.1	51.5
3	1456	1019	167	270	1287	53.1	643.2	502.3	76.5	64.4
4	2173	1090	820	263	1934	71.3	803.5	498.4	270.2	34.9
Total	6788	4497	1476	815	6640	237.6	2952.7	2211.2	579.2	162.3
TO-1D										
1	142	68	68	6	10	.1	129.5	84.9	37.1	7.5
2	124	75	46	3	13	0	131.4	102.8	27.7	.9
3	241	159	58	24	16	0	165.8	111.2	46.7	7.9
4	164	28	124	12	31	0	122.9	32.9	88.1	1.9
Totals	671	330	296	45	70	.1	549.6	331.8	199.6	18.2
Grand Total	9409	5984	2127	1298	6980	239.7	4706.9	3446.1	1009.1	251.7

Period 1 = 17 Oct 63 to 14 Nov 63

Period 2 = 14 Nov 63 to 12 Dec 63

Period 3 = 12 Dec 63 to 9 Jan 64

Period 4 = 9 Jan 64 to 6 Feb 64

TABLE 6

TOTAL SORTIES, HOURS FLOWN, AND TROOPS AND CARGO CARRIED

17 OCTOBER 1963 TO 6 FEBRUARY 1964

		Total Sorties				Flying Hours				Total Trps & Cargo	
Unit	Type	Total	CS	Spt	Trng	Total	CS	Spt	Trng	Trps & Cargo (Tons)	
114th	ARMED UH-1B	1995	1225	519	251	1334.6	934.8	334.6	65.2	184	.1
118th	ARMED UH-1B	2720	812	1757	151	1312.2	468.8	827.2	16.2	18	0
119th	ARMED UH-1B	1950	1157	355	438	1204.6	903.1	230.3	71.2	270	2.0
Total	ARMED UH-1B	6665	3194	2631	840	3851.4	2306.7	1392.1	152.6	472	2.1
114th	UH-1B	11134	2612	7759	763	4681.1	1280.6	3213.5	187.0	22714	195.6
118th	UH-1B	11345	1983	8241	1121	4129.3	1039.7	2926.7	162.9	14555	96.4
119th	UH-1B	6788	4497	1476	815	2952.7	2211.2	579.3	162.3	6640	237.6
Total	UH-1B	29267	9092	17476	2699	11763.1	4531.5	6719.5	512.2	43909	529.6
114th	TO-1D	338	59	265	14	215.0	51.8	155.9	7.3	135	1.3
118th	TO-1D	353	88	220	45	317.6	123.0	162.9	31.7	26	0
119th	TO-1D	671	330	296	45	549.6	331.8	199.6	18.2	70	.1
Total	TO-1D	1362	477	781	104	1082.2	506.6	518.4	57.2	221	1.4
Grand Total		37,294	12,763	20,988	3643	16,696.7	7344.8	8629.9	722.0	44602	533.1

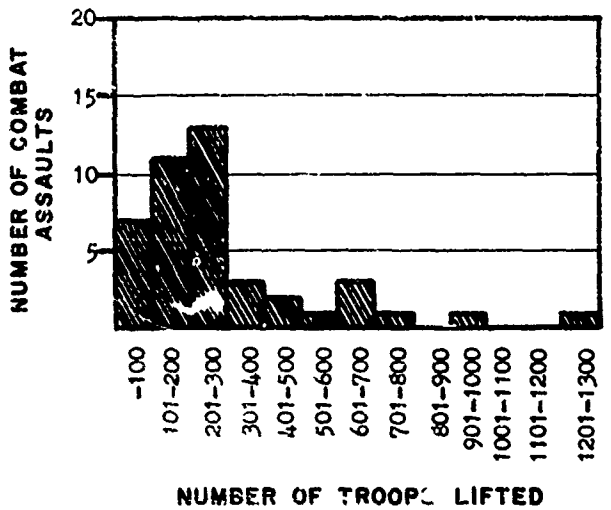


FIGURE 19

Frequency of number of troops lifted
(all combat assaults)

For planning purposes, the flight endurance for transport helicopters was 2 hours and for the armed ships was 1 hour, 45 minutes. This was not a major limitation in conducting airmobile operations because of the many staging areas located throughout Vietnam and also because of the closeness of the airmobile company to the unit it usually supported. Half of the advisors did, however, express a desire for increased flight endurance.

5. Conclusions

During the evaluation period each airmobile company had the capability of lifting the assigned strength for operations of one ARVN rifle company in a single lift assuming average helicopter availability. The RVN Marine rifle company strength exceeded the single lift capability of the airmobile company.

The UH-1B transport helicopter can usually carry 8 Vietnamese soldiers or equivalent cargo without exceeding 8500 pounds and the allowable center of gravity limit.

C. OBJECTIVE 3 - COMMAND AND CONTROL WITHIN THE AIRMOBILE FORCE

Elements of an airmobile force include: armed helicopters, troop transport helicopters, medical evacuation helicopters, a command and control helicopter, vector aircraft, VNAF fighter-bomber aircraft, RVN ground troops, US advisors, medical personnel, and staging area ground control personnel.

1. Command Relationships

The command and control structure for operations of all US Army and Marine Corps aviation in RVN is described in MACV Directive Number 44, dated 8 July 1963 (annex E). Figure 20 shows the command relationships of US Army aviation units within RVN.

The command and control of tactical air support is effected through the tactical air control system, jointly manned by the VNAF and the USAF 2d Air Division. (The procedures for employment of tactical air support are also contained in MACV Directive Number 44.)

2. Ground Tactical Planning

ARVN commanders and staffs developed the ground tactical plans for their units with the assistance of their US advisor counterparts. When a requirement for an airmobile operation was generated in the tactical planning, the requirement was forwarded through ARVN command channels to corps for approval. If the request was approved by the ARVN corps commander and the senior US corps advisor, it was then assigned to the aviation battalion for execution.

During the planning phase for an airmobile operation, the corps senior advisor, the air liaison officer, the aviation battalion commander, and the RVN ground commander or appropriate staff representatives discussed the ground tactical plan. The available aircraft, available fire support, the number of troops to be airlifted, and intelligence reports on the size and disposition of the opposing Viet Cong unit were among the factors considered.

3. Mission Planning

The corps tactical operation center is the agency responsible for the detailed planning and coordination of all airmobile operations within a corps zone of operations. Representatives of the supported ARVN ground forces, the aviation battalion, and the airmobile company, the ALO, the corps senior advisor, and the senior advisor of the ARVN unit to be lifted were usually present during the planning stage of a mission.

a. Warning Order

As early as possible in the planning phase of an airmobile

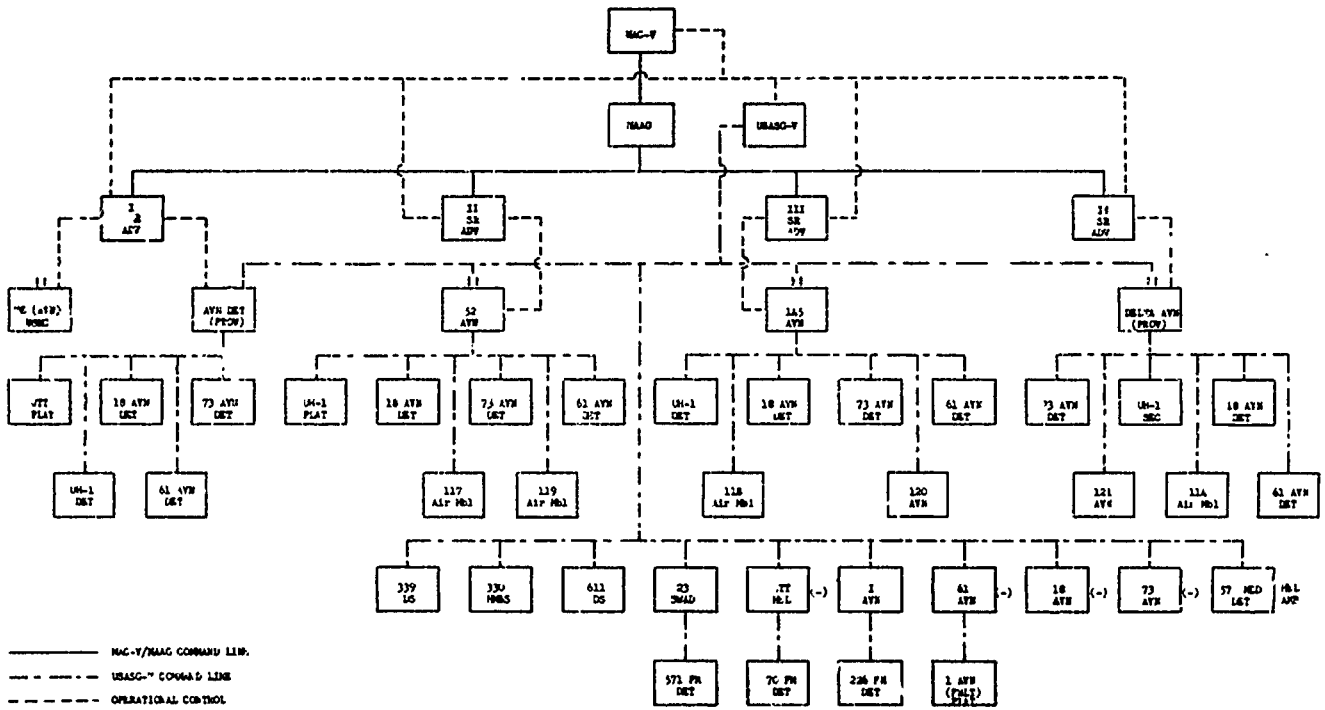


FIGURE 20

Command relationships, US forces in Vietnam

operation, the aviation battalion commander issued a warning order to the airmobile company selected for the operation. The warning order stated the time and place of execution, the staging areas to be used, the number of helicopters required, and the responsibilities and restrictions for preassault reconnaissance.

b. Operation Order

After formulation of an operation plan, the aviation battalion usually issued a complete operation order to the aviation company involved. The operation order designated the staging area, company responsibilties for the airmobile operation, number of troops to be airlifted, landing zones, radio frequencies, medical support plan, plan of tactical air support, and responsibility for other logistical support.

c. Briefings

When time permitted, the aviation battalion conducted a formal briefing at the time of issuing the operation order. Again, representatives from each of the participating units were present. Responsibilities were fixed and coordination was effected.

After all units had arrived in the staging area, a final briefing was held to coordinate any last minute changes, to effect final timing of the operation, and to disseminate the latest intelligence information and local weather conditions.

4. Mission Execution

The mission commander (usually the battalion commander or the airmobile company commander) was designated by the aviation battalion's operation order. He was responsible for providing the vector aircraft, giving the final briefing to aircrews, coordinating the tactical air support, and coordinating the air movement plan with the ground commander through the appropriate US advisor.

The mission commander was in command of the airmobile force while it was airborne. For some operations he used the battalion command and control aircraft as an airborne CP. Other occupants of the helicopter normally were the ground commander, US senior advisor, ALO and, if required, the artillery liaison officer. The command and control aircraft maintained communications with all elements of the airmobile force. It was normally stationed over the landing zone where the commander could observe and control the entire operation. Many of the US senior advisors and aviation commanders have expressed a desire for a heliborne command post capable of communicating with all elements of the airmobile force. Figure 21 is an example of the communication net usually employed in an airmobile operation.

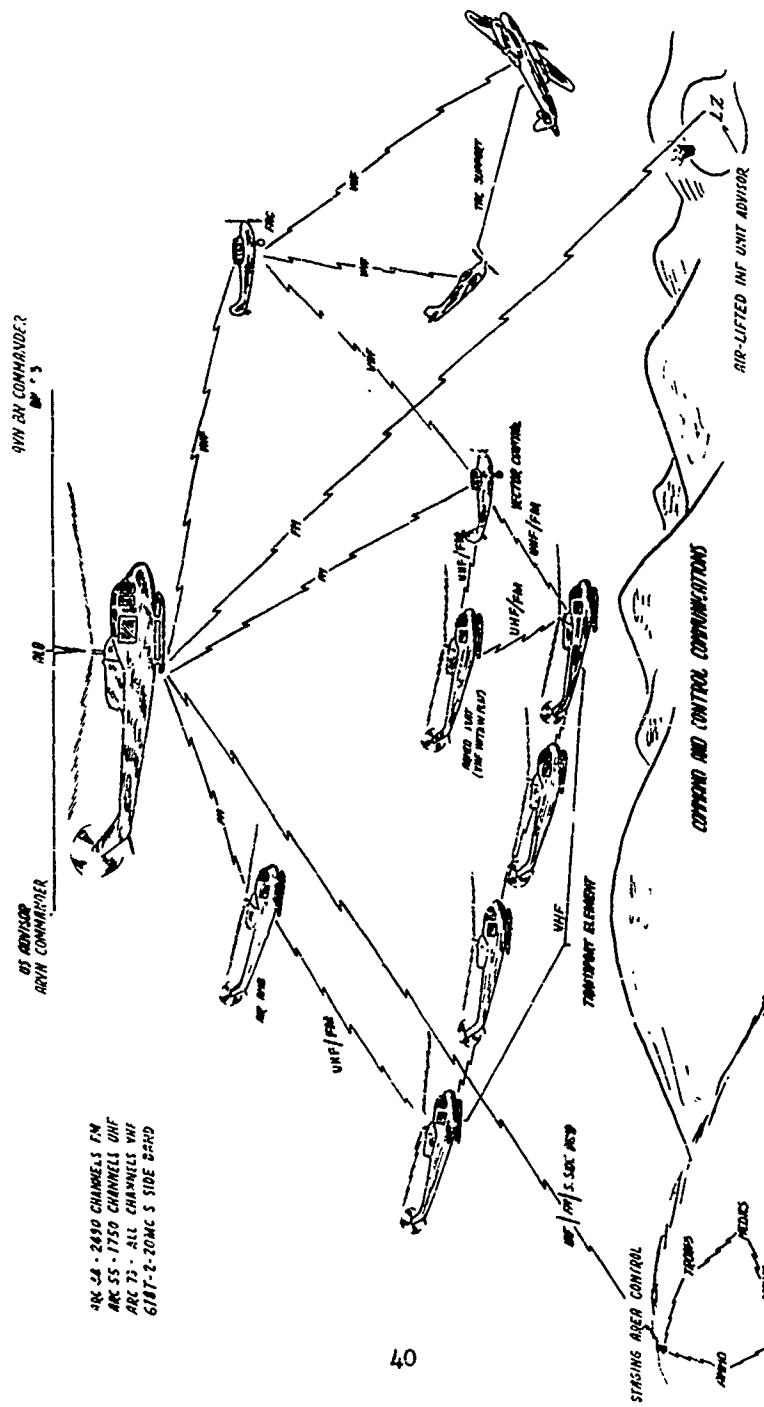


FIGURE 21

Command and control communications

5 Conclusions

The procedures that facilitate effective control of, and coordination between, the airmobile company and other elements of an airmobile force are:

a) Co-location and joint planning by all elements of the airmobile force

b) Communications system connecting all elements of the airmobile force

c) Airmobile command post with representatives of each major element

A requirement exists for a heliborne command post capable of communicating with all elements of the airmobile force.

D. OBJECTIVE 4 -- HELICOPTER ARMAMENT REQUIREMENT AND DISTRIBUTION

This objective could not be fully met during the evaluation period because of the TOE limitations, the directed theater practices, and the requirement to limit the evaluation to actual unit operations. The discussion, therefore, is limited to what was done by the airmobile companies.

1. Provisions of TOE 1-77E (Draft)

Each of the evaluated airmobile companies was organized under TOE 1-77E (Draft). The TOE provides for armament systems for each of the 25 UH-1B aircraft.

Augmentations to the TOE provided additional M-60 machineguns (20 for the 114th, 24 for the 118th, and 24 for the 119th) for door gunners on both the transport and armed helicopters.

M-14 rifles or M-2 carbines were provided for each of the crew chiefs.

2. Theater Practices

In Vietnam, the airmobile companies have been instructed to arm eight aircraft with either the XM-3 system or M-6E3 system (figures 22 and 23). The 114th and 119th have two XM-3's and six M-6E3's each. The 118th has one XM-3 and seven M-6E3's.

The M-6E3 system has been augmented with an improvised 2.75-inch rocket launcher with 16 rockets.

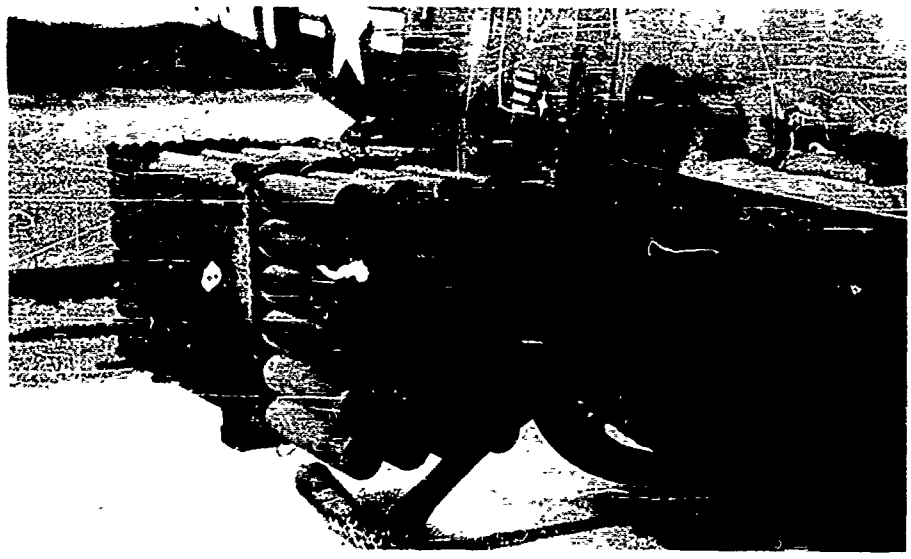


FIGURE 22 (U)
XM-3 armament system

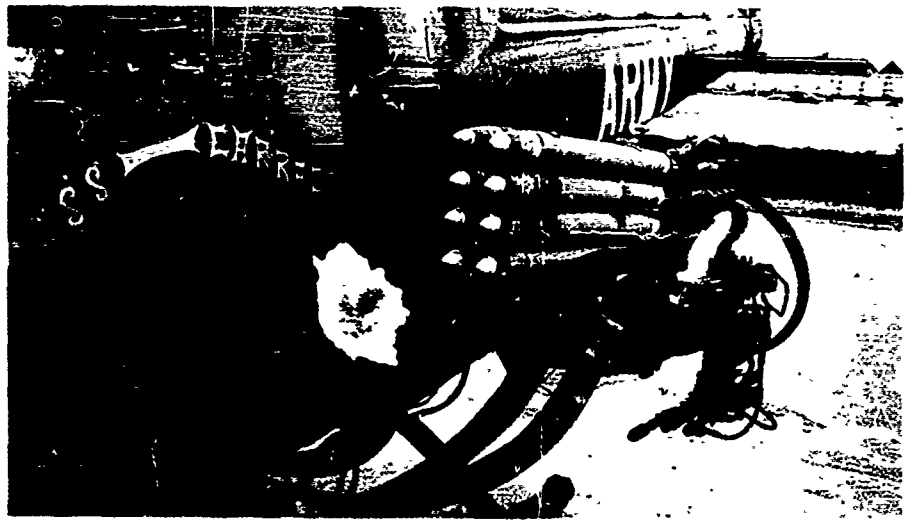


FIGURE 23 (U)
M-6E3 armament system with supplemental rockets

US Army Support Command, Vietnam (USASCV) requires that two US door gunners be used on all UH-1B aircraft. The normal practice is to use the crew chief as one gunner and a member of the attached gunner platoon as the other. In the 118th and 119th, gunner platoons were made up of attached rifle platoons from the United States Army 25th Infantry Division. In the 114th, the platoon was from the military police company of USASCV.

3. Distribution of Armament for Self-Escorted Missions

a. Mission of the Armed Helicopters

The mission of the armed UH-1B aircraft is to protect the troop transports from insurgent fire. The armed helicopters of the airmobile company performed their mission by escorting the transports to and from the landing zone, by providing suppressive fires in the landing zone area, and by presenting a threat to the insurgents in an attempt to draw fire away from the transports. They provided protection for both combat assault and combat support missions.

b. Ratio of Armed to Transport Helicopters

In the 43 combat assaults conducted by the 3 airmobile companies during the evaluation, no less than 4 nor more than 11 armed helicopters were used in support of an airmobile assault. They escorted transport forces ranging in size from 5 to 22 helicopters (figure 24).

One of the findings of ACTIV report, "Operational Evaluation of the Armed Helicopters" (C), dated 10 May 1963, was that "a platoon of from 5 to 7 armed helicopters can protect a transport helicopter force of from 20 to 25 aircraft." During the evaluation, ratios of armed helicopters to transports varied on the combat assaults from one armed for one transport to one armed for 4 transports.

c. Size of Armed Platoon

The practice of arming eight helicopters represents a compromise between the requirement to provide organic armed support and the requirement to lift troops and cargo. The current armament systems bring the armed UH-1B to its maximum gross weight, thereby eliminating it from a troop or cargo carrying role. The eight aircraft represent the strength of one airlift platoon. The entire platoon was armed in order to provide unit integrity and to ensure that a minimum of four organic escorts would be available at all times.

d. Positioning and Number of Armed Escorts

The positioning of the armed helicopters while protecting the

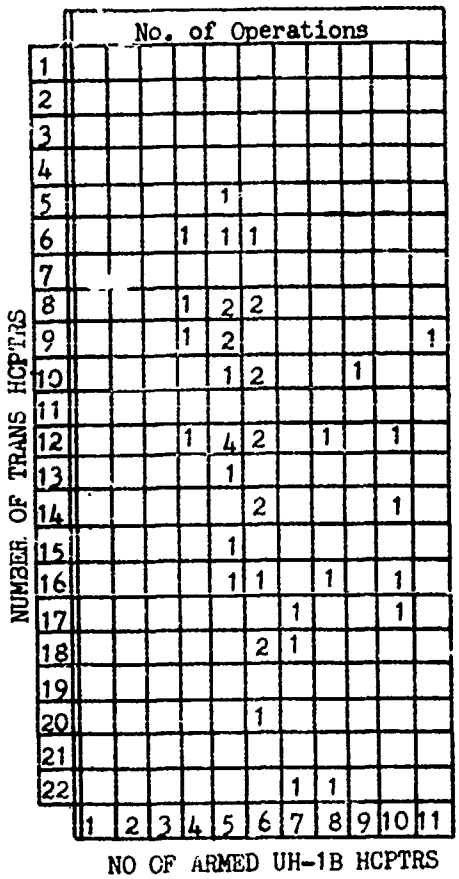


FIGURE 24

Frequency with which various combinations of escort and transport helicopters were used in combat assault operations

transports was based on the following factors:

1) The direction of the threat

2) The time period of transport exposure

3) The position of friendly ground troops

4) The requirement to provide or be in a position to provide continuous fire

5) Type and availability of fighter aircraft escort

6) The requirement for mutual protection

The number of armed helicopters used was based on:

1) The anticipated insurgent threat

2) The size and number of landing zones

3) The number of lifts

4) Anticipated refueling and rearming requirement

5) Availability of organic armed helicopters

6) Availability of nonorganic armed helicopters

7) Available maneuver space around landing zone

8) Number of missions requiring escort

e. Tactics and Techniques of Armed Helicopters

The armed helicopters positioned themselves so as to be able to deliver suppressive fire against threats to the transports.

A detailed discussion of the armed helicopter tactics and techniques is contained in objective 1 of the present report, in ACTIV report "Operational Evaluation of Armed Helicopters" (C), dated 10 May 1963, and "Evaluation of Armed Helicopter Escort of Transport Helicopters" (U), to be published.

4. Armament Systems

a. XM-3 System

The XM-3 system consists of two pods of 2.75-inch rockets mounted one on each side of the UH-1B. Each pod contains 24 rockets. The system is aimed from the right seat using the fixed Mark VIII infinity reflex sight and fired by a trigger switch on the right hand cyclic stick. It may also be fired by the trigger switch on the left cyclic stick. The maximum useful range, as stated in TB 55-1520-208-10/4, is 2500 meters. Effective fire was occasionally delivered at ranges up to 4000 meters. Unit aviators believed, however, that it was most effective at approximately 1500 meters. The system permits firing in pairs and ripples of pairs at the rate of six pairs per second. The XM-3 was normally employed to support the fires of the M-6E3 systems. It was usually under the control of the platoon leader who would position it to provide fire in

the area that posed the greatest threat. If the threat could not be identified, the XM-3-equipped helicopter would stay at altitude or behind the transport force until it was committed by the platoon leader or mission commander.

b. M-6E3 System with Supplemental Rockets

The M-6E3 system consists of two pairs of 7.62mm, M-60C machineguns, one pair mounted on each side of the UH-1B. The system is aimed by a flexible sight above the left seat of the helicopter and fired by means of a firing switch mounted on the sighting device. The system may be aimed independent of the axis of the aircraft. It has a horizontal traverse from 12 degrees inboard to 70 degrees outboard, and can be elevated 9 degrees and depressed 66 degrees. Mechanical stops are provided to prevent firing into the helicopter air frame. Ammunition storage for 2000 rounds per gun is provided. The maximum allowable aircraft gross weight, however, limits ammunition to 1000 to 1500 rounds per weapon. This system appeared to be effective against troops in the open and in tree lines, and the tracers would often set fire to thatched huts. Its flexibility permitted plunging fire into foxholes that had no overhead cover.

Because of the limited penetrating power of the 7.62mm round, two locally produced pods of eight rockets (2.75 inch) were added to the XM-6E3 system for attack of dug-in troops and dug-in troops with light overhead cover. The usual method of aiming the supplemental rocket system was to align the 7.62 machineguns in the stowed position with the desired impact point of the rockets. The rockets were then fired from the right seat using the tracers from the machineguns as spotting rounds. This mixed system permitted the pilot to use either machineguns or rockets as dictated by the nature of the target. The engagement range of the supplemental rocket system was limited by the tracer burnout time of the 7.62mm round, approximately 600 meters.

c. Door Gunners

In addition to the integrated armament systems, two door gunners were used on the armed helicopters. Normally one gunner used a hand held M-60 machinegun and one used either an M-14 rifle or an M-2 carbine. The door gunners provided fire when the insurgent threat was clearly identified. Door gunners also performed the functions of clearing and reloading weapons between engagements and clearing some stoppages during engagements.

d. Effects of Armament Systems on Armed Helicopters

The weight of each of the armament systems causes the UH-1B to operate at or near maximum gross weight, thereby reducing the maneuverability of the aircraft. The systems also induce sufficient drag to

reduce the maximum speed to approximately 80 knots. The parity of speed between the transports and the armed helicopters results in the armed helicopters not being able to overtake the airmobile force if they are required to leave formation to attack targets enroute. With additional armed ships, attack of enroute targets was accomplished without detracting from the protective fires in the landing zone. Detailed recommended characteristics for the armed helicopter are contained in the armed helicopter reports indicated in paragraph 3e above.

e. Adequacy of Armament Systems and the Armed Helicopters

The company commanders and armed helicopter platoon leaders of the Utility Tactical Transport Helicopter Company and the 114th and 118th Airmobile Companies were interviewed to obtain their opinions of the adequacy of the present helicopter armament systems. Because not all targets could be effectively attacked with any one type of system, they believe that a capability to fire both machineguns and rockets is highly desirable. They also believe that the XM-3 rocket system gives them the added firepower required to suppress many types of insurgent targets when a large volume of fire is required or when a large area must be covered. However, there are several problems associated with the 2.75-inch rocket warhead in Vietnam, such as:

1) Only two types of warheads are available, high explosive and a very limited number of white phosphorus.

2) The high explosive round appears to lack the desired casualty producing effect (it has more of a concussion effect). The effectiveness of the rockets against dug-in troops, troops in tree lines, and troops in water covered areas is limited.

3) The quick fuze does not detonate the round quickly enough when used in water or muddy areas.

While the officers interviewed indicated that the present armament systems are adequate to provide suppressive fires for the transport helicopters in the landing area, they all agree that a more lethal weapon system is needed. They recommend one that employs a flexible mount and has a dual capability of firing both machineguns and rockets. Additional types of warheads such as white phosphorus, and a fuze that can be set at super-quick, quick, or delay are also required.

The armed UH-1B helicopters have done an outstanding job in fulfilling mission requirements. However, certain disadvantages are apparent in the present armed helicopter, such as: added weight imposed by the armament system, inability to leave enroute formations for protection of the transports, limited armament available, and relative susceptibility

to insurgent fire. To counteract these disadvantages, a requirement exists for armed and armored helicopters which have a sufficient payload, range, and speed capability for a minimum aircrew and required armament and armor protection against caliber .50 projectiles.

5. Requirement for Armament on Troop-Carrying Helicopters

a. Mission of Transport Helicopters

In addition to flying in escorted missions, the transport helicopters of the airmobile companies often flew combat support missions without escort into many locations throughout Vietnam. These missions included air movement of combat troops, casualties, supplies, equipment, and transport of commanders and liaison personnel.

b. The Insurgent Threat

On both escorted and unescorted missions. transport helicopters were exposed to insurgent fire. The VC often placed troops near RVN military installations to fire on arriving and departing aircraft. They also were able to infiltrate perimeters of ARVN units on field operations to fire at aircraft engaged in combat support missions. There were instances when the VC attempted to lure aircraft into their own positions. One example of this occurred when a UH-1B transport of the 114th requested white smoke to mark the landing area near an ARVN unit. White smoke was displayed in two areas. The pilot selected what appeared to be the correct area and began his approach. As he neared the ground, he discovered his error when he received heavy small arms fire.

Helicopters that are forced to land while enroute to a landing zone are targets for insurgent attack and have often been taken under fire within minutes of going down.

c. Armament Systems

The XM-3 and M-6E3 armament systems were authorized for each of the company aircraft. However, the weight of these systems precludes their use on the transports when a maximum payload is desired.

To provide some defensive armament, two door gunners were used. One door gunner was usually armed with an M-60 machinegun, either hand held or pintle mounted, and the other gunner was armed with either an M-14 rifle or an M-2 carbine. The use of door gunners, while detracting from the payload capability, represented an immediate solution to the self-defense problem posed by the insurgent threat. During troop lifts, the door gunners checked the onloading troops to ensure that grenade pins were in place, weapons were on safe, and the troops were properly positioned in the troop compartment.

They also assisted in expeditious off-loading in the landing zone. In addition, the language barrier imposed by operating with troops of another nationality made the presence of US door gunners highly desireable. The airmobile companies often found that on landing in some areas restraint was required at each door to control the number of passengers boarding. While the advisors were evenly split on their opinions as to the necessity for having door gunners on transports, USASCV considered it a necessity. It was the opinion of the evaluators that door gunners are required in Vietnam. However, this matter should be the subject of further consideration in order to determine whether or not they would be needed in all types of operations. The possibility of using squad members as door gunners in airmobile operations has been considered, but is not feasible in RVN at this time.

6. Conclusions

The ratio of armed helicopters to transports varied on combat assaults from two armed for one transport to one armed for four transports.

A requirement exists for a helicopter weapon system that has a capability of firing both machineguns and rockets.

Transport helicopters require some means of self-protection. The use of two door gunners appears to satisfy this requirement. However, this matter should be the subject of further evaluation.

There is a requirement for a rocket which has a greater casualty producing effect than the 2.75-inch rocket currently in use. It should have a variety of warheads and fuzes.

A requirement exists for an armed and armored helicopter mounting an automatic fire and rocket system, and possessing sufficient armor to afford protection to the crew and critical component systems of the helicopter from caliber .50 projectiles.

E. OBJECTIVE 5 - ADEQUACY OF AIRMOBILE COMPANY TOE 1-77E FOR NON-DIVISIONAL EMPLOYMENT

The 114th, 118th, and 119th Airmobile Companies were not organized under TOE 1-77E, but rather under TOE 1-77E (draft), with augmentation and with attachments of a transportation cargo helicopter field maintenance detachment, a signal detachment (avionics), a medical detachment, and a platoon of gunners. This discussion will present the existing organization (TOE 1-77E draft) with its augmentation and attachments and will indicate the augmentation and attachments required for an airmobile company organized under TOE 1-77E to operate as an independent unit.

Augmentations to the company TOE's were authorized by the following:

1) 114th Airmobile Company (Lt)

DA Message 325959

DA Message 703460

DA Message 328775

USCONARC Message ALBD-BA-2503 (S)

General Order 70, Headquarters USARYIS, subject: Assignment of Units, dated 14 May 1963

2) 118th Airmobile Company (Lt)

General Order Number 236, Headquarters, US Army Pacific, 14 June 1963, (figure 25)

3) 119th Airmobile Company (Lt)

General Order Number 236, Headquarters, US Army Pacific, 14 June 1963.

Annex F contains information showing the number of personnel and amount of equipment presently authorized the evaluated airmobile companies in excess of TOE 1-77E.

1. Factors Affecting the TOE

a. Missions

In addition to the missions assigned by TOE 1-77E that called for providing tactical air movement of combat troops, supplies, and equipment, the airmobile companies were required to provide command liaison tactical transport and organic armed escort with a suppressive fire capability.

b. Attachments and Augmentations

The 114th with attachments and augmentations numbered 310 men. The 118th and 119th numbered 315 men each. The additional personnel more than doubled the administrative and supply workloads of the 176-man companies.

c. Fixed Bases of Operation

The three companies operated from fixed bases of operations.

ACTIVATIONS

TPSN	UNIT	TOE	AUTHORIZED STRENGTH OFF	WO	ENL	AGG
20610	Avn Co (Air Mbl Lt) 118th 32d 119th 81st	1-77E (Draft) w/C1 (SRC 01 077E 1301)	15	40	121	176

AUGMENTATION

Br	MOS Code	Grade	Par	Line	No	
AM	1981	Lt			1	Intel Off
AM	1982	Lt			1	Asst Flt Opns
	120	E-4			1	Precise Pwr Gen Sp
	42110	E-4			2	Small Arms Repun
	67120	E-5			2	Lt Cgo Apl Mech Ch
	67520	E-4			1	Heptr Mech
	67520	E-5			2	Sr Heptr Mech
	71000	E-3			1	Mail Clk
	71120	E-4			4	Clk Typist
	76000	E-3			2	Sup Clk
NC	11370	E-7			1	Intel Sgt
NC	71660	E-6			1	Per Staff Nco

Plus from 29-500D, 58 w/C3
(SRC 29 500D 8101)
TOE 300-21 applies
Team: 2 DA, DE
(SRC 29 500D 8201)
Team: 2 DA, DE
(SRC 29 500D 8301)
Team: 3 EA

Less:	67110	E-4	1	2	1
Team: 2 EH					
Team: 9 ED					
Less:	67530	E-4	4	2	9
(SRC 29 500D 8501)					
Team: GB					
Less:	90110	E-3	2	3	1
Team GH					
Less:	31110	E-5	8	1	1

Plus from 1-207D, 57 w/C3
(SRC 01 207D 7001)
TOE 300-8, 300-11, 300-18, 300-21 and 300-23 apply
1 Approach Control Team, Par 4

Less:	21120	E-5	4	3	2

FIGURE 25

Extract from general order no. 236, Hq US Army Pacific

For operations staged from areas other than the fixed bases, only the essential airmobile equipment was used. At no time were the companies required to move as an entire company or to support themselves for extended periods in the field.

Vehicular mobility requirements varied widely with the three companies. The 114th and 119th required very little intracompound transportation. The 118th occupied three separate areas on a VNAF base, and required considerable intracompound transportation.

d. Security

The three companies were provided external security by ARVN units. These guard posts were controlled and manned by Vietnamese military or paramilitary forces. The company commander had no direct control over the placement or functioning of the ARVN guard.

The three companies provided their own internal security personnel. A combination of roving guards and static posts was used. Alert positions and cover against mortar fire were provided on the immediate perimeter of the compound and within the compound. Practice alerts were staged to verify the alert procedures.

e. Installations and Facilities

The 114th Airmobile Company was stationed adjacent to the west side of the city of Vinh Long in the Mekong Delta region of Vietnam. The company compound consisted of a 3400-foot surfaced runway at an elevation of 5 feet above sea level and had very limited parking and ramp space. Billets and offices were adjacent to the runway and ramp. The compound was surrounded by rice paddies, ponds, and swamps. The company operated the entire Vinh Long airfield complex. Included was a permanent tower with FM, VHF, and UHF air ground communications.

The company was attached to the Delta Aviation Battalion (Prov) located 20 miles from Vinh Long at Can Tho. The battalion supported the ARVN IV Corps, which was also located at Can Tho, and the ARVN 9th and 21st Divisions located at Sadec and Bac Lieu, respectively. Airmobile support was provided throughout the IV Corps tactical zone. The farthest point in the zone was 125 miles from the company.

Auxiliary staging and refueling facilities were maintained and operated by the Delta Aviation Battalion (Prov) throughout the corps zone as required.

The 118th Airmobile Company was stationed on a VNAF facility at Bien Hoa in the Mekong plateau area of South Vietnam. The company compound consisted of three separate areas: Operations, maintenance, and ramp; supply, mess, company headquarters, and enlisted billets; and

officer billets and mess. The distances between areas averaged one-half mile. The VNAF airfield had a 9971-foot paved runway and a 2000-foot steel plank runway. The company parking ramp and maintenance area were adjacent to a paved taxiway which ran near the 2000-foot runway. Airfield control, weather facilities, and tower were operated by VNAF. The company maintained its own operations center for unit aircraft. The airfield was at an elevation of 36 feet above sea level, and was surrounded by rice paddies and fields. Two messes were operated by the 118th because of the separation of officer and enlisted billet areas. Health, welfare, and morale facilities were company operated.

The company was attached to the 145th Aviation Battalion which was located 14 miles from Bien Hoa at Tan Son Nhut. The battalion supported the III Corps located at Saigon, the 7th Division at My Tho, the 5th Division at Bien Hoa, and the Phuoc Binh Thanh and Binh Lam zones. Airmobile support was provided throughout the III Corps tactical zone. The farthest point in the zone was 150 miles from the company.

Auxiliary staging and refueling facilities were maintained and operated by the 145th Aviation Battalion throughout the corps zone as required.

The 119th Airmobile Company was stationed at Old Pleiku which is one and one-half miles southeast of Pleiku in the forested highlands region of South Vietnam. The company compound consisted of a 2400-foot steel plank runway, and paved and stabilized parking and ramp areas. Billets, mess, and offices were adjacent to the runway. The compound was shared with the 52nd Aviation Battalion. The airfield was on a hill top and was bordered on all sides by dry fields. It was at an elevation of 2460 feet above sea level.

The company and the 52nd Aviation Battalion jointly operated a control tower, airfield servicing facilities, an operations center, and a consolidated mess. Weather forecasts were available from USAF facilities at Pleiku VNAF airfield.

The company was attached to the 52nd Aviation Battalion. The battalion supported the II Corps located near Pleiku and the 22nd, 23rd, and 25th Divisions located at Kontum, Ban Me Thuot, and Quang Ngai respectively. Airmobile support was provided throughout the II Corps tactical zone. The farthest point in the zone was 155 miles from the company.

Auxiliary staging and refueling facilities were maintained and operated by the 52nd Aviation Battalion throughout the corps zone as required.

f. Logistical Support

The 114th and 119th Airmobile Companies received supplies and equipment, less POL, by air. The supplies for the 114th were delivered to the company airfield at Vinh Long. Unloading, handling, and transportation were done by the company. Supplies and equipment for the 119th were delivered to the VNAF airfield at Pleiku, approximately five miles from the company compound. The supplies were then transferred to company vehicles.

The 118th Airmobile Company obtained supplies and equipment by vehicle from USASCV in Saigon. The supplies were delivered directly to the unit compound.

The three companies received POL by commercial carrier. Delivery was made to the unit POL storage areas.

2. Organization

The companies were organized as shown in objective 1, figure 11. Their organization differs from that shown in TOE 1-77E in two respects. First, two airlift platoons and one armed platoon were formed in place of three airlift platoons. Second, vehicular maintenance personnel were grouped into a motor maintenance section under the service platoon.

3. Personnel and Equipment

The personnel and equipment augmentations enabled the companies to accomplish their missions. Had the companies been required to operate under TOE 1-77E, they would have had too few men to perform adequately in the following areas: Airfield control, aircraft maintenance, vehicle maintenance, weapon system maintenance, radio maintenance, clerical, food preparation, intelligence, and operations. They would also have been short ground transportation, weapons, observation aircraft, and navigational aids. Recommended personnel and equipment changes to TOE 1-77E for separate airmobile companies are shown in annex F. These recommendations take into consideration the differences between TOE 1-77E and the augmented TOE 1-77E (draft). Because the companies were augmented throughout the evaluation period and no changes could be made solely for evaluation purposes, the evaluation was based on whether or not the personnel and equipment that were authorized were required.

4. Conclusions

Using TOE 1-77E (draft) as augmented, and with the attachments currently in effect, the companies demonstrated their capability to perform satisfactorily in support of counterinsurgency operations.

When the units are reorganized under TOE 1-77E, they will require

current attachments and augmentations as shown in annex F.

F. OBJECTIVE 6 - DISPLACEMENT AND EXTENDED FIELD OPERATIONS

Objective 6 was not met. There was no requirement for an entire company to move or operate for extended periods away from its fixed base. The companies were located so that they could provide support anywhere within their respective corps areas.

G. OBJECTIVE 7 - LOGISTICS

The information and data to meet this objective were gathered by interviews with aviation and support unit personnel, from records, reports, and summaries prepared by the aviation units, and by surveying unit records.

The 114th Airmobile Company was supported by the attached 544th Transportation Cargo Helicopter Field Maintenance (CHFM) Detachment. The 544th received technical support and aircraft repair parts from the 611th Transportation Company (Direct Support) (DS), located at Vung Tau, which is 80 air miles from Vinh Long. Aircraft repair parts for the 611th were provided by the Aircraft Consolidated Supply Point (ACSP) at Saigon, 43 air miles from Vung Tau. The ACSP in Saigon was operated by the aircraft maintenance and supply section, US Army Support Command, Vietnam, augmented by the supply platoon of the 330th Transportation Heavy Maintenance and Supply Company located in Vung Tau.

The 118th Airmobile Company was supported by the attached 573d Transportation CHFM Detachment. Technical support and aircraft repair parts were provided by the 611th Transportation Company (DS), 45 air miles from Bien Hoa.

The 119th Airmobile Company was supported by the attached 545th Transportation CHFM Detachment. Technical support and aircraft repair parts were provided by the 339th Transportation Company (DS) located at Nha Trang, which is 145 air miles from Pleiku. Aircraft repair parts were provided to the 339th from the ACSP in Saigon which is 165 air miles from Nha Trang.

All classes of supplies except POL were delivered primarily by air to the 114th and the 119th. In rare cases supplies and heavy equipment were delivered by armed convoy over the roads. The 118th picked up its supplies by organic aircraft and motor vehicles.

Each unit had certain responsibilities for operating a fixed installation. Their responsibilities varied from complete responsibility for operating an airfield and a compound, as was the case with the 114th Airmobile Company in Vinh Long, to providing personnel to assist the compound commander, as was the case with the 119th Airmobile Company located at Pleiku.

1. Maintenance

a. Aircraft

The accumulated flight time of each of the helicopters assigned to the companies at the end of the evaluation period was as follows: 114th - 600 to 700 hours; 118th - 300 to 400 hours; and the 119th - 300 to 400 hours. The 114th arrived in RVN with UH-1B helicopters and had more time with the aircraft than the other companies. Thus, they were first to arrive at problem areas such as bolts backing off from tail rotor hubs, engine flex hoses cracking, and blade grips scouring. These problems developed with the accumulation of flying hours. A maintenance and supply letter was published monthly by USASCV describing new maintenance policies and procedures to minimize problem areas. This enabled other companies to anticipate the problems and take remedial action before they became serious.

The availability of rotary-wing aircraft in each of the units exceeded the DA-desired goal of 67 percent. Availability by unit and month is shown in table 7.

The average number of hours flown per aircraft per month during the evaluation period was 56 hours, the same as that programed in SB-1-1 for UH-1B's. Total company flying time and average aircraft flying hours are shown in tables 8 and 9.

Because of the level of insurgent activity and the tactical nature of the II Corps area, the average aircraft flying hours for the 119th Airmobile Company were less than that of the 114th or 118th.

With the augmentation discussed in objective 5, the maintenance personnel of the company service platoon were able to perform the required maintenance tasks. They had to work, however, 10 to 14 hours per day for extended periods of time. Indigenous labor was hired to perform miscellaneous housekeeping tasks in service platoons and company areas in order to free maintenance personnel so that they could devote full time to their primary mission. The attached CHFM detachments assisted in organizational maintenance to the extent desired by the company commanders.

Maintenance was accomplished under varying conditions of weather, terrain, and enemy action. Prior to the time permanent facilities were provided, there was a requirement for a more suitable maintenance shelter for helicopters. During the hours of darkness, mosquitoes and other insects were a particular problem, and at times caused maintenance stoppages. Off-the-shelf temporary maintenance shelters should be considered for use during the initial and buildup phases of any future counterinsurgency operations. The shelter should be lightweight, high enough to permit the helicopters to be moved in easily, insectproof, and have a hoist.

TABLE 7

PERCENT OF ROTARY-WING AIRCRAFT AVAILABILITY

Unit	October	November	December	January
114th	74	75	81	73
118th	88	94	91	88
119th	87	90	77	78

TABLE 8

TOTAL COMPANY FLYING TIME (HOURS)

Unit	October	November	December	January
114th	1479	1590	1727	1655
118th	1286	1385	1609	1580
119th	1206	1178	1104	1230

TABLE 9

AVERAGE FLYING HOURS PER AIRCRAFT

Unit	October	November	December	January
114th	59	64	69	64
118th	51	55	64	63
119th	48	47	44	49

b. Other

All units experienced delays in the higher echelons of maintenance of other equipment except for signal equipment. Since the units operated from permanent installations and did not use all of their TOE equipment, these delays in maintenance had little effect on the accomplishment of the units missions. Had the units operated from field locations where they would have had to use all of their vehicles and generators, the impact of maintenance delays might have been severe. Some of the delays were caused by a shortage of spare parts.

(1) Ordnance

Ordnance direct support was furnished each of the units by the DS detachment of the ordnance section of USASCV. The detachment was comprised of 13 enlisted men and had the mission of providing third and limited fourth echelon maintenance for over 1600 vehicles located in all parts of Vietnam. Since the mission was beyond the capability of the detachment, priorities were established by the ordnance officer. Critical vehicles, POL tankers, ambulances, and communications vehicles were given first priority. To keep the deadline rate within reasonable limits, the units, with the concurrence of the USASCV ordnance officer, performed higher echelons of maintenance than they are normally authorized.

(2) Engineer

Maintenance of mechanical equipment, other than ordnance, was performed by the engineer section, USASCV. The maintenance section had an average strength of 1 warrant officer and 16 enlisted men, and was augmented by a Vietnamese civilian maintenance section of 23 persons. The workload included maintenance of engineer equipment, signal generators, refrigerators, ice makers and over 2000 other mechanical and electrical pieces of equipment located throughout the Republic of Vietnam. Most engineer equipment was shipped by air or surface to Tan Son Nhut Airport for repair. If the work was not within the capability of the engineer section, it was further evacuated to Okinawa. In emergencies, field teams were dispatched to the units for on site repairs. The shortage of repair parts caused considerable delay in engineer maintenance.

(3) Signal

An avionics signal detachment was attached to each unit, and performed third and limited fourth echelon maintenance. There were no serious problems.

2. Equipment and Supply

a. Aircraft

During the evaluation period the equipment deadline for parts (EDP) averaged less than 10 percent, even though the helicopters were flying approximately 66 hours per month under combat conditions. There were few cases of extended EDP's. These few occured when parts on which there was little or no previous demand data were required by a large number of helicopters at approximately the same time. Many of the EDP's listed by the companies were EDP's to the company, but were not actually EDP's in the true sense of the regulation, since the parts were in the system within RVN. Because of the distances involved, the lack of ground mobility, and the lack of a reliable and rapid communications system, it was often extremely difficult for a unit to determine if the part was available for issue, or obtainable through lateral transfer from another organization. A weekly consolidation of EDP's was made and distributed to all the aircraft maintenance units in an effort to expedite lateral transfers. The 114th processed some 43 EDP's, the 118th about 9 EDP's, and the 119th some 114 during the evaluation period. The companies experienced a 3- to 4-day fill time on EDP parts that were available within RVN, and a 7- to 10-day fill time on EDP parts which had to come from outside of RVN.

Priority 05 requisitions were carried through the system without undue delay. The average time required to fill 05 requisitions was:

1) 114th 7 to 14 days

2) 118th 14 to 20 days

3) 119th 15 to 20 days

The 114th and the 118th used priority 12 for requisitions for stock replenishment and stockage items, and the 119th used priority 17. The 114th reviewed the prescribed load list (PLL) and submitted stockage requisitions in December 1963. The items began to arrive in late January and early February 1964. The 118th and 119th received their stockage replacements in 60 to 90 days. Some form of follow-up was required for approximately 20 percent of all requisitions.

Cannibalization of aircraft was held to a minimum in all three companies during the evaluation period. Cannibalization generally consisted of changing a single item from an aircraft entering maintenance to an aircraft otherwise ready for flight. Items changed were generally of the quick-change type which required very little time to transfer. When the transfer procedures were used, more time was consumed in changing aircraft records than in changing the item.

Prior to the evaluation, all units had been obtaining spare parts directly from the ACSP. The ACSP was understaffed in editing, posting, and warehousing personnel. The system of repair parts flow through maintenance channels was initiated by the Aircraft Maintenance and Supply Office of USASCV in the summer of 196[illegible] This system noticeably increased the effectiveness of the spare parts supply line. The ACSP was manned by the supply platoon of the 330th Heavy Maintenance and Supply Company.

b. Other

The 114th Airmobile Company had approximately 100 percent of its TOE equipment. The 118th and 119th had about 70 percent. There was a shortage of vehicles and tents in the 118th and 119th which might have adversely affected accomplishment of their mission had they been required to move and operate independently under field conditions.

Requisitioned items that were stocked in Vietnam were usually received within one week. Items that were not in Vietnam were sometimes not received for as long as 120 days, and many had to be requisitioned again.

Table 10 shows the number of requisitions submitted and filled during the evaluation period.

TABLE 10

REQUISITION EXPERIENCE

Unit	Number Requisitions Submitted	Number Filled	Percent Filled
114th Airmobile Co	550	232	42
118th Airmobile Co	1333	597	45
119th Airmobile Co	1313	540	42

During the evaluation period the 114th Airmobile Company submitted only 40 percent as many requisitions as the other two companies. This was because the company arrived in the theater fully equipped. The other companies were organized in country from former CH-21 companies, and consequently were short much equipment.

3. Petroleum, Oils, and Lubricants

The distribution of POL has not been a serious problem. The aviation battalion S4 had the responsibility for computing POL requirements for each airmobile operation and for ensuring that sufficient POL was available. These requirements were then passed to the senior MAAG advisor with the supported ARVN unit. It was the responsibility of the ARVN unit to deliver the POL products and available M-49 gasoline tankers to the forward staging area. These tankers were widely scattered throughout the RVN. Because of the distance and the unsecured roads, it was usually possible to position only one, two, or three of the gasoline tankers for any one operation.

Since ground time for refueling was, in most cases, directly related to the number of dispensing systems available, and since it was impossible to move POL tankers in sufficient numbers into the staging area, an air-transportable dispensing system was developed within the USASCV. This system (figures 26 and 27) consisted of a filter/separator and a 50-gpm pump with necessary hoses mounted on a tubular steel frame with two retractable wheels. The system weighed 500 pounds and was easily transportable by air. During operations, the required number of these systems were airlifted into the forward staging area and placed on 2½-ton trucks loaded with 55 gallon drums of JP-4. Three men were required to operate the system: one man on the truck to transfer the stand pipe into drums, one man to dispense the fuel into the aircraft, and a driver. This system has been used with success by the 114th and 118th Airmobile Companies.

Two 500 gallon collapsible tanks, an electric pump, and a "go-no go" fuse were added to the system by the 119th Airmobile Company operating in the mountainous area of II Corps. Even with the additional equipment the system remained air transportable by one UH-1B (figure 28). POL and 2½-ton trucks were prepositioned by ARVN before a combat operation. The airmobile pump and POL personnel were flown into the staging area by a cargo helicopter, and POL personnel from the company filled the two 500 gallon tanks using the airmobile pump with filter separator (figures 29 and 30). This placed "dry" fuel in the collapsible tanks. The fuel was quality checked by a "go-no go" fuse when dispensed by the electric driven pump into the helicopters (figure 31).

During one typical operation conducted by the 119th Airmobile Company, 22 UH-1B's were each refueled twice. Three improvised systems

FIGURE 26 (U)
Airmobile pump

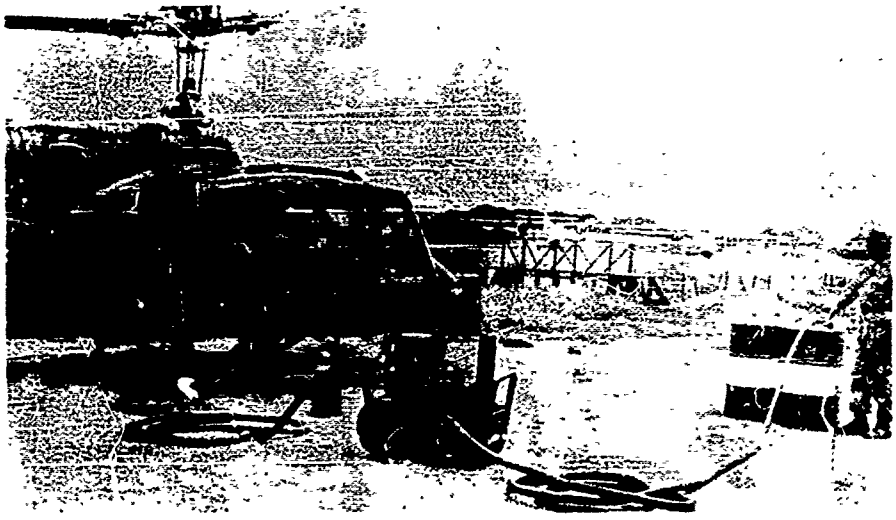


FIGURE 27 (U)
Refueling UH-1B with airmobile pump

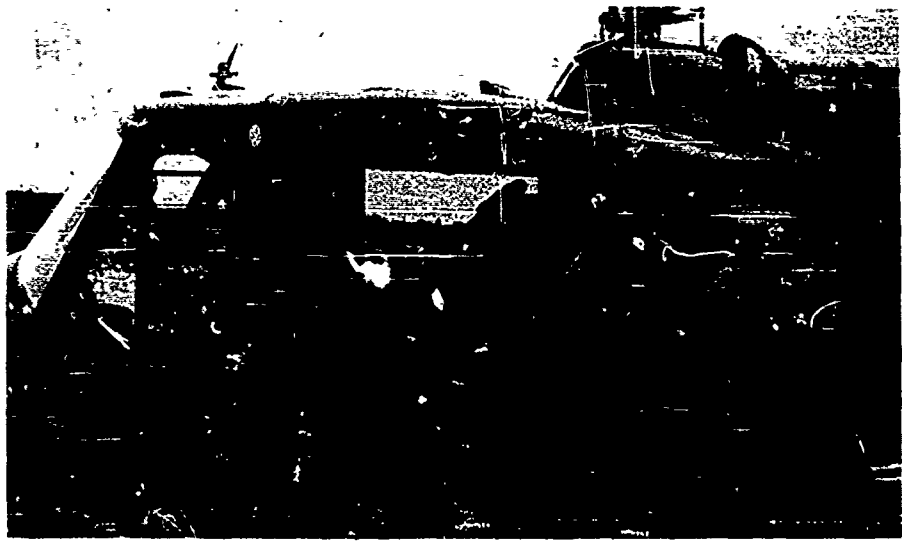


FIGURE 28 (U)
Airmobile pump loaded for transport

FIGURE 29 (U)
Unloading airmobile fuel dispensing equipment

FIGURE 30 (U)
Fuel transfer from 55-gallon drums to 500-gallon tank

FIGURE 31 (U)
Refueling UH-1B from 500-gallon tank

and one M-49C tanker were used. On the first refueling, 5 gallons of JP-4 were dispensed into each helicopter. The total refueling time was 12 minutes. The M-49C tanker refueled four helicopters and the improvised systems refueled six each. On the second refueling, the helicopters were refueled with 80 gallons each in 20 minutes. The M-49C tanker again refueled four of the helicopters.

The improvised airmobile pump has been used with success in a great many airmobile operations. It has proved to be simple, reliable and safe.

In Vietnam there is one unusual aspect of POL resupply. Civilian contractors move their POL vehicles freely in territory controlled by the Viet Cong. These vehicles move singly without armed escort. Military vehicles do not have this freedom of movement except when civilian drivers are hired from a contractor. These contract drivers have moved Army POL tankers in Viet Cong infested territory without interference. If this situation changes, extensive modification of the POL supply system will be required.

4. Ammunition

Units encountered no difficulty in procuring sufficient ammunition to meet all of their requirements during the evaluation period. A requisition submitted to the USASCV ammunition officer resulted in ammunition being delivered to the unit in a timely manner. Basic loads were maintained and rotated.

5. Conclusions

a. Concepts and procedures for aircraft maintenance and supply were effective.

b. Concepts and procedures for supply and maintenance of equipment, other than aircraft, were satisfactory for the existing limited requirements.

c. Petroleum, oil, and lubricant distribution was atypical, and although it was effective, it should not be used as a basis for planning in connection with other counterinsurgency situations. Concepts and procedures for supply of ammunition were effective.

d. Off-the-shelf temporary maintenance shelters should be considered for use during the initial and buildup phases of any future counterinsurgency operations.

(C) ANNEX A

SENIOR ADVISOR COMMENTS

This annex contains comments of US Army corps, division, and special zone senior advisors relative to the effectiveness of the support provided by the airmobile companies.

UNITED STATES
MILITARY ASSISTANCE ADVISORY GROUP, VIETNAM
II VN CORPS DETACHMENT
Pleiku, Vietnam

MAGTN-IIC 14 February 1964

SUBJECT: Evaluation of Airmobile Company in Counterinsurgency Operations

TO: Chief
Army Concept Team in Vietnam
APO 143, U. S. Forces

In accordance with letter, your headquarters, ACTIV-AM, subject as above, dated 26 December 1963, attached are questionnaires from Senior Advisors, II Corps, 22nd Infantry Division, 23rd Infantry Division, and 25th Infantry Division.

FOR THE SENIOR ADVISOR:

/s/ Aldine Cromer
/t/ ALDINE CROMER
Captain, AGC
Admin Officer

4 Incl
1- Questionnaire, SA, II Corps
2- Questionnaire, 22d Inf Div
3- Questionnaire, 23d Inf Div
4- Questionnaire, 25th Inf Div

COMMENTS, SENIOR ADVISOR, II CORPS, ON EVALUATION OF AIRMOBILE COMPANY IN COUNTERINSURGENCY OPERATIONS.

14 February 1964

1. Tactics and Techniques:

Question: Does the airmobile company accomplish mission requirements satisfactorily? (Include response time)

Answer: The two Airmobile Companies under the direction of the 52d Avn Bn have accomplished existing mission requirements satisfactorily. Tactics requiring immediate response have been used successfully within II Corps, however, this has not been frequent due to comparatively (Delta vs II Corps Area) less VC activity and the nature of the terrain (considerable mountainous jungle area wherein a raiding party can escape within 10 or 15 minutes). Response time has been more than adequate to move a Rifle Company(-), i.e., 2 platoons, within an hour with no prior warning.

Question: What changes, if any, to the organization, tactics, techniques and equipment employed by the airmobile company would you suggest to improve support provided by this type unit?

Answer: No changes are recommended for airmobile tactics and techniques. Present organization has proven entirely satisfactory in the past, wherein, the 52d Avn Bn has controlled the resources of two airmobile companies.

2. Capabilities and Limitations:

Question: Does the UH-1B helicopter, presently organic to the airmobile company, meet your airlift requirements? In your opinion what would the optimum number of troops to be lifted by a single helicopter be?

Answer: The UH-1B helicopter satisfactorily meets present troop airlift requirements. In Vietnam, the optimum number of troops to be lifted by a single helicopter would be a single rifle squad (eight men).

Question: Discuss any aspects of the airmobile company which limits its effectiveness to adequately support the ground unit.

Answer: No limitations inherent within the airmobile company itself has limited its effectiveness to adequately support the ground unit. Directives establishing a mandatory (four) man crew has limited their capability to carry cargo and passengers.

3. Control and Coordination:

Question: Do adequate liaison and communications exist between the airmobile company and the supported unit?

Answer: The Bn has furnished liaison and communications to the supported units. There are no known difficulties in the area of liaison and communications.

Question: What would you consider to be the ideal command and control structure within an airmobile task force? How does the present structure differ?

Answer: The 52d Avn Bn provides both fixed and rotary wing support on a daily basis to all three divisions, II Corps Hq, II CALC and "B" Det SF. In the event of an airmobile operation the 52d Avn Bn CO flies the airmobile CP and carries the Senior Advisor, ARVN Commander ALO and other ARVN staff, as needed. Liaison is carried out by the 52d Avn Bn LNO who lives at each Division CP. Either or both Airmobile Companies may be involved in any airmobile operation but the Airmobile Company Commander normally flies one of the transport helicopters or a TO-1D from which he can lead in his Company to the LZ, mark with smoke, etc. Command aircraft presently being used are equipped with improvised communications equipment that is not part of the TOE.

4. Remarks:

Question: In your opinion is the airmobile company, as employed in your area, an effective counterinsurgency weapon?

Answer: Yes, invaluable, though we are hampered by having only an "advisory" capability as to the employment of ground troops. The use of the helicopter in counterinsurgency should prove more valuable when the troops and the helicopter units are under the same command.

Question: Do you believe that troop transport helicopters should be defensively armed considering the resultant reduction in payload? (Include both UH-1B and CH-21)

Answer: Past experience within II Corps has indicated a requirement to have gunners aboard in most situations. The feasibility of flying abreast in pairs and having gunners only on the right side of the helicopter flying on the right and the left side of the helicopter flying on the left should be looked into. However, as a general rule it is felt that if cargo helicopters can be protected by fighter aircraft and/or armed helicopters the increase in payload by not arming the cargo helicopters may be worth investigating, especially for operations that are conducted at elevations of 4,000 feet and up as is the case in much of the II Corps Tactical Zone.

MAGTN-KT3 (16 Jan 64) 1st Ind
SUBJECT: Evaluation of Airmobile Company in Counterinsurgency Operations

Headquarters, US Advisory Team 22, APO 299, US Forces, 1 February 1964

TO: Senior Advisor, II VN Corps, APO 95, US Forces

Requested information is attached as Inclosure 1 hereto.

FOR THE SENIOR ADVISOR:

/s/ D. D. Shultz
/t/ D. D. SHULTZ
Captain, AGC
Admin Officer

1 Incl
as

1. Tactics and Techniques:

Question: Does the airmobile company accomplish mission requirements satisfactorily? (Include response time)

Answer: Support provided by the airmobile company has been excellent. Response time is generally not a factor since airmobile operation, resupply missions and command and liaison are preplanned. Response time for emergency medical evacuation and other non-preplanned missions has been satisfactory

Question: What changes, if any, to the organization, tactics, techniques, and equipment employed by the airmobile company would you suggest to improve support provided by this type unit?

Answer: The avoidance of reconnaissance of landing zones several days prior to an airmobile operation. A reconnaissance two or three hours prior to the operation is more desirable to maintain the element of surprise. Sufficient time would still be available for final coordination to include tactical air strikes.

2. Capabilities and Limitations:

Question: Does the UH-1B helicopter, presently organic to the airmobile company, meet your troop airlift requirements?

Answer: Yes.

Question: In your opinion what would be the optimum number of troops to be lifted by a single helicopter?

Answer: The optimum number of troops is six combat equipped soldiers. A more desireable number would be eight to ten soldiers in order to enable ARVN to maintain its rifle squad integrity; but this number is normally not possible because of the higher altitude-decrease airlift capability in the 22d DTA. The result is additional lifts into the landing zones thereby prolonging the airassault phase of the operation.

Question: Discuss any aspect of the airmobile company which limits its effectiveness to adequately support the ground unit.

Answer: Other than the above UH-1B limitation, this team is not aware of other airmobile company limiting aspects.

3. Control and Coordination

Question: Do adequate liaison and communications exist between

the airmobile co pany and the supported unit?

Answer: Yes. The communication/liaison aspect of airmobile support for the 22d Division has been outstanding.

Question: What would you consider to be the ideal command and control structure within an airmobile task force? How does the present structure differ?

Answer: Personnel on board and airborne command post should be:

(1) The immediate ARVN Superior (or his representative) of the ARVN Commander accompanying the assault troops and an ARVN radio operator with air-ground radio. This will provide command and guidance to the assault element.

(2) The american Advisor to the immediate ARVN Superior in the airborne command post.

(3) American Air Liaison Officer. This officer can use the helicopter's VHF radio to ensure close coordination between the tactical air cover and the airmobile assault force.

(4) Command and staff personnel from the airmobile company to exercise normal command functions.

The above structure is the one currently employed by this Advisory Team.

4. Remarks:

Question: In your opinion is the airmobile company, as employed in your area, an effective counterinsurgency weapon?

Answer: Yes. The mobility and timeliness provided by an airmobile assault allows a large number of troops to be placed in an objective area or areas which would normally take several days to cover by foot. Two important assets of the insurgents are rapid foot mobility and an excellent security scree These assets can be partially nullified by the timely and well planned employment of airmobile assaults. The excellent aerial resupply provided by the airmobile company is also an important counterinsurgency asset since troops can be resupplied in remote operational areas for an indefinite period of time. Rapid medical evacuation and command and liaison add morale and leadership factors which could not otherwise be provided.

Question: Do you believe that troop transport helicopters should be defensively armed considering the resultant reduction in payload? (Include both UH-1B and CH-21)

Answer: No. As previously discussed, the altitude in the 22d DTA causes a reduction in lift capability of the UH-1B and CH-21. The additional armor plates now on the troop transport helicopters and two fully armed gunners have also reduced the lift capability. Additional defensive armament would critically reduce the lift capability.

UNITED STATES ARMY
MILITARY ADVISORY DETACHMENT
23D DIVISION TACTICAL AREA
BAN ME THUOT, VIETNAM

MAGTN-BM 30 January 1964

MEMORANDUM: Evaluation of Airmobile Company in Counterinsurgency Operations

TO: Senior Advisor
II Corps
Pleiku, Vietnam

Reference letter your headquarters, subject as above, dated 16 January 1964, requested information is submitted herewith.

FOR THE SENIOR ADVISOR:

/s/ Jack F. Riggins
/t/ JACK F. RIGGINS
Lt Col, Infantry
Deputy Senior Advisor

1 Incl
as

1. Tactics and Techniques:

Question: Does the airmobile company accomplish mission requirements satisfactorily? (Include response time)

Answer: Mission accomplishment is satisfactory Response time varies according to mission priority and availability of aircraft. Normal assault missions require a minimum of four days planning prior to D-Day. Aircraft under the direct control of the Senior Advisor of a Tactical Area are immediately responsive.

Question: What changes, if any, to the organization, tactics, techniques, and equipment employed by the airmobile company would you suggest to improve support provided by this type unit?

Answer: Mobile communication teams should be included in the TOE to act as ground control parties. Use of pathfinder teams organic to Avn Bn might be explored.

2. Capabilities and Limitations:

Question: Does the UH-1B Helicopter, presently organic to the airmobile company, meet your troop airlift requirements? In your opinion what would be the optimum number of troops to be lifted by a single helicopter?

Answer: The UH-1B does meet the troop airlift requirement. The optimum number of troops to be lifted by a single helicopter, considering all other factors equal would be 10 personnel.

Question: Discuss any aspect of the airmobile company which limits the effectiveness to adequately support the ground unit.

Answer: Refueling of aircraft in forward departure areas. Availability of pumps and segregators. No second echelon capability on site and lack of adequate spare parts.

3. Control and Coordination:

Question: Do adequate liaison and communications exist between the airmobile company and the supported unit?

Answer: Adequate liaison and communications do not exist between the airmobile company and the supported unit. Control and communications teams should be added. Liaison would improve greatly if Support Team Commanders were not rotated.

Question: What would you consider to be the ideal command and control structure within an airmobile task force? How does the present structure differ?

Answer: Present structure of Airmobile Unit - MAAG - ARVN is considered adequate for command and control. The addition of control and communications teams would of course enhance the operations.

4. Remarks:

Question: In your opinion is the airmobile company, as employed in your area, an effective counterinsurgency weapon?

Answer: The airmobile company is very effective as a counter-insurgency weapon. This is especially true when utilized for troop movement into areas inaccessible to vehicles, resupply, medical evacuations and command and control.

Question: Do you believe that troop transport helicopters should be defensively armed considering the resultant reduction in payload? (Include both UH-1B and CH-21)

Answer: Cargo helicopters should not be armed. A platoon of UTT's should be assigned to each Airmobile Company thus increasing lift capability by approximately 33%.

OFFICE OF SENIOR ADVISOR
25TH INFANTRY DIVISION
Quang Ngai, Vietnam

AGTN-QI 27 January 1964

SUBJECT: Evaluation of Airmobile Company in Counterinsurgency Operations

TO: Senior Advisor
II Corps
APO 95, US Forces

Forwarded as inclosure 1 is the response of the Senior Advisor, 25th Infantry Division, to the Army Concept Team Questionnaire.

FOR THE SENIOR ADVISOR:

/s/ George G. Donovan
/t/ GEORGE G. DONOVAN
1st Lt AGC
Admin Officer

1 Incl
as

ARMY CONCEPT TEAM QUESTIONNAIRE
Advisory Team #7 Position

1. Tactics and Techniques:

Question: Does the airmobile company accomplish mission requirements satisfactorily? (Include response time)

Answer: Yes, response, while to date has never been required on such short notice, can be on site at designated staging areas NLT 1½ hours after daylight or 1½ hours after alert. The one instance where used placed the corps airmobile reserve (1-Rgr Co) in the operations area in 2 hours.

Question: What changes, if any, to the organization, tactics, techniques, and equipment employed by the airmobile company would you suggest to improve support provided by this type unit?

Answer: None recommended at this time.

2. Capabilities and Limitations:

Question: Does the UH-1B helicopter, presently organic to the airmobile company, meet your troop airlift requirements? In your opinion what would be the optimum number of troops to be lifted by a single helicopter?

Answer: While the present UH-1B is a highly superior aircraft and has met present requirements it is believed that an aircraft capable of lifting one organic rifle squad would improve the combat posture of the combat forces upon their arrival in the landing zone.

Question: Discuss any aspect of the airmobile company which limits its effectiveness to adequately support the ground unit.

Answer: There are no limiting factors that cannot be planned for. The greatest limitation is the fact that staging areas must be very close or refueling is necessary between successive lifts. Some of the element of surprise is lost when staging areas are close to the operations area.

3. Control and Coordination:

Question: Do adequate liaison and communications exist between the airmobile company and the supported unit?

Answer: There is a requirement for an additional FM radio in some aircraft. If a limited number of cargo aircraft were equipped

with an external antenna ground unit furnished radios (PRC-10) could provide commanders of subsequent airlifts communications with elements already in the landing zone. Any of those aircraft so equipped, could also become an aerial command post.

Question: What would you consider to be the ideal command and control structure within an airmobile task force? How does the present structure differ?

Answer: The present structure used in airmobile operations is appropriate and is in accordance with current doctrines. The Senior Advisor commands the combined operation, during the aerial phases the airmobile unit commander commands the aircraft, including supporting armed aircraft (US Army) and the ground force commander becomes the ground operations commander as his forces are delivered into the landing zone.

4. Remarks:

Question: In your opinion is the airmobile company, as employed in your area, an effective counterinsurgency weapon?

Answer: Yes, the airmobile company is an effective counterinsurgency weapon. It has been the experience of this command that, unless surprise is enhanced, ground operations where feasible are equally effective and are much less costly. Many small unit ground operations result in a higher day-to-day kill than large operations. Usually on airmobile operations surprise is not fully realized because of the use of near-by staging areas. Supply missions that can be accomplished by ground means open communications routes and in themselves enhance the counterinsurgency effort. The fact that the enemy uses forces to interfere with ground supply movements occupies his troops in widely scattered areas, and ground operations against these forces become decisive actions. A policy of resupply by air to avoid the hazards of ground resupply automatically releases enemy forces to be used against the population and government forces.

Question: Do you believe that troop transport helicopters should be defensively armed considering the resultant reduction in payload? (Include both UH-1B and CH-21)

Answer: It is believed that the present system of fire support is adequate, however, M-60 machine guns should be mounted in each door on swing mounts instead of the M-14 rifles on the cargo aircraft. Artillery and armed helicopters can secure a properly selected landing zone.

U. S. ARMY ASSISTANCE ADVISORY GROUP
III CORPS
Saigon, Vietnam

MAGTN-IIIC-3 21 February 1964

SUBJECT: Evaluation of Airmobile Company in Counterinsurgency Operations

TO: Chief
Army Concept Team in Vietnam
ATTN: ACTIV-AM
APO 143, U. S. Forces

1. Reference: Letter ACTIV-AM, your headquarters, 26 December 1963, subject as above, and subsequent conversation between Major Redmond, your team and Major Conrad, this detachment.

2. Surveys have been completed by all senior advisors under the supervision of this detachment and are inclosed herewith.

3. Attention is invited to answers 1a on 7th Division and LONG AN Special Zone questionaire. This detachment does not concur with either statement. The 118th Aviation Company has arrived at designated pickup points within two hours of notice when aircraft had to be diverted from other missions.

FOR THE SENIOR ADVISOR:

/s/ Henry S. Taylor
/t/ HENRY S. TAYLOR III
Captain, Artillery
Admin Officer

5 Incl
1. III Corps Questionaire
2. 7th Div Questionaire
3. 5th Div Questionaire
4. PBTSZ Questionaire
5. LASZ Questionaire

III CORPS ADV DET

1. Tactics and Techniques:

Question: Does the airmobile company accomplish mission requirements satisfactorily? (Include response time)

Answer: Yes, within the limits of aircraft number and capabilities. Tactical and support missions are normally tailored to the companies capabilities. Additional aircraft with greater carrying capacity would increase operating flexibility. Company response time has never been a limiting factor-aircraft have always been available before troops were staged and plans completed for immediate request missions.

Question: What changes, if any, to the organization, tactics, techniques, and equipment employed by the airmobile company would you suggest to improve support provided by this type unit.

Answer: Aircraft ideally should be able to carry 10 men (1 squad plus 1 man from platoon hq). Additional aircraft to enable company lift plus portion of Bn headquarters. Tactics and techniques, as in all cases should be continually refined.

2. Capabilities and Limitations:

Question: Does the UH-1B Helicopter, presently organic to the airmobile company, meet your troop airlift requirements? In your opinion what would be the optimum number of troops to be lifted by a single helicopter?

Answer: Yes, with limitations, it should be able to lift one squad plus 1 man from platoon headquarters.

Question: Discuss any aspect of the airmobile company which limits effectiveness to adequately support the ground unit.

Answer: Air endurance and radius of action ideally should be extended. This would increase probability of success by negating need for intermediate staging area.

3. Control and Coordination:

Question: Do adequate liaison and communications exist between the airmobile company and the supported unit?

Answer: Consider present liaison adequate during mission planning phase, communications are a limiting factor during conduct of tactical heliborne operations.

Question: What would you consider to be the ideal command and control structure within an airmobile task force? How does the present structure differ?

Answer: Currently command is not clearly delineated between the several elements involved (ground forces, Army air, USAF, VNAF, etc). Overall command should be vested in the air transport commander until landing, then transferred to ground force commander.

4. Remarks:

Question: In your opinion is the airmobile company, as employed in your area, an effective counterinsurgency weapon?

Answer: Only marginally. The company is capable of swift surprise strikes that would be an ideal counterinsurgency tactic. However, UH-1Bs are normally used to shuttle large units in operations where surprise is lost and consequently results in no VC contact.

Question: Do you believe that troop transport helicopters should be defensively armed considering the resultant reduction in payload? (Include both UH-1B and CH-21)

Answer: No.

7TH INF DIV ADV DET

1 Tactics and Techniques:

Question: Does the airmobile company accomplish mission requirements satisfactorily? (Include response time)

Answer: Normal response time is 12 hours. Missions are accomplished satisfactorily after allocation of helicopters is made, based on requirements submitted the previous day. Support rendered has been outstanding.

Question: What changes, if any, to the organization, tactics, techniques, and equipment employed by the airmobile company would you suggest to improve support provided by this type unit?

Answer: Recommend that number of armed ships be reduced to one platoon and the number of cargo aircraft be increased in order to provide more lift capability. Suggest fixed-wing aircraft be used for escort of cargo helicopters.

An Army Air Liaison Officer should be permanently assigned to the division. See paragraph 3.

The number of pre-assault reconnaissance missions over planned operations areas must be reduced. (Too much warning of proposed operations areas is given to the VC.)

The number of pilots should be increased in the airmobile company to allow maximum aircraft usage without having pilots working beyond the normal safety limits. In addition some means must be found to allow a better ratio of flight time to maintenance time.

2. Capabilities and Limitations:

Question: Does the UH-1B Helicopter, presently organic to the airmobile company, meet your troop airlift requirements? In your opinion what would be the optimum number of troops to be lifted by a single helicopter?

Answer: The UH-1B is considered adequate The optimum number of VN troops to be lifted by a single helicopter is eleven.

Question: Discuss any aspects of the airmobile company which limits its effectiveness to adequately support the ground unit.

Answer: As presently employed, support is limited by the number of aircraft allocated to division for day to day operations. Another

limitation is that the company is not employed as a unit, but is committed piecemeal between several units. This increases the response time.

3. Control and Coordination:

Question: Do adequate liaison and communications exist between the airmobile company and the support unit?

Answer: A full time Army Aviation Liaison Officer should be available at division for planning and execution of heliborne operations and the day to day employment of Army aircraft. He should have necessary communications equipment to control effectively the employment of aircraft in support of the division.

Question: What would you consider to be the ideal command and control structure within an airmobile task force? How does the present structure differ?

Answer: The present command and control structure is considered satisfactory.

4. Remarks:

Questions: In your opinion is the airmobile company, as employed in your area, an effective counterinsurgency weapon?

Answer: The company is effective. Mobility over the VC is provided. Under present conditions airlift is many times the only way to get into areas.

Question: Do you believe that troop transport helicopters should be defensively armed considering the resultant reduction in payload? (Include both UH-1B and CH-21)

Answer: Troop transport helicopters should not be defensively armed. Armed escort helicopters always accompany any tactical airmobile movement of troops. Preparatory fires are placed on selected landing zones to include artillery preparation, tactical airstrikes and a final strike by the armed escort prior to the touchdown by the transport helicopters. This preparation negates the requirement for defensively arming troop transport helicopters.

5TH INF DIV/32D DTA

1. Tactics and Techniques:

Question: Does the airmobile company accomplish mission requirements satisfactorily? (Include response time)

Answer: The airmobile company accomplishes all of its mission requirements satisfactorily. In all cases where troops are available in close proximity to the aircraft, the response time has been well within the desired limits.

Question: What changes, if any, to the organization, tactics, techniques, and equipment employed by the airmobile company would you suggest to improve support provided by this type unit?

Answer: Recommend the addition of one (1) airlift platoon (8 aircraft). The additional platoon will give the airmobile company the capability of airlifting one (1) rifle company.

Current tactics and techniques have been most successful. Based on the missions assigned this type unit, I would recommend no change to tactics and techniques.

2. Capabilities and Limitations:

Question: Does the UH-1B Helicopter, presently organic to the airmobile company, meet troop airlift requirements? In your opinion what would be the optimum number of troops to be lifted by a single helicopter?

Answer: The UH-1B Helicopter meets the requirements for troop lift. Ideally, one helicopter should lift a TOE squad to preserve unit integrity and facilitate control.

Question: Discuss any aspect of the airmobile company which limits its effectiveness to adequately support the ground unit.

Answer: Fuel capacity of the Armed Helicopters (1 hour, 45 minutes fuel) limits the time they can furnish overhead cover to the attacking forces (troop carriers fuel capacity, 2 hours, 15 minutes).

3. Control and Coordination:

Question: Do adquate liaison and communications exist between the airmobile company and the supported unit?

Answer: The commander of the ground unit should have the capability of plugging into the communications system within the aircraft while enroute to the objective area. This will enable the troop commander to keep abreast of current tactical developments while enroute. Communications by FM Radio in the air-ground net is SOP in all operations. An AN/PRC-10 of the supported unit is utilized to net with the AN/ARC-44 in the aircraft.

Question: What would you consider to be the ideal command and control structure within an airmobile task force? How does the present structure differ?

Answer: The airmobile company commander should command all aircraft in the air. The ground commander must stay abreast of all developments by monitoring all transmissions in flight. Once the ground force is committed, command of all ground units passes to the ground force commander. Available supporting fires to include Armed Helicopters must be immediately responsive to the ground force commander.

4. Remarks:

Question: In your opinion is the airmobile company, as employed in your area, an effective counterinsurgency weapon?

Answer: The airmobile company is a very effective counterinsurgency weapon. The effectiveness of the company is increased in open areas.

Question: Do you believe that troop transport helicopters should be defensively armed considering the resultant reduction in payload?

Answer: No. Armed helicopter escorts properly employed provide ample protection. A reduction in payload of troop transport helicopters would seriously impair operations and interfere with the accomplishment of the basic mission of the airmobile company.

The 118th Aviation Company (Airmobile Light) performs all assigned missions in a consistently outstanding manner.

PHUOC BINH THANH SPEC ZONE

1. Tactics and Techniques:

Question: Does the airmobile company accomplish mission requirements satisfactorily? (Include response time)

Answer: Yes. Most missions in PBTSZ have been preplanned. One reaction mission on 23 December 1963.

Question: What changes, if any, to the organization, tactics, techniques, and equipment employed by the airmobile company would you suggest to improve support provided by this type unit?

Answer: No changes recommended for daylight operations. Development of techniques for night reinforcing or positioning missions would have a distinct advantage.

2. Capabilities and Limitations:

Question: Does the UH-1B Helicopter, presently organic to the airmobile company, meet your troop airlift requirements? In your opinion what would be the optimum number of troops to be lifted by a single helicopter?

Answer: The UH-1B meets troop requirements as long as it can airlift a squad, since one squad is the optimum number of a single helicopter.

Question: Discuss any aspect of the airmobile company which limits its effectiveness to adequately support the ground unit.

Answer: Effectiveness in remote areas is limited by a relatively short range capability when loaded to full capacity. This is further limited in PBTSZ since only one tanker is available for refueling. Increased fuel capacity is particularly essential for the command and control ship (see 3).

3. Control and Coordination:

Question: Do adequate liaison and communications exist between the airmobile company and the supported unit?

Answer: Prelift liaison is excellent. Command and control communications are inadequate. The ground commander must be in the command and control aircraft where he can see his units, communicate with them and get them positioned. Once this is done he will be landed. This terminates the airlift. To do this he must have adequate FM

communications with the ground. This is not provided. This system in reverse is essential on a lift out operation.

Question: What would you consider to be the ideal command and control structure within an airmobile task force? How does the present structure differ?

Answer: The ground commander must be in command. Obviously he must rely on the technical advise of the airmobile commander the same as he does on any other technical support to his command. Here it is more of a coordinated command structure. This should not be.

4. Remarks:

Question: In your opinion is the airmobile company, as employed in your area, an effective counterinsurgency weapon?

Answer: A very definite yes.

Question: Do you believe that troop transport helicopters should be defensively armed considering the resultant reduction in payload?

Answer: No. Particularly when it reduces the payload below the indicated optimum of one squad. (10).

LONG AN SPECIAL ZONE

1. Tactics and Techniques:

Question: Does the airmobile company accomplish mission requirements satisfactory? (Include response time)

Answer: Observations in this province are limited. Missions have been accomplished with as little as eight (8) hours notice.

Question: What changes, if any, to the organization, tactics, techniques, and equipment employed by the airmobile company would you suggest to improve support provided by this type unit?

Answer: Coordination has proven more difficult when unarmed and armed helicopters come from different units.

2. Capabilities and Limitations:

Question: Does the UH-1B Helicopter, presently organic to the airmobile company, meet your troop airlift requirements? In your opinion what would be the optimum number of troops to be airlifted by a single helicopter?

Answer: The following items are considered to be inadequacies in the present aircraft:

a. Limitation to 1.5 hours flying time.

b. Limitation to carry eight (8) troops. This cuts unit integrity since ARVN squads number nine men. A lift capacity of ten troops is desirable in view of the additional spaces required for aidmen, communicators, and, in the case of Vietnamese operations, advisory personnel.

Question: Discuss any aspect of the airmobile company which limits its effectiveness to adequately support the ground unit.

Answer: No comment.

3. Control and Coordination:

Question: Do adequate liaison and communications exist between the airmobile company and the supported unit?

Answer: At the present time there is a lack of communications for the ground commander when he is in the helicopter.

a. When an extra headset is provided the ground commander can monitor inter-helicopter communication and remain informed of changing developments enroute to the objective. However, he has no capability of changing and modifying instructions to subordinate leaders since he cannot transmit to helicopters.

b. Attempts at utilizing AN/PRC-10 radios for communications between the ground commander and his subordinates on other aircraft while airborne have generally proved unreliable in this situation. What is needed is a small portable set with a two receiver capability and a single transmitting capability. This would enable the ground commander to monitor the helicopter frequency on one receiver and have a transmit/receive capability with his subordinate leaders for control.

Question: What would you consider to be the ideal command and control structure within an airmobile tack force? How does the present structure differ?

Answer: No comment.

4. Remarks:

Question: In your opinion is the airmobile company, as employed in your area, an effective counterinsurgency weapon?

Answer: Yes the airmobile company has proved marginally effective and will continue to be until the enemy acquires effective anti-aircraft capability.

Question: Do you believe that troop transport helicopters should be defensively armed considering the resultant reduction in payload? (Include both UH-1B and CH-21)

Answer: Yes (if a full squad could be carried) to supply additional limited air support would be desireable. In the Vietnam situation the ability to lift an entire squad, in order to maintain unit integrity and control, is considered more important.

HEADQUARTERS
U.S. ARMY ADVISORY GROUP, IV CORPS
APO 15, San Francisco, California

MAGTN-IVC-3 21 February 1964

SUBJECT: Evaluation of Airmobile Company in Counterinsurgency Operations

TO: Chief
U.S. Army Concept Team in Vietnam
APO 143, U.S. Forces

1. Reference is made to your letter ACTIV-AM, subject as above, dated 26 December 1963.

2. Attached as inclosures are the completed questionnaires requested in referenced letter.

FOR THE SENIOR ADVISOR:

/s/ Irvin H. Hustvedt
/t/ IRVIN H. HUSTVEDT
Major, AGC
Admin Officer

3 Incl
1. IV Corps Questionnaire
2. 9th Div Questionnaire
3. 21st Div Questionnaire

QUESTIONNAIRE

1. Tactics and Techniques:

Question: Does the airmobile company accomplish mission requirements satisfactorily? (Include response time)

Answer: Yes, the airmobile company accomplishes its mission requirements satisfactorily. This company is versatile rendering support in many forms, i.e. troop lift, command and liaison, emergency resupply, and medical evacuation. It is well suited for heliborne assault operations because of the UH-1B helicopters dependability and maneuverability. Response of the unit is fast enough to meet most tactical requirements without difficulty.

Question: What changes, if any, to the organization, tactics, techniques, and equipment employed by the airmobile company would you suggest to improve support by this type unit?

Answer: As to organization, no changes are recommended. Tactics of the company are designed to support the tactical plan of the ground commander and, in general, they accomplish this fairly well. Recommendations by the 21st Division to omit prestrike where possible and to reduce the number of helicopters used on airmobile operations are concurred in. Techniques are adequate; no changes are recommended. Equipment is also adequate.

2. Capabilities and Limitations:

Question: Does the UH-1B helicopter, presently organic to the airmobile company, meet your troop aircraft requirements? In your opinion what would be the optimum number of troops to be lifted by a single helicopter?

Answer: No, the UH-1B does not adequately meet our troop lift requirements. Under present restrictions only eight troops are permitted. An optimum lift would be one rifle squad (9 - 11 men).

Question: Discuss any aspect of the airmobile company which limits its effectiveness to adequately support the ground unit.

Answer: Aircraft habitually used for command and liaison purposes should have a greater range. This could be accomplished by mounting auxiliary fuel tanks in approximately 50% of the helicopters. When these helicopters are used for troop lift, the auxiliary tanks would be emptied.

3. Control and Coordination:

Question: Do adequate liaison and communications exist between the airmobile company and the supported unit?

Answer: Adequate communications do exist between the airmobile company and the supported unit. When a unit begins planning a heliborne operation, a liaison officer is dispatched by the supporting aviation unit to participate in the planning with the support unit. If desired by the supported unit the liaison officer remains throughout all phases of the operation. Liaison officers are also available for contingency planning. When the execution phase of an operation begins, the supporting airmobile unit establishes a command post adjacent to the supported unit's command post. This headquarters does not concur in the stationing of liaison personnel with the supported unit on a permanent basis as proposed by the Senior Advisor, 21st Division.

Question: What would you consider to be the ideal command and control structure within an airmobile task force? How does the present structure differ?

Answer: Operational control of US Army aviation resources rests with the Corps Senior Advisor. Once a plan involving an airmobile task force is approved, liaison is established with the ground unit by the supporting aviation unit. The aviation element of the task force is placed in direct support of the ground unit for the execution phase. On the day of execution, the supporting unit provides a command and control helicopter for use as an aerial command post. Normally the Vietnamese ground commander and his advisor, the aviation element commander, and the air liaison officer or their selected personnel are located in the aerial command post. The airmobile phase is controlled from this aerial command post. This has worked well permitting rapid and timely decisions to be made. The usual cooperation and understanding which must exist between commanders is sometimes complicated by the language barrier and divergent professional ideas and attitudes; however, this has not been a big problem. The ideal structure would be to have a single commander who commands all elements engaged in the operation, but such is not feasible under the existing relationship between U.S. and GVN forces.

4. Remarks:

Question: In your opinion is the airmobile company, as employed in your area, an effective counterinsurgency weapon?

Answer: Yes, the airmobile company is a very effective counterinsurgency weapon.

Question: Do you believe that troop transport helicopters should be defensively armed considering the resultant reduction in payload? (Include both UH-1B and CH-21)

Answer: Yes, troop transport helicopters should be defensively armed. This requires the addition of only one man to the crew since the crewchief serves as a gunner for one door. Although the effect of a door gunner's fire is sometimes marginal, there are times when the helicopter cannot be covered by armed escort and some means of protection is desirable. The additional protection is also required for passengers and crew in the event of a forced landing.

HEADQUARTERS
9TH INFANTRY DIVISION ADVISORY DETACHMENT
U.S. Army Military Assistance Advisory Group
APO 157 U.S. Forces

MAGTN-SC 9 February 1964

SUBJECT: Evaluation of Airmobile Company in Counterinsurgency Operations

TO: Senior Advisor
IV Corps
APO 15, U.S. Forces

The attached questionnaire has been completed only where previous experience has been the basis for an answer. Since the arrival of the 9th Division in the Delta, in October 1963, they have participated in only one operation with the 114th Airmobile Company. On three other occasions the 114th was on standby but not used.

FOR THE SENIOR ADVISOR:

/s/ J. B. Olinger
/t/ J. B. OLINGER
Captain, AGC
Admin Officer

QUESTIONNAIRE

1. Tactics and Techniques:

Question: Does the airmobile company accomplish mission requirements satisfactorily? (Include response time)

Answer: No experience factors for operational troop lift. Principal use by this division has been as a Command and Liaison helicopter. Their manner of performance has been outstanding.

Question: What changes, if any, to the organization, tactics, techniques, and equipment employed by the airmobile company would you suggest to improve support provided by this type unit?

Answer: a. Organize into three airlift platoons. When armed helicopters are required for suppressive fire they should be provided by a UTT Company. This change should increase the troop lift capability by one third.

b. Eliminate the door gunner from all C&L flights. He only takes up a seat. The accuracy of his fire is questionable. Usually it is difficult, if not impossible, to determine the origin of ground fire.

c. At least one helicopter per platoon should be equipped with an auxiliary gas tank and with sufficient radios and head sets to enable the helicopter to be used as an aerial CP.

2. Capabilities and Limitations:

Question: Does the UH-1B Helicopter, presently organic to the airmobile company, meet your troop airlift requirement? In your opinion what would be the optimum number of troops to be lifted by a single helicopter?

Answer: One squad (11 men).

Question: Discuss any aspect of the airmobile company which limits its effectiveness to adequately support the ground unit.

Answer: Certain areas have been designated as "two helicopter areas." Reasons offered were remoteness from friendly units and beyond normal radio range. The latter reason could be eliminated by equipping the airmobile company with control radio capable of reaching all assigned aircraft, i.e., gas tank range.

3. Control and Coordination:

Question: Do adequate liaison and communications exist between the airmobile company and the supported unit?

Answer: Yes.

Question: What would you consider to be the ideal command and control structure within an airmobile task force? How does the present structure differ?

Answer: Unknown.

4. Remarks:

Question: In your opinion is the airmobile company, as employed in your area, an effective counterinsurgency weapon?

Answer: Yes, the 9th Division uses the helicopter principally as a Command and Liaison helicopter. The Division Commander and staff officers are able to visit units and commanders and to quickly move to areas that might otherwise be inaccessible.

More effective use could be made of the troop lift capability if three conditions were met.

a. Immediate communication of enemy targets.

b. One rifle company to be stationed at Vinh Long for immediate airlift.

c. Immediate approval for employment of the airmobile company. For example, the average total response time to be not more than one hour from the time a target is sighted until the troops are landed near the target area.

Question: Do you believe that troop transport helicopters should be defensively armed considering the resultant reduction in payload? (Include both UH-1B and CH-21)

Answer: No, see comment 1b.

HEADQUARTERS
U.S. ADVISORY DETACHMENT, 21ST INFANTRY DIVISION
APO 300, San Francisco, California

11 February 1964

SUBJECT: Evaluation of Airmobile Company in Counterinsurgency Operations

TO: Senior Advisor
IV Corps
APO 15, US Forces

1. Reference letter, Headquarters, US Army Advisory Group, IV Corps, Subject, as above, dated 18 January 1964.

2. The following information is submitted in reply to the questionnaire attached as Inclosure 1 to the letter referenced in paragraph 1 above.

a. Tactics and Techniques:

Question: Does the Airmobile Company accomplish mission requirements satisfactorily? (Include response time)

Answer: The Airmobile Company accomplishes assigned missions satisfactorily. The UH-1B helicopter organic to the 114th Airmobile Company has a markedly greater reliability and performance capability than the CH-21, has an excellent capability for troop lift and a very adequate capability for resupply missions. It is very well suited for command and liaison missions.

The response time for the 114th Airmobile Company is considered satisfactory in view of the complications imposed by the "parallel" chain of command (American and Vietnamese) and the strata of command echelons. Response time could be reduced significantly by improving procedures, both US and Vietnamese. This is not an internal problem for the Airmobile Company. In a "quick response" operation on 9 February, the company was off the ground with 8 transport helicopters and 5 armed helicopters within 30 minutes after receiving its order to move.

Question: What changes, if any, to the organization, tactics, techniques, and equipment employed by the airmobile company would you suggest to improve support provided by this unit?

Answer: The organization of the company is considered satisfactory. The equipment assigned to the company is considered excellent for counterinsurgency operations.

The following changes in tactics and techniques for heliborne operations are recommended.

a. Do not require that the landing zones for all airmobile operations have a prestrike by VNAF aircraft. In many cases, the landing is made in an open field, and approach and departing paths are far from tree lines. The prestrike, in some of these cases, causes casualties among the population within the area, and causes more harm than is counter-balanced by the successful execution of operations. When the prestrike can be omitted, it should be. This should be a decision of the Division Commander (or subordinate unit if operation is conducted by a subordinate unit).

b. Reduce the number of aircraft used on airmobile operations when possible. Attach a small number of aircraft to a regimental (or equivalent) headquarters. This would provide a small airlift capability, immediately responsive to the commander, for short troop lifts on the battlefield. This technique would provide a capability to outdistance fleeing enemy by providing a marked advantage in mobility, to the friendly force. (See attached recommendation, Incl 1)

b. Capabilities and Limitations:

Question: Does the UH-1B helicopter, presently organic to the airmobile company, meet your troop airlift requirements? In your opinion what would be the optimum number of troops to be lifted by a single helicopter?

Answer: The UH-1B helicopter is considered adequate for troop lift requirements. Any increase in troop lift capability (of a similar aircraft) would probably require an unacceptable increase in weight and a reduction in manuverability of the aircraft. The optimum number of troops which a helicopter should be capable of lifting is one rifle squad (9 - 11 men).

c. Control and Coordination:

Question: Do adequate liaison and communications exist between the airmobile company and the supported unit?

Answer: The liaison and communications between the airmobile company and the 21st Infantry Division are not adequate to exploit fully the potential of the airmobile company to support counterinsurgency operations of the division and subordinate units.

The helicopter, and in particular the UH-1B with its excellent performance and load carrying characteristics, is a major asset to the conduct of the counterinsurgency campaign. In the opinion of this advisory detachment, it is the single most important materiel contribution the United States can make. The helicopter has two basic uses. First, by providing VTOL airmobility to commanders, key staff officers, advisors, small groups of personnel (inspection and training teams, reinforcements for outposts, etc.) and high priority material (critical signal equipment and ammunition resupply, etc.) it contributes greatly to accelerating the tempo and improving the effectiveness of the day to day conduct of the campaign. Second, helicopters provide the capability for heliborne operations when these are justified by suitable targets. The organization, procedures, liaison arrangements, and communications between the division, the division advisory team and the airmobile company should be tailored to contribute most effectively to the performance of both these functions. To the extent feasible, operations should be decentralized.

This division advisory team proposes that the most suitable arrangement would be one in which a fixed number of helicopters (perhaps six or eight) would be allocated each day to the division for division control, except on days in which heliborne operations are taking place in the other division of the corps, in which case only two helicopters would be allocated to division control (for command and liaison for the division commander and staff, and the advisory staff). These daily helicopters would be sufficient over a long term, to take care of the day to day uses outlined under the first category above.

To exercise effective control over these helicopters, and to assist in planning and executing quick reaction heliborne operations, it is proposed that an assistant operations officer, with NCO, from the Delta Aviation Battalion be stationed at Bac Lieu with the division advisory team. This officer would plan the use of the daily helicopters so as to use most efficiently their capabilities to meet division requirements. He should have available to him an FM radio with which he could maintain continuous contact with the helicopters when airborne, so that they could be diverted to other missions when unforseen contingencies arise, as they do almost daily. If an occasion should arise during the day that calls for the conduct of a quick reaction type heliborne operation in the division area (corps approval required), this officer could use the radio to call in the helicopters, order them to report to the appropriate airfield, and participate with the division advisory staff in assisting the division in mounting the heliborne operation. Similarily, if corps should determine that helicopters from this division should be diverted to the other division in the corps for a quick reaction heliborne operation, this officer could direct the division helicopters to report immediately to the appropriate place.

The FM communications used by the assistant operations officer should be located at the division airfield (Bac Lieu). At present there is an RT-67 FM set at the airfield, provided by the 73d Aviation Company (Light Airplane Surveillance), which maintains three TO-1D aircraft in direct support of this division. This radio serves as "Bac Lieu Control". It is supplemented by PRC-10 radios, with RC-292 antennas, at two field locations: Vi Thanh ("Vi Thanh Radio") and Ca Mau ("Ca Mau Radio"). These three stations provide flight following services and mission assignment communication for TO-1D aircraft, and any other aircraft that so desire, in the 21st Infantry Division area. Because the narrow band of frequency overlap between the PRC-10 and the RT-67, is used by ARVN and other agencies, these radios must operate on a cluttered frequency, in this case 38.7 megacycles. To avoid this clutter, the Delta Aviation Battalion operates "Delta Control" at Can Tho on 46.9 megacycles, and the helicopters working with this division stay tuned to that frequency. Thus they cannot normally be reached directly from Bac Lieu when in flight.

The preferable communications solution would be:

a. To provide the Delta Battalion assistant operation officer, or the 73d Aviation Company detachment at Bac Lieu, with an RT-67 radio set which would permit use of an uncluttered frequency by Bac Lieu, Vi Thanh, and Ca Mau

b. To have the helicopters and fixed wing aviation in support of the 21st Infantry Division use this frequency at all times for flight following and mission assignment.

Question: Are the command relationships satisfactory? (Question added by this headquarters

Answer: It is the opinion of this advisory detachment that the command relationships in heliborne operations should be further clarified. There are relationships established in doctrine, any one of which could possibly work (attachment, operational control, direct support, general support). Perhaps a new arrangement should be established. In any event, it is not clear at this time what the command relationships are. It is understood that aviation of the Delta Aviation Battalion is under the operational control of the IV Corps Senior Advisor. However, to the knowledge of this division advisory team, operational control is not further delegated to the Division Senior Advisor in division heliborne operations, or to subordinate unit advisors in brigade, regimental, and sector controlled operations. This system has worked reasonably well because of good will and a desire to get on with the job on the part of all concerned. However, it is really not clear what authority the division and subordinate unit advisors have when an emergency exists which requires a "command decision", when the responsible aviator and

the responsible advisor may differ as to the action which should be taken. It is considered that this condition could be improved by either (1) stating that aviation is under the operational control of the appropriate advisor at the echelon at which the operation is being conducted; or (2) establishing some other relationship and setting it forth in writing for all concerned.

4. Remarks:

Question: In your opinion is the airmobile company, as employed in your area, an effective counterinsurgency weapon?

Answer: The airmobile company is potentially a very effective counterinsurgency weapon. Its effectiveness in support of this division would be materially increased by adoption of the arrangement described in paragraph 3 above.

Question: Do you believe that troop transport helicopters should be defensively armed considering the resultant reduction in payload? (Include both UH-1B and CH-21).

Answer: Helicopters should be defensively armed in spite of the loss in troop lift capability. Armament should be light, such as machineguns, in order that the payload of the helicopters would not be unduly reduced.

/s/ John H. Cushman
JOHN H. CUSHMAN
Lt Colonel, Inf
Senior Advisor

(C) ANNEX B

MISSION NARRATIVES

This annex contains narrative descriptions of missions and a summary of observations and comments

SINGLE AIRCRAFT COMBAT SUPPORT MISSION NUMBER 11/159

A mission to support the 22d ARVN Division with one helicopter was received by the 119th Airmobile Company operations officer at 201800 November 1963. At 201930 November, a mission worksheet was given the 1st Airlift Platoon leader who assigned the aircraft and crew the mission for the following day. They were to report to Kontum (22 nautical miles north) no later than 210800 November. Takeoff from Holloway Airfield was set for 210715 November.

Four passengers were initially airlifted to Kontum. Upon landing at Kontum at 210750 the crew was briefed by a representative of the US MAAG team of the 22d Division on the mission requirements.

During the morning a 5-man inspection team was flown to Plateau Gi, Mang Buk, and then returned to Kontum.

During the afternoon four roundtrips were flown between Kontum and Mang Buk. The loads that were carried included passengers, Class I and IV equipment, and resupply parachutes. The aircraft returned to Holloway Airfield at 1700 hours with two additional passengers.

The helicopter flew a total of 5 hours and 55 minutes, completed 13 combat support sorties, and carried 22 passengers, 7800 pounds of cargo, and 135 parachutes.

Plateau Gi and Mang Buk are 16 miles apart, and are located 21 miles and 31 miles respectively to the Northeast of Kontum. Although a dirt road connects the three villages, the road is subject to frequent Viet Cong ambushes and is used only by armed convoys.

COMBAT ASSAULT AND EAGLE FLIGHT MISSION NUMBER 12/114/49

This was a combat mission in support of the 21st Division under control of the Delta Battalion. The mission was received by the 114th Airmobile Company at 061800 December 1963 and was to be executed on 070730 December. The concept of the operation was to airlift one battalion from the 21st Division into the first landing zone (LZ), and a ranger company into the second LZ. Four separate lifts were planned. Because of the number of transports available, however, only three lifts were necessary to accomplish the mission. The movement of the airlifted units was coordinated with the movement of another battalion of the 21st Division, which was advancing from the north on foot. The objective was to trap and destroy a VC battalion suspected to be in the area north and west of the first LZ.

The first lift departed from Can Tho on schedule at 0730 and arrived near the first LZ at 0745 but was delayed because of a lack of communication between Air Force prestrike aircraft and the forward air controller. One firing pass was made over the LZ by two T-28's at 0754, and the first transports landed at 0755. The lift was completed at 0759.

The second lift departed from Can Tho at 0815. The armed escorts preceded the transports, and arrived in the first LZ at 0820. The transports arrived at 0825 and departed at 0829. No hostile fire was reported on either of the lifts.

The vector aircraft was fired on about 400 meters northwest of the first LZ while it was making a low pass to investigate partially hidden sampans in a small canal. T-28's were called in to strafe and bomb the area. Results were unknown.

The third lift, which carried the ranger company, began at 0840 using eight UH-1B transports, two CH-21's, and seven armed escorts. The company landed at 0855 near the first LZ, and the helicopters departed at 0857. The LZ was changed while the transports were enroute, but there was no delay. No hostile fire was reported in the second LZ. This ended the scheduled mission, and all aircraft returned to Can Tho for refueling. All aircraft except five armed escorts and five UH-1B transports were then released to return to home base. The retained aircraft were to be used on an eagle flight operation.

The eagle flight departed from Can Tho at 0925 and returned to the vicinity of the first LZ. At 1015, VC were observed in an area approximately 1000 meters east of the first LZ. The transports landed at 1017 under covering fire of escorts, disembarked the troops, and were airborne at 1018. The transports climbed to altitude and orbited the area while the armed escorts gave supporting fire to the friendly troops until 1115 when they were forced to return to Can Tho to rearm and refuel. All 10 aircraft were refueled immediately and departed from Can Tho at

1206 to return to the LZ. The eagle troops were picked up at 1220. A minimum of 50 VC were observed in this area, and many were believed killed or wounded. There were eight confirmed dead in the small area that the ground troops moved through.

After pickup, the troops were flown to an area approximately 400 meters northwest of the first LZ where empty sampans were sighted, and were landed at 1235. No VC were sighted after the landing.

At 1245 the 45 troops were picked up and flown to Can Tho. They had captured two Thompson sub-machineguns, two Garrand M-1 rifles, one BAR, one Sten gun, several rounds of 60mm mortar ammunition, and an undetermined amount of ammunition for each of the captured weapons. The troops were landed at Can Tho at 1310.

At 1330, the 10 aircraft of the eagle flight departed from Can Tho to refuel at Vinh Long, arriving at 1345. At 1415 they returned to Can Tho, landing at 1430. At 1434 they went to the second LZ to transport the ranger company to the vicinity of the first eagle flight operation. This operation was completed in two lifts from the second LZ. The first lift was begun at 1451 and ended at 1455. The second group was picked up at 1500 and landed in the same LZ as the first group at 1506.

Escorts were fired on by VC during both pickups from an area only 200 meters from the pickup site. The aircraft in which this observer rode took one round through the horizontal stabilizer. Fire was returned by the door gunner and the following armed escort. Results were unknown.

At 1515 the 10 aircraft landed at Can Tho, and were released by Delta Battalion to return to Vinh Long, their home base.

Both escort and transport UH-1B's used the "V" formation. The staggered trail was used by the CH-21's. Escorts led the formation to the LZ followed by transport UH-1B's, then CH-21's. UH-1B transports led the formation back to the loading zone followed by CH-21's, then the escorts.

NIGHT ASSAULT MISSION NUMBER 10/114/198

A mission was received by the 114th Aviation Company at 291730 October 1963 to move 80 ARVN rangers into the vicinity of Tan Phu, approximately 25 miles east-northeast of Ca Mau. The mission commander was instructed to proceed to Can Tho as soon as possible for the pickup of troops.

Nine transports and five armed escorts departed from Ving Long at 1800 hours and arrived at Can Tho at 1820 hours. The armed escorts were refueled while a final briefing was being given by the mission commander and the troops were being loaded aboard the transport aircraft.

All elements departed from Can Tho at 1845 hours and proceeded directly to the landing zone under the cover of darkness. No vector aircraft were used initially. Navigation lights with the lower halves taped were used on "steady-dim" to maintain proper aircraft interval and a "V" formation.

Ineffective, sporadic, small arms tracer fire was observed while enroute. No aircraft were hit, and fire was not returned.

A fixed-wing airplane reported receiving automatic weapons fire directly ahead of the lead helicopter's flight path from the vicinity of the landing zone. A 45 degree left turn was executed by the formation to avoid this area. Approximately five miles from the landing zone, automatic weapons fire was received by the lead helicopter. The source of the fire was not determined, but the area was spotted and avoided. No fire was returned.

The command and control helicopter was landed in the landing zone in order for the troop transport pilots to use its landing lights as guides. After the command and control helicopter landed, the mission commander instructed the armed escort to remain south of the landing zone and at altitude. The weather during the flight to the landing zone had deteriorated. Scattered thunderstorms were in the immediate area. At the time of landing, the ceiling was 1700 feet, broken, and visibility was 5 miles.

The mission commander led Alpha flight, consisting of five troop transports, into the landing zone. Landing lights were used by the transports on the final approach. No insurgent activity was encountered. Upon departure of the last aircraft in Alpha flight, the four transports of Bravo flight landed, using the same technique. The troops that were dispersing in the landing zone from Alpha flight caused Bravo flight to hover for a few moments until the area was cleared. The armed escort orbited at 1700 feet, 3 to 5 miles south of the area.

After Alpha flight departed from the landing zone, the mission commander released the armed escort with instructions to return to Vinh Long. This decision was made because the armed helicopters were low on fuel and because no insurgent activity was encountered by Alpha flight in the landing zone. When Bravo flight departed from the landing zone, all air elements returned to Vinh Long.

KEY OBSERVATIONS AND COMMENTS ON THE NIGHT ASSAULT MISSION

A. OBSERVATIONS

1. The airmobile company demonstrated its ability to react rapidly to the requirement of the ground commander.

2. The capability to execute a night airmobile assault was shown.

3. Small arms fire enroute to the landing zone was avoided with minimum delay in the operation.

4. During a night assault, the command and control ship landed in the landing zone ahead of the airmobile force to mark the area with its landing lights.

5. The transport aircraft used landing lights on final approach to facilitate landing.

6. The troops which disembarked from Alpha flight interfered with the landing of Bravo flight.

7. The armed escorts were orbited at 1700 feet, 3 to 5 miles south of the landing zone.

B. COMMENTS

1. The unit procedure of avoiding fire while enroute was successful.

2. The use of the landing lights on the command and control aircraft to mark the landing zone exposed the aircraft during a night assault. A better procedure might have been to use portable helicopter landing lights, one per aircraft landing site, to designate the individual aircraft touchdown points. Placing of the lights could be accomplished by a type of pathfinder team to be landed in the landing zone just prior to the arrival of the airmobile force.

3. Individual aircraft landing lights should not be used unless absolutely necessary during night assaults.

4. Troops of the airmobile force should be briefed on the direction to move out of the landing zone so as not to delay landing of succeeding flights.

5. The armed escort should be stationed within easy supporting distance of the landing zone. In this operation they could have been placed in orbit above and to either side of the final approach and

departure route of the transports. Altitude separation could have been provided by assigning 1500 feet to the armed aircraft and 1000 feet to the transports while in the landing zone area.

(U) ANNEX C

EAGLE FLIGHT STANDING OPERATING PROCEDURE,
118th AIRMOBILE COMPANY

1. TASK ORGANIZATION

a. Command and Control Element

The command and control element is composed of the US aviation commander and the ARVN infantry troop commander or his representative. This element will utilize an armed UH-1B (Iroquois) helicopter. The responsibility of this element will be to select and locate appropriate targets for the combat elements; to designate the assault formation and tactics to be employed; command, control and coordinate the overall operation. It must be noted that "command responsibility" lies wholly with the ARVN commanders; that US commanders and personnel are to function in an advisory and assistant capacity only. The only decisions made by US aviation commander will be those necessary to ensure that his air elements are employed safely and in accord with their capabilities. Tactical decisions and other "go no-go" type of commands will be issued by the ARVN Commander or his representative.

b. Troop Carrier Element

The troop carrier element is composed of seven UH-1B (Iroquois) helicopters, unarmed and equipped as troop carriers. Six of these aircraft will be utilized to transport the combat element. The seventh will transport prisoners taken and be used as an emergency-rescue aircraft.

c. Escort Element

The escort element is composed of five armed UH-1B (Iroquois) helicopters, whose primary mission is to safeguard the troop carrier element.

d. Medical Evacuation Element

The medical evacuation element is composed of one UH-1B (Iroquois) equipped and manned for the sole purpose of evacuation of friendly casualties. This element will not be used as a prisoner transport.

e. Combat Troop Element

The combat troop element is composed of six ARVN squads of nine men each. Each two squads should be accompanied by an American

advisor for control and communication purposes. Troops should be trained and employed in 2-squad elements. In addition, the American advisor to the troop commander should accompany the element. The troop element must be made up of selected, highly aggressive, well-trained troops, armed with automatic weapons.

2. TRAINING

All elements must undergo a training period as a unit, during which time they will learn to function as a single well-drilled combat team. The combat troop element and the troop carrier element should train together for a minimum of two full days, with all elements participating the last day. A live firing problem should be conducted on the afternoon of the last training day in order to accustom the ground troops to the fire of armed escort helicopters at close quarters. During this last exercise, medical evacuations, fire requests, and emergencies of all types should be simulated for practice. All visual air-to-ground and ground-to-air signals should be brought into play. Special emphasis should be placed throughout the training period on the use of the 2-squad element and tactical deployment from the various aircraft landing formations. (See appendix 1.) Ground commanders should be thoroughly oriented in the selection and marking of adequate landing sites to facilitate troop pickup.

3. EXECUTION

a. Coordination

Prior to each mission, close coordination between the troop carriers, armed helicopters and the ground force advisor is essential. The following coordination must be effected:

1) Sequence of events

2) Possible landing zones (S-2 report)

3) Radio frequencies, call signs, calibration of ground-to-air radios

4) POW pickup and collecting points

5) Pyrotechnics

6) Emergency signals

7) Logistics (aircraft fuel range and refuelling points)

b. Reconnaissance

The enroute flight formation for troop carrying helicopters consists of 2-ship echelons, at a trail. (See appendix 1.) Armed helicopters provide escort by using normal flank-escort formations. Two minutes ahead of the troop carrying element, the escort element leader accompanies the command control element to reconnoiter the objective area, leaving four armed helicopters to escort the troop carrying helicopters and medical evacuation helicopters. After target selection and reconnaissance, the escort element leader will return to the main column as the command and control element issues the attack order. The attack order will include:

1) Enemy situation in the landing zone

2) Instructions for prestrike (when applicable)

3) Landing formation to be employed

4) Direction of landing and departure for troop carriers

c. The Attack

After the attack order has been issued, the troop carriers will commence their approach to the landing zone, led by the command and control element and escorted by the armed helicopter unit. The command and control element, preceding the troop carrier element by approximately one minute, will mark the landing zone with smoke (See appendix 2.) and give instructions for landing with relation to the smoke marker. (See appendix 1 for formations to be used.)

After the troops have dismounted, the helicopters will orbit at an altitude of 1500 feet, one mile away from the landing zone, standing by for pickup instructions.

d. Apprehension of Prisoners

When Viet Cong are observed fleeing from the objective area, the armed helicopters will attempt to halt their escape by fire. Every effort will be made to drive the suspects to an area where ARVN ground forces can capture them. The commander may commit the reserve element, or airlift elements from the objective area in order to block and apprehend fleeing Viet Cong.

e. Use of the Reserve Elements

The commander should plan his attack whenever possible to leave two squads airborne as a reserve. The reserve may be used to

capture prisoners, or to reinforce or block any area deemed necessary by the commander. The reserve may be called in either by radio or by visual signal. (See appendix 2.)

f. Pick-up of Ground Forces

Ground forces and aircraft will be called in by the ground commander. (See appendix 2.) Armed aircraft will provide normal flank security during the pickup and departure. The command and control element should keep the ground commander apprised of the aircraft fuel status and the remaining time available for him to operate on the ground. The ground commander should plan and conduct his operations to make maximum utilization of a short ground-operational period. It is feasible to strike more than one objective without aircraft refuelling.

If fuel runs short, helicopters may be dispatched in elements for refuelling in order to maintain constant support to the element operating on the ground. However, this procedure should be avoided whenever possible since it somewhat restricts the air maneuverability and aerial fire protection of the ground element.

g. Special Instructions to the Mission Leader

Because of the complexity of the eagle flight, operations must be planned in detail and a detailed mission order and briefing conducted. The mission order must be clearly understood by all aviators and crew members. Whenever possible the ground advisor should be present at the briefing to facilitate coordination. Commanders must ensure that:

1) A map reconnaissance of the operational area is made

2) Each aircraft crew knows its mission and position in the strike force

3) Flight and landing formations are clearly understood

4) Crew chiefs, gunners, and ARVN observers are briefed on the apprehension of prisoners

5) Prisoner collecting points are predesignated, and whenever possible, pick-up points in the objective area are predesignated

6) Aircraft and ground radios are operational and calibrated

7) Smoke and emergency signals are understood

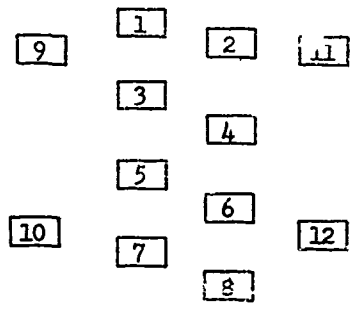
8) Crews are cautioned on delivering fire in the close proximity of other aircraft and personnel in and around the objective area

(C) APPENDIX 1 TO ANNEX C

AIRCRAFT FORMATIONS

a. ENROUTE FORMATIONS

Enroute and holding formation will be 2-ship echelons at troop, with escort aircraft providing flank security.

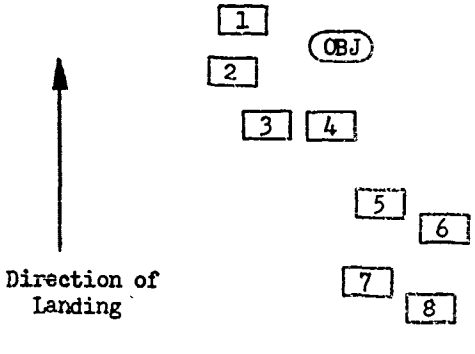


1 to 6 Troop Carriers
7 POW Carrier
8 Med Evac A/C
9 to 12 Armed Escorts
Escort Leader positions himself where he can lend support and control as necessary.

b. AIRCRAFT LANDING FORMATIONS

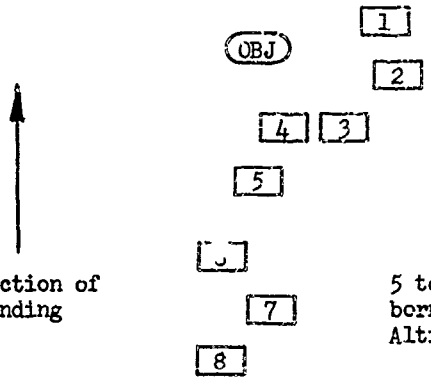
1. "L - Right"

This formation and the "L - left" use one wing of the "L" as a base and the other as a maneuvering (clearing) element. Fire and base elements are varied to meet the situation.



5 to 8 elements kept in airborne reserve until needed. Altitude 1,500 feet.

2. "L - Left"

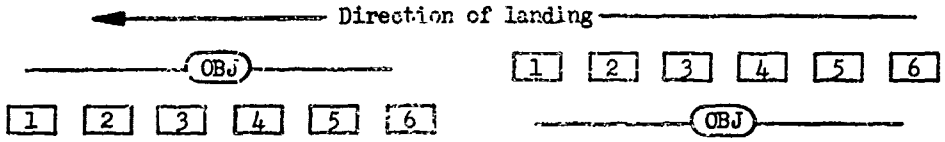


Direction of Landing

5 to 8 elements kept in airborne reserve until needed. Altitude 1,500 feet.

3. "Trail-Right" or "Trail-Left"

Whether formation is right or left depends upon the relation of the objective to the landing area. If the objective is to the right, then a "trail-right" is used, and troops exit from the aircraft and form an assault line to the right. If the objective is to the left, then the reverse is true.

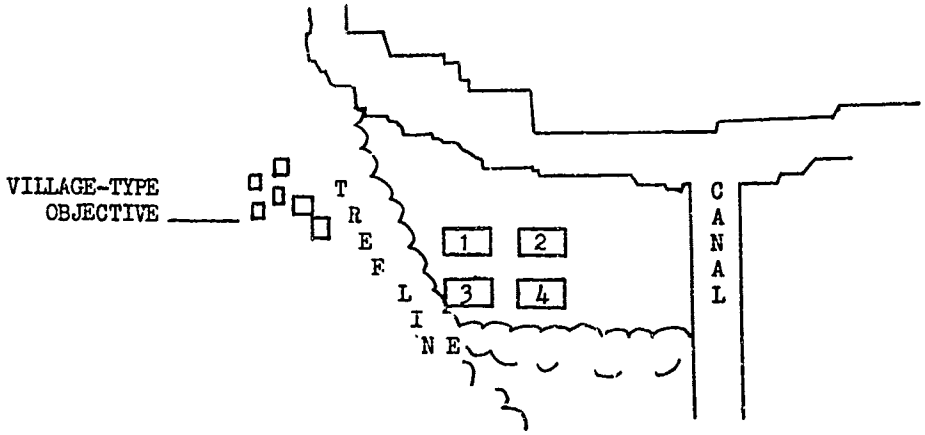


Trail-Right Trail-Left

In either the "trail-right" or "trail-left" formations, four or six squads may be initially committed. It is highly recommended that two squads be retained as a heliborne reserve, to be committed later as needed.

4. "Box" Formation

The "box" formation is used to place concentration of troops in a confined landing area, such as a river-junction. In this formation, a two-ship reserve is used.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(C) APPENDIX 2 TO ANNEX C

SIGNAL INSTRUCTIONS

a. SMOKE SIGNALS

RED smoke	Medical evacuation desired
YELLOW smoke	Commit reserve - land as near smoke as possible
GREEN smoke	Pick up troops (1st squad at smoke)
WHITE smoke	Target for armed helicopter support element (enemy position)
VIOLET smoke	Friendly troops

b. SKETCHES AND HAND SIGNALS

Co-pilot sketches and hand signals are utilized prior to landing to ensure that all troops are fully aware of the forthcoming ground maneuver.

A sketch on an acetate-covered board is used initially to indicate the landing formation and the side of the aircraft from which the troops are to exit.

2d ship in "L" right

Direction of exit

4th ship in "L" left

Just prior to landing, a thumb signal is given by the co-pilot to indicate which side of the aircraft the troops are to exit from.

Right hand (thumb-up)..... exit right door and assault right

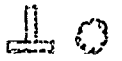
Left hand (thumb-up)..... exit left door and assault left

Both hands (thumb-up)..... exit both doors and assault front

c. FIRE REQUESTS

Signal for fire requests from ground to air and requests for cease fire follow.

(1) Fire request

 orange panel indicating desired direction of fire and/or a white smoke grenade

(2) Cease fire

a. Red flare for emergency cease fire

b. Orange panels 

d. TROOP IDENTIFICATION BY COLORED MARKERS

Each squad can be readily identified from the air by the use of colored scarves, one per individual. Each squad should be assigned a different color and each member of that squad should be required to wear a neckerchief of his squad's color. This ensures that the aircraft crews can readily identify the squads that their aircraft is transporting. This is important in that tactical integrity must be maintained on troop pickup to ensure proper deployment on the next objective.

It is recommended that daglo marker panels be carried by the flank men of each squad (two men per squad). These panels should be of standard size and be daglo orange on one side and daglo red on the other. One end of the panel should be secured to the back of the individual's shoulders, with the orange side out and the other end secured at the waist with the excess rolled under and tied. In this position, the panel readily indicates to aerial elements the flank limits of each squad, reducing the possibility of mis-directed firing into friendly elements. To request fire, or to call for cease fire, the rolled up portion of the panel is released and allowed to hang full length. The individual then assumes a prone position which exposes the panel to full aerial observation. Two individuals used together make up the panel signals. When the bottom of the panel is pulled to the individual's shoulders, thus exposing one-half of the red side, it indicates the squad pickup point after green smoke has been used, thus enabling the helicopters to more readily identify the individual squad positions.

(C) ANNEX D

TERRAIN, WEATHER, AND ENEMY SITUATION

(U) Terrain, weather, and the enemy situation present the major uncontrollable variables that influence airmobile operations. In order to properly assess the environment in which the airmobile companies operate, a detailed description of these factors is desirable.

1. (C) [illegible]

a. (U) Terrain

South Vietnam is composed of four major terrain areas: The Mekong Delta, Mekong Plateau, forested highlands or Annamese Cordillera, and the Annamese coastal plain The northern half of the country consists of rather low, deeply dissected, heavily forested mountains, and a narrow, discontinuous coastal plain. The southern half is an undulating plateau and a large delta plain (figure D-1).

b. (U) Weather

The climate is monsoonal, similar to that of Burma and Thailand, and is characterized by two major seasons.

The southwest monsoon season occurs from mid-May to October. For most of South Vietnam, it is a period of frequent heavy precipitation, high humidity, maximum cloudiness, and except at higher elevations, tropical temperatures.

The northeast monsoon occurs from November to mid-March. In contrast to the southwest monsoon, it is a season of relatively little precipitation, lower humidity, very little cloudiness over most of the country, and lowest temperatures everywhere.

Weather data for the major terrain areas are shown in table D-1. Figure D-2 is a map of South Vietnam showing annual precipitation.

Major airflow during the two monsoon seasons is from the southwest and the northeast, respectively. Sustained winds rarely exceed 16 knots, and velocities over 27 knots are uncommon. Higher wind speeds occur most frequently in the late afternoon. Eighty-knot gusts have been reported during violent thunderstorms. Upper air winds often exceed 28 knots at 3000 to 7000 feet, but are seldom in excess of 40 knots.

Typhoons rarely affect South Vietnam. However, tropical storms (winds up to 63 knots) occur frequently from July to November. Thunderstorms impose the greatest threat in the month of April. These

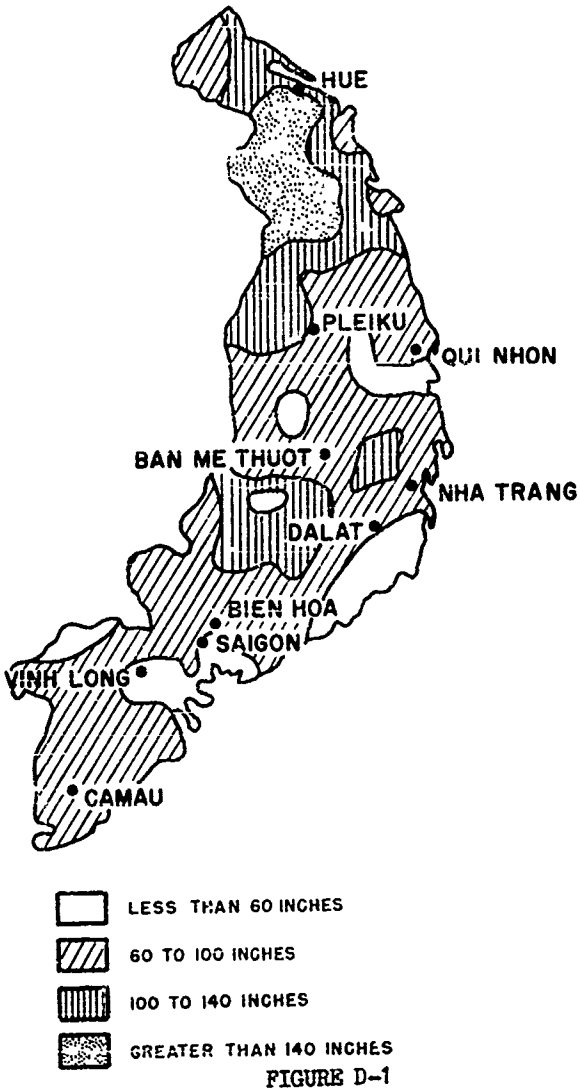


FIGURE D-1

Republic of Vietnam Terrain

TABLE D-1

WEATHER DATA, RVN

Saigon (Mekong Plateau)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
Mean Daily Max Temp (F)	89	91	93	94	92	89	88	89	88	88	87	87	90
Mean Daily Temp (F)	80	81	84	86	84	82	82	82	82	81	80	79	82
Mean Daily Min Temp (F)	70	71	74	77	76	75	75	75	75	74	73	71	74
Mean Precipitation (In)	0.6	0.2	0.4	2.1	8.7	12.5	11.6	10.5	13.3	10.4	4.9	2.3	6.5
Mean Humidity	76	73	72	75	82	85	85	85	87	86	83	78	82
Pleiku (Highlands)													
Mean Daily Max Temp (F)	81	84	87	88	85	81	78	80	80	81	80	79	82
Mean Daily Temp (F)	68	71	74	76	79	74	73	74	73	72	71	68	73
Mean Daily Min Temp (F)	55	57	60	64	67	67	67	67	66	63	61	57	63
Mean Precipitation (In)	<0.05	0.5	1.7	4.2	7.5	12.8	17.1	19.3	15.6	8.0	2.2	0.4	8.1
Mean Humidity	78	74	75	76	82	87	90	89	89	84	83	78	82
Density Altitude (1962)	3750	3900	4250	4400	4550	4450	4350	4400	4450	4100	4000	3800	4200
Soc Trang (Mekong Delta)													
Mean Daily Max Temp (F)	87	89	91	93	91	89	88	87	87	87	86	85	88
Mean Daily Min Temp (F)	71	72	73	75	76	76	76	76	76	76	75	72	75
Mean Daily Temp)	78	80	82	83	82	82	81	81	81	81	79	78	81
Mean Precipitation (In)	0.4	0.1	0.5	3.0	8.8	9.8	10.1	10.4	10.8	11.0	7.4	1.9	6.2
Mean Humidity	79	78	77	78	85	86	86	86	87	88	86	83	83
Density Altitude (1962)	1625	1875	2050	2175	2250	2125	2050	2125	2100	2000	1875	1725	1975

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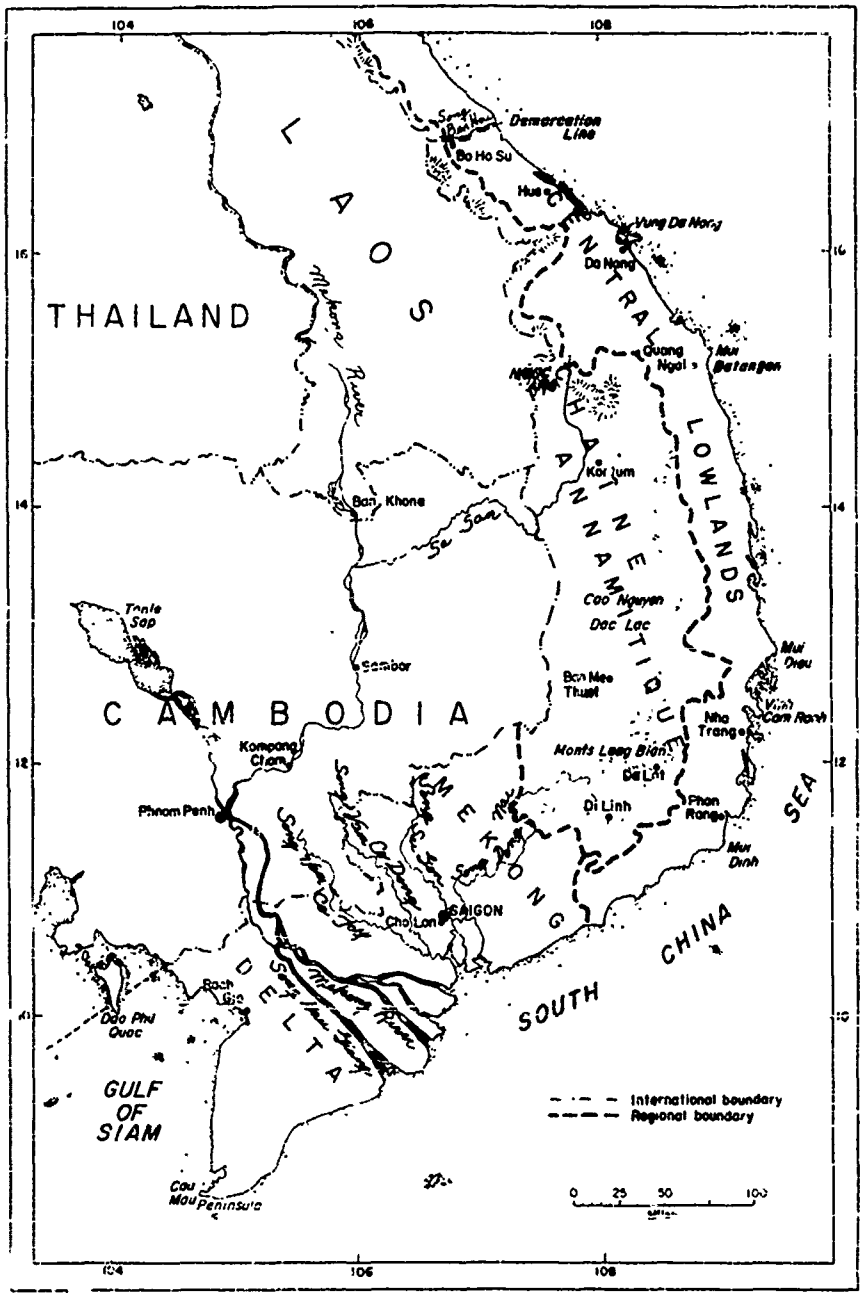

FIGURE D-2

Republic of Vietnam Annual Precipitation

storms have produced winds from 50 to 80 knots, hail stones up to two inches in diameter, and torrential rains. Thunderstorms also occur throughout the rest of the year, particularly during the southwest monsoon. They normally occur in the late afternoon or early evening and are less severe than the April storms.

c. (C) Enemy

The Viet Cong (VC) insurgency represents a continuation of the war of resistance conducted by the Viet Minh forces against the French after World War II. Approximately 80,000 communist troops have controlled wide areas of South Vietnam for many years. After the Geneva Armistice Agreement of 1954 all communist forces were ostensibly evacuated to North Vietnam. However, several thousand political and military cadre were left behind to form a clandestine organization. The period from 1954 to 1960 was generally an era of building. The VC gradually becoming more bold in their acts of terrorism, small scale harrassment, and sabotage activities. The company was generally the largest tactical element, and most of the Communist effort was devoted to political and subversive actions desighed to lay the foundation for a shift to military action.

In 1960 North Vietnam announced its objective of "liberating South Vietnam," through a "people's revolutionary struggle." During 1961 and 1962 thousands of cadre personnel drawn from regrouped southern units were infiltrated back into South Vietnam. This, coupled with extensive local recruitment, resulted in an increased VC strength from approximately 5,000 in 1960 to a main combat force of about 31,700 and a guerrilla force of 60,000 to 80,000 by the end of 1963. All VC strength estimates are from the Vietnamese High Command Headquarters.

The VC military organization is integrated into an extensive political apparatus which controls all aspects of VC activity. They have divided South Vietnam into five military regions and the Saigon-Cholon special military zone.

The VC military forces are divided into three categories: main force units, local units, and guerrillas.

The main force units are those subordinate to military region or provincial headquarters. They are the best trained and equipped. A normal VC infantry company contains 60mm mortars, light machineguns and automatic rifles. Heavy weapon companies contain 81mm or 82mm mortars, and either 57mm or 75mm recoilless rifles. Some heavy weapon companies are equipped with 12.7mm or caliber .50 machine guns.

Local units are subordinate to districts. By common usage, both main force units and district units are referred to by the term hard core units. These units are under control of the districts and are normally of company or platoon size.

Guerrilla units consist of the part-time soldiers subordinate to a village or hamlet. The guerrilla may be equipped with anything from a crossbow to a rifle or automatic weapon.

Viet Cong forces are located throughout RVN. The regular forces are subordinate to the military region and are organized into regiments with organic battalions, separate battalions, and separate companies.

Density of VC activity in 196[illegible] is shown by ARVN corps areas in figure D-3. Viet Cong-initiated activity in the II, III and IV Corps zones during the evaluation period is in table D-2.

During the evaluation period the VC were extremely active throughout the RVN. There were numerous small-unit actions against both the ARVN units and the civilian population. In several instances the VC massed to about battalion size to attack lucrative targets.

The VC are highly mobile foot soldiers, and for the most part, live off the land in their particular area of operation. They have captured large numbers of individual and unit weapons, thereby reducing their requirements for a long, complicated logistical system.

As most of the VC do not wear a recognizable uniform, routine identification of insurgents is difficult. Even confirmed VC kills may include guerrillas, civilians, and laborers. Also, the VC evacuate their killed and wounded from the battle area, further complicating accurate casualty reporting.

2. (C) AREAS OF OPERATIONS, EVALUATED UNITS

a. (C) The 114th Airmobile Company

The 114th Airmobile Company was located at Vinh Long, and operated exclusively in the Mekong Delta and southeastern coastland regions.

(1) (U) Terrain

The area consists of a flat, low-lying, rice growing plain. Mangrove swamps line much of the coast, and marshes and tidal swamps occupy extensive areas inland.

Dense networks of canals and ditches connect the tributaries of the major rivers. Elevations rarely exceed 50 feet above sea level. Levies and dikes are usually only two to three feet high. The canals vary in size from 6 to 130 feet wide with depths of 4 to 16 feet.

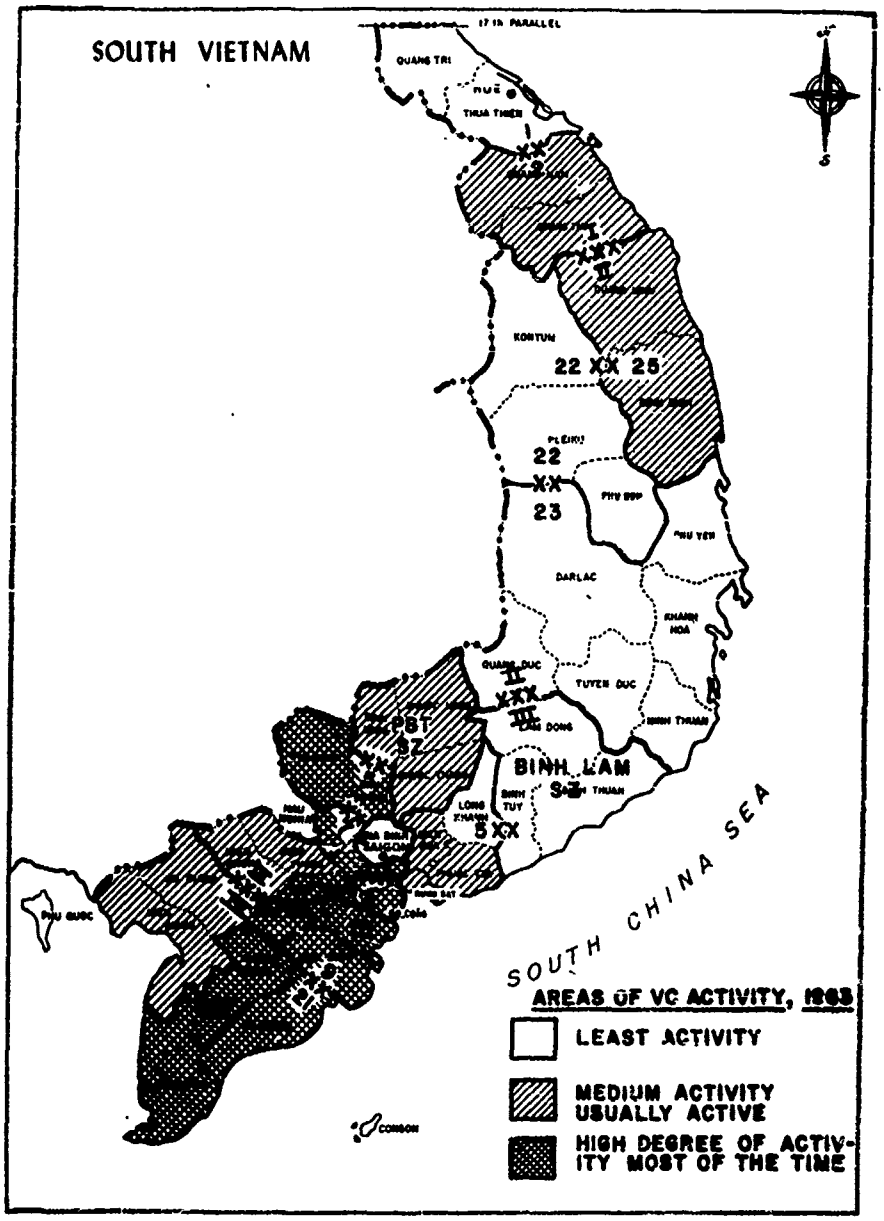

FIGURE D-3

Viet Cong Density by Corps Areas

TABLE D-2

VIET CONG - INITIATED ACTION

	II Corps					III Corps					IV Corps				
Month	Tot	Atk	Terr	Sab	Pgnd	Tot	Atk	Terr	Sab	Pgnd	Tot	Atk	Terr	Sab	Pgnd
Oct	336	25	243	23	[illegible]	494	104	280	32	78	518	214	240	46	18
Nov	814	81	568	46	119	1462	309	861	179	113	630	208	370	35	17
Dec	433	27	297	13	96	830	116	542	68	104	365	92	238	22	13
Jan	392	25	281	24	53	883	120	603	85	75	313	58	233	7	15

The ground over the entire area is wet from May through December with approximately 70 percent of the terrain covered with water from 1 to 3 feet in depth. Marshes, swamps, and many rice fields are wet throughout the year.

Most of the small towns and villages are located along the levies.

Almost the entire area is unsuited for ground vehicles and foot movement from May to December. Numerous canals and ditches restrict large sca e overland movement.

(2) (U) Weather

The Mekong lowlands average 70 inches of rain per year. Sixty percent of the annual total is received during the southwest monsoon, and 10 to 15 percent during the northeast monsoon. There are numerous heavy rain showers and thunderstorms, low overcast conditions, and winds with occasional gusts over 30 knots.

During the dry season from January through March, the weather is generally clear, but with isolated thunderstorms and winds from the east with gusts up to 30 knots. Visibility is occasionally reduced by dust and smoke from burning rice fields.

The average mean temperature for this region is approximately 81 degrees Fahrenheit while the average humidity is 83 percent.

(3) (C) Enemy

Viet Cong main force in the IV Corps area of operations consisted of approximatley 6,500 troops organized into 9 regular battalions and 1 separate company. In addition there were approximately 22 regional companies and 29 regional platoons.

b. (C) <u>The 119th Airmobile Company</u>

The 119th Airmobile Company was located at Pleiku and operated in the Cordillera (or forested highlands) and the coastal plains region.

(1) (U) Terrain

The area is divided into three distinct types of terrain. Over one-half of the region consists of dense jungle-covered mountains. This section is characterized by deep, steep-sided valleys, heavy jungle foilage, and numerous peaks in excess of 5,000 feet. There are few cleared landing zones in this area. These landing zones are generally covered with grass 4 to 10 feet high. The mountains give way near the southern portion of the tactical zone to a plateau region compartmented by rolling,

open hills. The valleys are cultivated and are broken by scattered forested areas. The last section is the eastern coastal region approximately 25 miles wide. It consists of wide, low valleys and occasional low mountains. This area is used chiefly for agriculture.

The majority of the streams and rivers in the region are less than 250 feet wide with a few 1,000 feet wide. From early November through April only the largest rivers are more than three feet deep. During May to October stream levels rise 20 to 30 feet and streams become difficult to bridge. Most valleys and basins are flooded during this period.

The mountains and hilly parts of the region are generally unsuited for ground operations throughout the year.

The majority of the area is sparsely populated with small tribal groups. The coastal lowlands, in contrast, are densely populated and intensively cultivated, mainly in wetland rice.

(2) (U) Weather

The interior highlands, comprising most of the region, average about 82 inches of rainfall yearly. This area has a greater variation in precipitation than any of the other regions. The southwest monsoon season commences in May and does not end until mid-December. This season is characterized by heavy daily rains and low overcast skies. The heavy rains often cause flood conditions in the river valleys. An average of 30 to 40 inches of rain will normally be deposited during this period. From mid-December until March, prevailing winds are from the east 15 to 30 knots. These winds move cloud formations across the foot hills and mountain regions sometimes restricting helicopter operations. Visibility is often reduced by early morning ground fog.

During the southwest monsoon the coastal region is protected by the mountains and usually has unrestricted ceilings and visibility, high scattered cloud conditions, and moderate to severe wind conditions. This area experiences the rainy season from mid-October until late January.

The mean average temperature for the entire region varies markedly because of the varying elevations. The lowest temperatures to be found at any given time in South Vietnam occur in this area. It can be expected that an extreme minimum should be no lower than 25 degrees Fahrenheit. The mean annual temperature is 67 degrees Fahrenheit at Dalat and 73 degrees Fahrenheit at Pleiku. Humidities averaging 90 to 95 percent can be expected most of the time except in the higher altitudes of the interior highlands.

A special weather phenomenon called the Crachin often reduces visibility to less than one-half mile. It is a prolonged period of widespread fog and drizzle or light rain primarily affecting the northern part of the eastern coastal regions. Occasionally it penetrates into the northern part of the interior.

(3) (C) Enemy

Viet Cong forces in the II Corps area of operations consisted of approximately 13,800 troops organized into 2 regular regiments, 8 battalions and 19 companies. There were also 27 regional companies and 46 regional platoons.

c. (C) The 118th Airmobile Company

The 118th Airmobile Company was located at Bien Hoa, and operated in all of South Vietnam's major terrain areas. As the delta and forested highlands regions have been previously discussed, this presentation will include only the Mekong Plateau.

(1) (U) Terrain

The Mekong Plateau consists of a series of gently undulating plateaus and scattered hills. Maximum elevations are less than 1,000 feet with slopes normally less than 5 percent.

In the hills, streams generally flow in deep, narrow channels. They are usually less than 250 feet wide with an average low-water depth of 3 to 9 feet.

Vegetation consists of forests and some rice growing areas. Dense broadleaf evergreen and deciduous forests are dominant on hills and lower mountain slopes.

The ground is wet or moist from May through October, occasionally moist in November and December, and dry from January through March.

Cross-country movement is fair to good in the moderately dense to open forests during the dry season. Extensive dense forest areas severely limit foot movement.

(2) (U) Weather

In the Mekong Plateau the weather is similar to that of the Mekong Delta region. During the southwestern monsoon the climate is characterized by moderately high temperatures, high humidity, and a high percentage of cloudy, overcast days. During the northeastern monsoon the climate is characterized by moderate temperatures, low

humidity, and high scattered clouds.

(3) (C) Enemy

Viet Cong forces in the III Corps area of operations consisted of approximately 18,000 troops organized into 2 regular regiments, 7 battalions, and 27 companies. In addition there were 42 regional companies and 43 regional platoons.

(C) ANNEX E

MACV DIRECTIVE 44

Annex E contains the full text of MACV Directive 44.

HEADQUARTERS
UNITED STATES MILITARY ASSISTANCE COMMAND, VIETNAM
APO 143, San Francisco, California

CHANGE 2
DIRECTIVE
NUMBER 44

11 December 1963
(MACJ311)

TASK ORGANIZATION AND MANAGEMENT USMC/USA AVIATION RESOURCES IN RVN

1. Annex A to MACV Directive 44, 8 July 1963, is changed to read as follows:

TASK ORGANIZATION

UNIT	LOCATION	MISSION
TE 79.3.3.6	Danang	DS ARVN I Corps
HMM-261 (UH-34)	Danang	
I Corps Avn Det (Prov)	Danang	
Det, 18th Avn Co (U-1A)		
Det, 73d Avn Co (TO-1D)		
Det, Airlift Plat, 52d Avn Bn (UH-1B)		
Det, Armed Hel, 52d Avn Bn (UH-1B)		
52d Avn Bn	Pleiku	DS ARVN II Corps, support I Corps as directed
117th Avn Co (Air Mbl Lt)	Qui Nhon	
119th Avn Co (Air Mbl Lt)	Pleiku	
Det, 18th Avn Co (U-1A)		
Det, 73d Avn Co (TO-1D)		
Airlift Plat (-)(UH-1B)		
145th Avn Bn	Tan Son Nhut	DS ARVN III Corps
118th Avn Co (Air Mbl Lt)	Bien Hoa	
120th Avn Co (Air Mbl Lt)	Tan Son Nhut	
Det, 18th Avn Co (U-1A)		
Det, 73d Avn Co (TO-1D)		
Airlift Plat (-)(UH-1B)		
Flt Team, 23d SWAD (JOV-1C)		
Delta Avn Bn (Prov)	Can Tho	DS ARVN IV Corps
114th Avn Co (Air Mbl Lt)	Vinh Long	
121st Avn Co (Air Mbl Lt)	Soc Trang	

CHANGE 2 DIRECTIVE NUMBER 44 (CONT'D)

UNIT	LOCATION	MISSION
Det, 18th Avn Co (U-1A) Det, 73d Avn Co (TO-1D) Det, Airlift Plat, 145th Avn Bn (UH-1B) Flt Team, 23d SWAD (JOV-1C)		
18th Avn Co (U-1A)	Nha Trang	Assign Dets to Corps Avn Hq as directed, support USASF(P)V with 2 acft & provide other support as directed.
61st Avn Co (CV-2B)	Vung Tau	SEA Airlift System. Base acft in CTZ's, as directed, in DS Corps for forward area transport.
73d Avn Co (TO-1D)	Nha Trang	Assign Dets to Corps Avn Hq as directed, support USASF(P)V with 2 acft & provide other support as directed
23d SWAD (JOV-1C)	Vung Tau	Assign Flt Teams to Corps Avn Hq as directed. Support Flt Teams with flyable acft as practicable. Remaining acft GS III and IV Corps.
57th Med Det (Hel Amb)	Tan Son Nhut	GS all Corps
UTT Hel Co (Armed UH-1B)	Tan Son Nhut	GS ARVN III & IV Corps

2. The following instructions are rescinded:

a. Change 1, MACV Directive 44, 8 Jul 1963.

b. Msg, MACJ311, 6681, DTG 140259Z Aug 63.

c. Msg, MACJ311, 9181, DTG 300202Z Nov 63.

FOR THE COMMANDER:

/s/ R. G. Weede
/t/ R. G. WEEDE
Major General, U.S. Marine Corps
Chief of Staff

OFFICIAL:

/s/ C. R. Revie
/t/ C. R. REVIE
Colonel, Arty
Joint Secretary

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HEADQUARTERS
UNITED STATES MILITARY ASSISTANCE COMMAND, VIETNAM
APO 143, San Francisco, California

CHANGE 1
DIRECTIVE
NUMBER 44

(MACJ311)

TASK ORGANIZATION AND MANAGEMENT USMC/USA
AVIATION RESOURCES IN RVN

Annex A, MACV Directive 44, dated 8 July 1963, is changed as follows:

a. 120th Avn Co (Air Mbl Lt) should read 119th Avn Co (Air Mbl Lt).

b. 119th Avn Co (Air Mbl Lt) should read 120th Avn Co (Air Mbl Lt).

c. 114th Airmobile Co (UH-1B) should read 114th Avn Co (Air Mbl Lt).

d. Location and mission of 57th Med Det (Hel Amb) should read Tan Son Nhut, GS all corps.

FOR THE COMMANDER:

OFFICIAL:

/s/ C. R. Revie
/t/ C. R. REVIE
Colonel, Arty
Joint Secretary

/s/ R. G. Weede
/t/ R. G. WEEDE
Major General, U. S. Marine Corps
Chief of Staff

HEADQUARTERS
UNITED STATES MILITARY ASSISTANCE COMMAND, VIETNAM
APO 143, San Francisco, California

DIRECTIVE
NUMBER 44

8 July 1963
(MACJ3)

Effective 15 July 6 for 18 months unless sooner rescinded or superseded

TASK ORGANIZATION AND MANAGEMENT USMC /USA
AVIATION RESOURCES IN RVN

1. PURPOSES

a. To maximize support of the RVNAF, and particularly the Corps Tactical Zones, during Phases II and III of the National Campaign Plan.

b. To enhance coordination of the total VN/US air effort.

2. CONCEPT:

a. An aviation headquarters will be positioned in each of the four Corps Tactical Zones to plan, direct and control the employment of all US Army and Marine Corps Aviation units and aircraft operating in direct support of a given Corps. To this end, the aviation headquarters will exercise operational control of all non-organic elements allocated to the Corps. The aviation headquarters will, in turn, be under the operational control of the Corps Senior Advisor as the senior representative of COMUSMACV in the Corps Tactical Zone.

(1) "Operational control comprises those functions of command involving the composition of subordinate forces, assignment of tasks, designation of objectives and the authoritative direction necessary to accomplish the mission. As regards employment of aviation units it includes determination of priorities, methods, and prescription of restrictions and limitations."

b. Within available resources, the several aviation headquarters will be allocated the types and numbers of aircraft which the JGS/RVNAF and MACV jointly adjudge essential for continuous support of operations within the Corps at all except extraordinary level of intensity. Aircraft so allocated are subject to recall or diversion on MACV order.

c. The Commander of an aviation headquarters is, ex officio, the principal aviation staff officer of the Corps Senior Advisor and the advisor to the Corps for matters within his professional competence; as such he will assume the duties heretofore discharged by the Corps Army Aviation Advisor, which position is abolished. Each Commander will position a full-time representative at Corps Headquarters.

ANNEX E

normally in the Corps Tactical Operations Center - Air Support Operations Center complex.

d. Aviation resources not allocated to the Corps or to the Southeast Asia Airlift System, will remain under the operational control of the CG USASGV for employment in accordance with missions and priorities determined by COMUSMACV.

3. TASK ORGANIZATION:

a. Commanders of Corps Aviation Headquarters:

I Corps	CTE 79.3.3.6
II Corps	C.O., 52d Aviation Battalion
III Corps	C.O., 45th Aviation Battalion
IV Corps	C.O., Delta Aviation Battalion (Prov)

b. Initial allocations of units to the several aviation headquarters and missions of all other units are set forth at Annex A. Specific composition of units of less than company-size will be signalled by operational messages.

4. SPECIAL INSTRUCTIONS:

a. Within allocated resources, Corps Senior Advisors will provide essential aviation support for units of the General Reserve attached to the Corps for operational and for other RVNAF/US elements operative in support of the Corps Tactical Zones. The requirements of the Special Forces Detachment in Zone will be met; the minimum daily scale of support will be one (1) fixed and one (1) rotary wing aircraft per "B" Detachment.

b. The Air Force Component Commander is charged by COMUSMACV with certain responsibilities, actual and contingent, for coordination of air operations in South Vietnam. The locally developed Tactical Air Control System, jointly manned by the VNAF and 2nd Air Division, is the mechanism through which such responsibilities are or will be discharged. In order that the TACS may be supplied with the relevant information on which its effectiveness depends:

(1) The Aviation Commanders specified in paragraph 3a supra will establish controls and procedures to insure that the provisions of MACV Directive No. 28 (Identification and Security Control) are scrupulously complied with by all subordinate elements, to the full extent of communications capabilities.

(2) One of the primary responsibilities of the Aviation Commanders' representatives at Corps Headquarters will be participation in and assistance to operational planning and the coordination of employment of USMC/USA Aviation with VNAF/USAF tactical air. This representative will, therefore, maintain up-to-date data and displays for effective planning and coordination; and insure that this information is readily available to personnel of the Tactical Operations Center, the associated Air Support Operations Center, and other supporting agencies. A basic requirement is close contact among the ASOC Director, the USAF ALO and the Aviation Commanders' representative.

5. REFERENCES

a. JGS/RVNAF National Campaign Plan, dated 21 Feb 63.

b. MACV Directive #28, dated 11 Aug 62.

c. MACV Directive #34, dated 18 Aug 62.

d. MACV Directive #62, dated 24 Nov 62.

6. RESCISSIONS. The following MACV Directives are rescinded:

a. Ltr, USMACV, MACJ3, Subj: Ltr of Instruction, 18 Jul 62.

b. Ltr, USMACV, MACJ3, Subj: Ltr of Instruction, 31 Oct 62.

c. Ltr, USMACV, MACJ3, Subj: Change to Ltr of Instruction, 8 Nov 62.

d. Msg, MACJ3, 2405, DTG 220855Z Dec 62.

e. Msg, MACJ311, 5222, DTG 100942Z Jun 63

f. Msg, MACJ311, 557 DTG 220508Z Jun 63.

FOR THE COMMANDER:

/s/ R. G. Weede
/t/ R. G. WEEDE
Major General, U. S. Marine Corps
Chief of Staff

OFFICIAL

/s/ C. R. Revie
/t/ C. R. REVIE
Colonel, AGC
Joint Secretary

(U) ANNEX F
PERSONNEL AND EQUIPMENT REQUIRED FOR TOE 1-77E

PERSONNEL PRESENTLY AUTHORIZED THE
AIRMOBILE COMPANIES IN EXCESS OF TOE 1-77E

Par	Line	Description	Ident	Br	MOS	Grade	114th	118th	119th
01	05	Flight Operations Chief	E	NC	907.60	E-6	1	0	0
	08	First Cook	E		941.10	E-5	1	1	1
	09	Company Clerk	E		716.10	E-4	1	0	0
	10	Cook	E		941.10	E-4	2	0	0
	14	Lt Truck Driver	E		710.00	E-3	1	2	2
	15	Supply Clerk	E		760.00	E-3	0	1	1
	17	Fixed Wing Mech	E		671.20	E-5	2	2	2
	18	Fixed Wing Mech	E		671.10	E-4	0	2	2
	19	Fixed Wing Aviator	O	AM	1980	Lt	0	3	3
	20	Clerk Typist	E		711.20	E-4	4	4	4
	21	Intelligence Sergeant	E	NC	113.70	E-7	0	1	1
	22	Personnel Staff NCO	E	NC	716.60	E-6	0	1	1
	23	Intelligence Officer	O	AM	1981	Lt	1	1	1
	24	Asst Flight Opns Officer	O	AM	1982	Lt	1	1	1
	25	Postal Clerk	E		714.10	E-4	1	0	0
	26	Airfield Control Sec Chief	E	NC	901.60	E-6	1	1	1
	27	Sr Landing Control Opr	E		901.20	E-5	2	2	2
	28	Landing Control Opr	E		901.20	E-4	3	3	3
	29	Sr Control Twr Opr	E		901.10	E-5	1	1	1
	30	Control Twr Opr	E		901.10	E-4	1	1	1
04	07	Clerk Typist	E		711.10	E-4	1	1	1
	09	Small Arms Repairman	E		421.10	E-4	4	3	3

Par	Line	Description	Ident	Br	MOS	Grade	114th	118th	119th
04	10	Armorer	E		421.10	E-5	2	0	0
	11	Wheeled Vehicle Mech	E		631.10	E-4	1	2	2
	12	Wheeled Vehicle Mech Helper	E		630.00	E-3	1	2	2
	13	Engineer Equip Repairman	E		624.10	E-4	1	0	0
	14	Ammo Storage Specialist	E		411.10	E-4	3	0	0
	15	Ammo Handlers	E		410.00	E-3	4	0	0
05	03	Sr Hoptr Mech	E		675.20	E-5	0	2	2
	05	Hoptr Mech Helper	E		670.00	E-3	0	3	3
06	03	Sr Radio Mechanic	E		311.10	E-5	2	2	2
	04	Radio Mechanic	E		311.10	E-4	2	2	2
07	04	Petroleum-Oil Dispenser	E		551.10	E-3	1	0	0
		Total					45	44	44
		TOE 1-77E Augmentation					25	25	25
		TOE 1-77E Totals					116	116	116
		Total w/Augmentation					186	185	185

AMOUNT OF EQUIPMENT PRESENTLY AUTHORIZED
THE ARMORED COMPANIES IN EXCESS OF TOE 1-77E

Line No	Nomenclature	114th	118th	119th
	Chemical			
132600	Respirator, Air Filter Point Spray	0	4	4
	Engineer			
232940	Flashlight, Plastic Mf Angle, 2 Cell	0	23	23
222752	Compass, Magnetic	14	0	0
235622	Gen Gas Eng 5 KW AC 400 Cy	2	0	0
235152	Gen Set Gas Eng 1.5 KW 28 V DC	2	0	0
	Ordnance			
417125	Gun Machine 7.62 Lt Wt Gp	20	24	24
425565	Mount Tripod Machine Gun 7.62	6	0	0
429280	Pistol Auto Cal .45	29	26	26
435965	Rifle 7.62 Semi-Auto Lt Barrel	42	18	18
453890	Tool Kit Organ Maint Mol Cannon	0	2	2
453995	Tool Kit Small Arms Repairman	2	3	3
457110	Trailer, Amph Cargo 1/4 Ton, 2 W	2	3	3
457190	Trailer, Cargo 3/4 Ton, 2 W	2	1	1
457220	Trailer, Cargo 1 1/2 Ton, 2 W	2	0	0
460050	Truck, Cargo 3/4 Ton 4x4	3	4	4
460110	Truck, Cargo 2 1/2 Ton 6x6 LWB	0	2	2
460143	Truck, Cargo 2 1/2 Ton 6x6 LWB w/Winch	1	0	0
461790	Truck, Utility 1/4 Ton 4x4	3	4	4
461834	Truck, Van Shop 2 1/2 Ton 6x6	1	0	0

Line No	Nomenclature	114th	118th	119th
465380	Watch Wrist Grade II	8	8	8
401845	Cabinet, Spare part steel IV Top Open	0	2	2
	Trailer, Ammo 2 Ton 2W	3	0	0
	Truck, 5 Ton 6x6	3	0	0
401088	Bayonet, Knife w/Scabbard 7.62	45	44	44
454008	Tool Kit Turret Mech	2	0	0
401250	Binocular 7x50	20	0	0
	Quartermaster			
500200	Accessory Outfit Gas Field Range	1	0	0
510320	Case Field Office Machine 18½x22½x26½ or 34½	1	0	0
529100	Goggles Sun, 2 Plastic Lens	6	3	3
558400	Sling, Universal Indiv Load Carry	0	0	10
563450	Tableware Outfit Field 14 Comp	2	2	2
565875	Tent, GP Med W/O Windows W/Pins	0	0	0
569051	Tool Kit Armorers	5	0	0
569151	Tool Kit, Automotive Maint	1	2	2
569850	Tool Kit, Electric No. 2	1	0	0
575970	Typewriter, Ptbl	3	0	0
689614	Tool Kit Radio Repairman TA-115()/G	1	0	0
453905	Tool Kit Orgn Maint No Sup	0	2	2
455305	Tool Set Orgn 2d Echn No. 7 Hoist & Tow	0	2	2
563613	Parachute Personnel Back 28 Ft Dion	14	7	6
548693	Panel Markers Ground Sig to Acft	39	0	0
500740	Add-Sub Mach Hand 8 Digit 10 Key	1	0	0

Line No	Nomenclature	114th	118th	119th
453790	Tool Kit Fire Control Repairman	2	0	0
522488	Clock, Msg Center	1	0	0
52522-	Filter Seperator Riggs Model BFS 6H-50-AL	3	3	3
563405	Screen, Latrine	1	1	1
603250	Antenna Gp RC 292	2	0	0
628130	Multimeter AN/VRN-105	2	1	1
641669	Radio Set AN/GRR-5 in Shop Van	1	0	0
651269	Radio Set AN/VRC 24 in Shop Van	1	0	0
649669	Radio Set TA 312/PT	1	0	0
678260	Telephone Set TA 312/PT	1	0	4
	Gen Set PU 322/G Tlr Mtd	1	0	0
697839	Wind Measuring Equip Set AN/PMQ-3	1	0	0
618170	Generator Set Gas Eng Tlr Mtd PV 456	1	0	0
605485	Beacon Set Radio AN/GRN-6	1	0	0
618085	Generator Set Assy Th Mtd PV 65 D/G	1	0	0
623157	Radar Set AN/TPN-8	1	0	0
638004	Power Supply PP 1104lG	1	0	0
	Transportation			
712730	Computor Air NAV MB-4	4	0	0
732600	Helicopter, Utility	0	9	9
744630	Life Preserver Yoke Oral 26½	0	87	87
763200	Plotter Acft Scale 1/500,000 1/1,000,000	2	0	0
784040	Tool Kit Acft Mech Gen	0	8	8
700055	Aeroplane Observation	3	3	3

Lane No	Nomenclature	114th	118th	119th
700060	Aeroplane, Utility	1	0	0

SUMMARY OF RECOMMENDED PERSONNEL ADDITIONS TO TOE 1-77E WHEN THE AIRMOBILE COMPANY IS ORGANIZED AS A SEPARATE (NON-DIVISIONAL) ELEMENT

Par	Description	Identity	Branch	MOS	Grade	No.
01	Asst Flt Opns Off	O	AM	1982	Lt	1
	Intel Off	O	AM	1981	Lt	1
	Fixed Wing Aviator	O		1980	.	3
	Intel Sgt	E	NC	11370	E-7	1
	Pers Staff NCO	E	NC	71660	E-6	1
	Air Field Control Sec Ch	E	NC	90160	E-6	1
	Sr Landing Control Opr	E		90120	E-5	1
	Sr Control Twr Opr	E		90110	E-5	1
	First Cook	E		94110	E-5	1
	Armorer	E		41110	E-5	1
	Crew Chief	E		67120	E-5	3
	Landing Control Opr	E		90120	E-4	3
	Control Twr Opr	E		90110	E-4	1
	Clerk Typist	E		71120	E-4	2
	Cook	E		94110	E-4	2
	Supply Clerk	E		76000	E-3	1
03	Rotary Wing Aviator	W		0628O	WO	24
04	Prec Pwr Gen Sp	E		35120	E-4	1
	Sr Hcptr Armaments Sp	E		42760	E-5	1
	Hcptr Armaments Sp	E		42710	E-4	3
	Ammo Storage Sp	E		41110	E-4	3
	Wheeled Veh Mech	E		63110	E-4	1

Par	Description	Identity	Branch	MOS	Grade	No.
04	Engineer Equip Rprm	E		62410	E-4	1
	Wheeled Veh Mech Hlpr	E		63000	E-3	1
	Ammo Handler	E		41000	E-3	3
	Lt Truck Driver	E		71000	E-3	1
05	Sr Hcptr Mech	E		67520	E-5	2
	Airplane Mech	E		67110	E-4	1
	Hcptr Mech Hlpr	E		67000	E-3	2
06	Radio Mech	E		31110	E-4	1
	Radi TT Opr	E		05310	E-4	3
				Total		72

SUMMARY OF RECOMMENDED EQUIPMENT ADDITIONS TO TOE 1-77E WHEN THE AIRMOBILE COMPANY IS ORGANIZED AS A SEPARATE (NON-DIVISIONAL) ELEMENT

Par	Line	Description	No.
01	222752	Compass Magnetic	18
	235152	Generator Set Gasoline Engine 1.5 KW 28V DC	1
	435965	Rifle 7.62 Semi Auto Lt Barrel	19
	401088	Bayonet Knife w/Scabbard 7.62mm	24
	457110	Trailer Amph Cargo ¼ Ton, 2W	1
	461790	Truck Utility ¼ Ton, 4x4	1
	563450	Tableware Outfit Field 14 Comp	2
	575970	Typewriter Ptbl, Upper & Lower Case	3
	563613	Parachute Personnel Back Pack 28 Ft dia	6
	500740	Add-Sub Machine Hand 8 Digit 10 Key	1
	522488	Clock Message Center	1
	605485	Beacon Set Radio AN/GRN-6	1
		Generator Set Gas Trailer Mounted PU456	1
	697839	Wind Measuring Equipment Set AN/PMQ-3	1
	712730	Computer Air Navigation Dead Reckoning MB-4	3
	763200	Plotter Aircraft Scale 1/500,000 & 1/1,000,000	3
	784040	Tool Kit Aircraft Gen Mech	3
	700055	Aeroplane Observation	3
03	417125	Gun Machine 7.62 Lt Wt GP	24
	429280	Pistol Auto Caliber .45	24
	401088	Bayonet Knife w/Scabbard 7.62mm	24
04	132600	Respirator Air Filtering Paint	1

Par	Line	Description	No.
04	435965	Rifle 7.62 Semi Auto Lt Barrel	15
	401088	Bayonet Knife w/Scabbard 7.62mm	15
	453995	Tool Kit Small Arms Repairman	4
	457220	Trailer Cargo 1½ Ton, 2W	2
	460110	Truck Cargo 2½ T . 6x6 LWB	2
	461790	Truck Utility ¼ Ton, 4x4	1
	569151	Tool Kit Automotive Maintenance	2
05	435965	Rifle 7.62 Semi Auto Lt Barrel	5
	401088	Bayonet Knife w/Scabbard 7.62	5
	784040	Tool Kit Aircraft Mechanic General	5
06	235152	Generator Set Gas Eng 1.5 KW 28V DC	1
	435965	Rifle 7.62 Semi Auto Lt Barrel	4
	401088	Bayonet Knife w/Scabbard 7.62mm	4
	457190	Trailer Cargo 3/4 Ton, 2W	1
	460050	Truck Cargo 3/4 Ton 4x4	1
	689614	Tool Kit Radio Repairman TK-115 ( ) /G	1
		Radio Set AN/GRC-46 Mounted in 3/4 Ton Shelter	1
	603250	Antenna Group RC 292	1

JUSTIFICATIONS FOR RECOMMENDED EQUIPMENT ADDITIONS TO TOE 1-77E

Compass Magnetic. Required to provide one compass per assigned aircraft for use as a direction finding instrument in the event of a forced landing.

Respirator Air Filtering Paint Spray. Required to provide protection for mechanics, crew chiefs or drivers from airborne paint particles when spot painting vehicles or aircraft with an air spray gun.

Generator Set, Gas Engine, 1.5 KW 28V DC. Required to provide an auxilliary source of electrical power for vehicular mounted radios required to operate in stationary locations for extended periods of time.

Gun, Machine 7.62 LT WR GP. Required for use by helicopter crew members acting as door gunners in a suppressive fire role.

Pistol, Caliber .45. Required for issue to officers and warrant officer aviators as their basic weapon.

Rifle, 7.62 Semi-Automatic Lt Barrel. Required for issue to enlisted men as their basic weapon.

Bayonet Knife W/Scabbard 7.62mm. Required for issue to personnel armed with caliber .45 pistol or 7.62mm rifle. (Survival knife may be issued in lieu of a bayonet to personnel armed with a caliber .45 pistol.)

Tool Kit Small Arms Repairman. Required for issue one per armorer and small arms repairman for maintenance and repair of the M-6 and XM-3 armament systems and company individual weapons.

Trailer, Cargo 1½ Ton 2W. Required to provide adequate ammunition resupply and transportation within the company.

Truck, Cargo 2½ Ton 6x6 LWB. Required to provide adequate ammunition resupply and transportation within the company.

Truck, Utility ¼ Ton 4x4. Required to provide ground transportation for the company operations officer and for the service platoon commander. This vehicle augments the authorized trucks 3/4 ton, 4x4, which must remain in a fixed position during sustained operations.

Trailer, Amphibious Cargo ¼ Ton 2W. Required to provide transportation for individual and section equipment of the operations officer, assistant operations officer, service platoon commander and technical inspector.

Truck, Cargo 3/4 Ton 4x4. Required to transport the shelter mounted AN/GRC 4[illegible] required to maintain radio contact with supported units and higher headquarters.

Tableware Outfit, Field, 14 Components. Required to provide mess utensils for the augmentation of 29 officers and warrant officers recommended and the 3 officers normally attached.

Tool Kit Automotive. Required to provide adequate automotive mechanic tool kits for the recommended augmentation to the company wheeled vehicle mechanics.

Typewriter Portable, Upper and Lower Case. Required for the use of the recommended clerk typists and supply clerk augmentation.

Parachute, Personnel, Back Pack, 28-Foot Diameter. Required to provide one parachute per seat for use in the fixed-wing observation aircraft recommended for inclusion in the company TOE.

Adding Machine, Hand, Addition and Subtraction, 8-Digit, 10-Key. Required to provide for rapid, accurate computation of flight time totals, passenger totals and cargo weight totals by the company operations section.

Clock Message Center. Required to provide a portable and accurate time reference for flight plans and operational events within the company operations section.

Tool Kit Radio Repairman - TK-115. Required to provide a tool kit for the additional radio repairman MOS 311.10 recommended.

Radio Set AN/GRC-46 in 3/4 Ton Shelter. Required to provide the company with a reliable and rapid means of communication with supported units and higher headquarters over greater distances than provided by FM communication systems.

Antenna Group RC 292. Required for use with the AN/GRC-46.

Beacon, Set Radio AN/GRN-6. Required to provide a navigational homer and approach facility for company aircraft during periods of reduced visibility. This beacon is compatible with the automatic direction finding equipment aboard the company aircraft.

Generator Set, Gasoline Engine, Trailer-Mounted, PU456. Required to provide the electrical power source for the beacon set, radio AN/GRN-6.

Wind Measuring Equipment Set AN/PMQ-3. Required to provide the company operations section with wind direction and velocity measuring equipment for operation of unit airfield.

Computer, Air Navigation, Dead Reckoning, MB-4. Required to provide equipment for basic navigational computation for three observation aircraft.

Plotter Aircraft Scale 1/500,000, 1/1,000,000. Required to provide distance

and direction measuring equipment for three observation aircraft.

Tool Kit Aircraft Mechanic General. Required to provide tool kits for the three observation aircraft crew chiefs, two senior helicopter mechanics, one airplane mechanic and two helicopter mechanic helpers.

Aeroplane Observation. Required to provide the company with a reconnaissance and observation capability with extended range and the capability to vector and control airmobile elements for extended periods of time.

JUSTIFICATIONS FOR RECOMMENDED PERSONNEL ADDITIONS TO TOE 1-77E

Intelligence Officer, MOS 1981, Lt. Required for the company to provide a complete intelligence briefing and debriefing to aviators for each mission.

Assistant Flight Operations Officer, MOS 1982, Lt. Required to provide adequate supervision of flight operations activities on a 24-hour basis. The additional workload of company planning for airmobile operations including reconnaissance for staging and landing areas requires the addition of an assistant flight operations officer.

Three Fixed-wing aviators, MOS 1980, Lt. Required to operate three observation aircraft used in aerial reconnaissance for landing zones, coordination during airmobile operations, radio relay between ground stations, selection of targets, adjustment of artillery fire, and courier missions between fixed installations.

Twenty-four Rotary Wing Aviators, MOS 062B0, WO. Required to provide two rated aviators in each of the 24 helicopters assigned to the company. This authority should be contained in the TOE and not as an augmentation.

Intelligence Sgt, MOS 113.70, E-7. Required to assist the intelligence officer by maintaining intelligence files, order of battle, and intelligence map. He conducts intelligence briefings and debriefings in the absence of the intelligence officer, and assists in preparation of intelligence reports and photo interpretation.

Personnel Staff NCO, MOS 716.60 E-6. Required to supervise the personnel actions for company personnel. In the separate company, the personnel function normally accomplished by battalion must be done within the company.

Airfield Control Section Chief, MOS 401.60, E-6. Required to supervise the airfield control section when the company operates a base airfield. This section controls arrivals and departures, and acts as a flight-following agency for company aircraft operating in the company area of responsibility.

Senior Landing Control Operator, MOS 901.20, E-5. Required to supervise the landing control party of the airfield control section. The landing control party controls low visibility approaches and departures and is responsible for the operation and installation of the company navigational and approach aids.

Senior Tower Control Tower Operator, MOS 901.10, E-5. Required to provide control and advisory service to arriving and departing aircraft.

First Cook, MOS 941.10, E-5. Required to ensure sufficient cooks when the company is augmented and has attachments.

Armorer, MOS 411.10, E-5. Required to supervise unit maintenance and repair of small arms.

Three Crew Chiefs, MOS 671.20, E-5. Required as crew chiefs for the observation aircraft recommended as augmentation to the company. They perform unit-level maintenance on assigned aircraft and assist in the performance of higher echelons of maintenance.

Three Landing Control Operators, MOS 901.20, E-4. Required to provide the company with the capability to operate during low visibility conditions. They operate and maintain company navigational and approach aids.

Control Tower Operator, MOS 901.10, E-4. Required to provide control and advisory service to arriving and departing aircraft.

Two Clerk-Typists, MOS 711.20, E-4. Required to perform the additional workload in personnel and company administration when the company is augmented and has attachments.

Supply Clerk, MOS 760.00, E-3. Required to perform the additional workload in unit supply when the company is augmented and has attachments.

Precision Power Specialist, MOS 351.20, E-4. Required to maintain and supervise the operation of the generators authorized the unit. Constant and proper voltages and reliable power are required for operation of company electronic equipment.

Senior Helicopter Armaments Specialist, MOS 427.60, E-5. Required to supervise the maintenance and repair of helicopter armament systems authorized the company.

Three Helicopter Armament Specialists, MOS 427.10, E-4. Required to perform operational maintenance and repair on the helicopter armament systems authorized the company.

Three Ammunition Storage Specialists, MOS 411.10, E-4. Required to maintain records on unit ammunition, to store, issue, and draw ammunition for the unit, and to act as truck drivers.

Wheeled Vehicle Mechanic, MOS 631.10, E-4. Required to provide an additional vehicle maintenance workload capability when the company is augmented and has attachments.

Engineer Equipment Repairman, MOS 624.10, E-4. Required to supervise and perform unit level maintenance and repair of engineer equipment authorized the company.

Wheeled Vehicle Mechanics Helper, MOS 630.00, E-3. Required to provide additional vehicle maintenance workload capability when the company is augmented and has attachments.

Three Ammunition Handlers, MOS 410.00, E-3. Required to provide ammunition handling personnel for the storage, preparation for issue, drawing, and issuing of ammunition.

Light-Truck Driver, MOS 710.00, E-3. Required as the driver of the additional 1/4 ton 4 x 4 vehicle recommended as augmentation for the service platoon.

Senior Helicopter Mechanic, MOS 675.20, E-5. Required to perform the additional aircraft maintenance workload experienced in operations as a separate company.

Airplane Mechanic, MOS 671.10, E-4. Required to augment the unit capability to maintain the three additional observation aircraft recommended.

Helicopter Mechanics Helper, MOS 670.00, E-3. Required to perform the additional aircraft maintenance workload experienced in the operation of a separate company.

Radio Mechanic, MOS 311.10, E-4. Required to provide for additional maintenance workload on radio equipment recommended for separate company operation.

Three Radio Teletype Operators, MOS 053.10, E-4. Required to provide a 24-hour radio teletype capability using the recommended AN/GRC-46 for communication with supported units and higher headquarters.

(U) ANNEX G

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