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SHOULD THE INFANTRY DIVISION HAVE SUFFICIENT
ORGANIC TACTICAL TRANSPORT AIRCRAFT TO PERFORM
THE BATTLEFIELD AIRLIFT OF A RIFLE COMPANY?

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PREFACE

Appreciation is expressed to the Air Mobility Department of the United States Army Infantry School, and the United States Army Infantry School Library staff, for their assistance in securing information for the preparation of this monograph.

The point of view expressed in this paper is that of the author, and not necessarily that of the United States Army Infantry School or the United States Army.

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INTRODUCTION

This discussion is an analysis of whether the Infantry Division should have sufficient organic tactical transport aircraft to perform the battlefield airlift of a rifle company. Before any item of equipment becomes organic to a unit, there should be a requirement for this equipment, and it should be utilized efficiently in the accomplishment of the unit's mission.

At present, the ROCID Infantry Division has as organic equipment fourteen transport aircraft. These include six utility airplanes and eight utility helicopters, which have the capability of airlifting simultaneously approximately a platoon and a half of fully equipped troops.

In this monograph, I have tried to show the reader something of the history, tactical employment, advantages, disadvantages, and the feelings of some commanders on the necessity for tactical transport aircraft within the Infantry Division. It will be noted that I have only touched upon the highlights of these subjects, for to go into greater detail would require far more time and space than the scope of a monograph would permit. However, I feel that some knowledge of these points is necessary if the reader is to comprehend fully the subject of this paper and the conclusions drawn herein.

As far as types of aircraft are concerned, the discussion in this monograph is limited to transport helicopters.

The helicopter does not have the speed, radius of action or economy of operation possessed by fixed-wing aircraft. However, it has an operational advantage over fixed-wing aircraft because

of its ability to land and take off from unimproved landing sites only slightly larger than the size of the helicopter itself. These are the types of landing sites that normally will be available within the division's area of operations.

The transport helicopters presently operational and organic to Army units are the Sikorsky H-19, H-34 and H-37, and the Vertol H-21. (See ANNEXES A, B, C and D.)

DISCUSSION

The ROCID Infantry Division has the capability of fighting an atomic or a non-atomic war. Its mission, in either case, is to destroy the enemy by fire, maneuver and close combat; or to repel his assault by fire, maneuver and close combat. (10:1)

One of the key elements of the Infantry Division's mission is maneuver. Maneuver is defined by Webster as the performance of a movement in military tactics to obtain an advantage in attack or defense.

A major consideration in any future conflict will be the ability of the Infantry Division to maneuver about the battle area harmoniously and rapidly. "Nearly a century ago, the veteran United States Cavalry General, Nathan Bedford Forrest, gave his simple and forthright formula for winning battles--- 'Git thar fustest with the mostest.' In General Forrest's day, they key to speed was the horse; today it is airborne horsepower." (7:84)

American infantry soldiers during World War I marched into combat at a speed of two and one half miles per hour. World War II found the infantry soldiers riding at a rate of twenty-five miles per hour. At the outbreak of the Korean conflict, the infantry soldiers were still moving at a rate of twenty-five miles per hour, and sometimes slower. In any future conflicts, the infantryman will fly into battle at speeds varying from fifty to one hundred and fifty miles per hour. (1:31)

General Gavin, commenting on tomorrow's battlefield, said, "The battle zone must be as deep as the enemy can travel with the

fuel tanks of his armor full and rolling immediately after the atomic blast. We are trying to discard the old concepts of linear control of the battlefield for one of area control---a problem of controlled dispersion. Divisional fronts will be doubled in length, and how deep no one is yet certain. We'll have divisions made up of battle groups of two or three thousand men, isolated and dispersed, yet controlled. For every airplane that goes into combat today, there may be fifty behind doing logistical work, hauling fuel and lubricants, men or supplies. Air mobility is the key to battle capability. Tactically, we must keep isolated units alive over long periods. Strategically, we must be able to deliver power to the zone of battle quickly. Twenty thousand planes for the Army might indeed not be too many. Peace can be kept by using our technology to get our forces precisely where we want them." (17:21)

In visualizing the atomic battlefield of the future, self-contained units will be dispersed over large areas with wide frontages and in great depth. To avoid presenting a lucrative atomic target, due to the open nature of the atomic battlefield, speed in movement of troops and supplies will be of primary importance. Units may or may not have land lines of communication. Fallout from the employment of atomic weapons or contamination from chemical, biological or radiological agents would seriously affect a unit's land lines of communication. Those units whose land communications are affected would have to be moved and supplied by air. The units which have uncontaminated land lines of communication may be moved and supplied by air or surface means, as the situation warrants. (1:31)

In the past, the movement of troops and equipment has, for the most part, been confined to surface means. However, the advent of tactical atomic weapons has brought about changes in tactics and operational techniques. Therefore, dispersion,

mobility and flexibility are of the utmost importance to the present-day unit commander. A commander must be capable of massing his troops to seize objectives; and when the objectives have been taken, he must be able to disperse his troops rapidly. (9:39)

A commander needs mobility and flexibility within his unit. Parachute drops during World War II provided for the rapid landing of men and material on strategic locations. However, there was no returning agent. In the Korean War, the helicopter provided the answer to increased mobility, in that it could land troops and materials, with the added advantage of being able to retrieve them, if necessary.

The helicopter, as a means of transportation, had a very slow beginning. In the 15th century, Leonardo DaVinci conceived and drew sketches of helicopter type aircraft. In those days, however, science was still in a primitive state: there were inadequate materials and inadequate propulsion for such an aircraft. Therefore, DaVinci's conception of the helicopter never got beyond the sketch stage.

"Prior to the Korean conflict, the helicopter was considered just another liaison aircraft, to be employed on the same missions and in the same manner as the 'cub' of World War II." (18:99)

In his article, Wings for Infantry, Colonel J. J. Tolson stated, "The goal [of tactical transport aircraft] is to provide the infantry commander at any level with transport aviation support for the accomplishment of any type of mission, and to provide the same command relationship as that which exists for artillery and tank units in support of infantry operations." (16:21)

Taking into consideration the transport aviation available to the present-day Infantry Division commander, it is apparent that the helicopter best fulfills his need for speed and flexibility in movement about the division sector of the battle area, because of its inherent vertical takeoff and landing capabilities.

The mobility gained through the use of helicopters can improve the flexibility and striking power of a force, even in situations where only conventional weapons are employed. (5:48)

In the Fall of 1951, vertical envelopment by helicopters became a reality when the United States Marines airlifted a reinforced rifle company to the top of Hill 884 in Korea. This maneuver, called "Operation Summit," began on the 18th of September, when Transport Helicopter Squadron 161 received orders to land the 1st Marine Division's Reconnaissance Company, with supplies, on Hill 884. The Reconnaissance Company was to relieve elements of the 1st Republic of Korea Corps.

Hill 884's terrain was rough and wooded, with steep slopes. No roads or clearings large enough for a helicopter to land existed; so the Marines lowered a shore party on ropes to clear two landing sites. The shore party was lowered at 1030 hours on the 20th of September, and by 1352 hours the same day, the entire company, with approximately 15,773 pounds of supplies, had been landed. This operation will go down in history as the first large movement of troops by helicopter during a war. (10:54 and 18:99)

If Infantry Division commanders have sufficient transport helicopters during future military operations, whether atomic or non-atomic, they can employ them in tactical maneuvers to gain offensive or defensive advantages. For example, a division during a movement to contact could employ air-landed troops to seize critical terrain along the division's flanks, or to act as security between the advance guard and the covering force. They may also be employed with the advance guard or covering force. Furthermore, helicopter-borne troops can conduct a continuous reconnaissance for landing sites during a movement to contact, so that if the flank guards or the covering force become engaged by the enemy, they can be reinforced rapidly by an air-landed force. (ANNEX E)

In a meeting engagement, helicopters can land troops on

critical terrain features on the enemy's flanks or rear. Thus, a commander can position his troops for a rear or a flank attack on the enemy's main body; or the enemy can be attacked on one flank, troops can be withdrawn and then used to hit the enemy from another direction. Furthermore, helicopters can be employed to mass the division's dispersed troops, or to reinforce those of its forces which are engaged. (14:56 and ANNEX F)

With the advent of the helicopter, the commander no longer needs to be subjected to delays caused by natural or man-made obstacles. (1:31) For example, in the crossing of a river line, helicopter-borne reconnaissance forces can be employed advantageously to determine enemy strength, disposition and crossing sites. Helicopter-borne forces can then seize a bridgehead before the enemy is able to prepare his defense. Limited objectives may be seized in order to deceive the enemy as to the true location of the main crossing sites. A rapid build-up of forces and equipment within the bridgehead can be accomplished or objectives can be seized in the enemy's rear to prevent the enemy from reinforcing or withdrawing from the bridgehead. (14:59 and ANNEX G)

The 6th and 13th Transportation Helicopter Companies, assigned to the 8th United States Army during the Korean conflict, participated in numerous training exercises employing helicopters. One such exercise was the relief of a Republic of Korea infantry company. The 6th Transportation Company accomplished the relief of an infantry company in reserve on 3 May 1953. A simulated MLR and battalion reserve area were used. The Republic of Korea's 9th Company was to relieve the 1st Company of the 21st Infantry, 8th Republic of Korea Division. The relief mission was flown by nine helicopters, making seventy-one round trips. They moved a total of four hundred and twenty troops and forty-two hundred pounds of class V supplies. The total time required to complete the mission was eight hours and ten minutes. (8:39)

In the mobile defense, due to the extended distances between units, helicopters can be employed to a great advantage. The mobility furnished by the helicopter will enable a division commander to mass his dispersed forces for offensive combat, and to support his units in defensive combat. (14:59 and ANNEX H)

Counterattack planning is a very important part of defensive planning. A commander with sufficient transport helicopters available can keep an air-landed reserve, and the mobility provided by the helicopter will enable him to keep a much smaller reserve than usual. This highly mobile reserve can be employed in conjunction with atomic weapons in reducing enemy penetrations. If the enemy makes an airborne assault, helicopter-borne reserves can destroy the assaulting forces while they are still in the airhead. Another possible use of helicopters in the counterattack, is to shift fire support units to more favorable positions. (14:62 and ANNEX I)

On the 15th of May 1953, our 6th Transportation Company, using helicopters, laterally moved elements of the 69th Republic of Korea Field Artillery Battalion from Kungdon to Chongjaet'o, Korea. The 69th was repositioned in order to provide better fire support for the 62nd Republic of Korea Infantry. Nine helicopters, making fifty-one round trips, lifted 192 troops and forty-eight hundred pounds of class V supplies. It took the nine helicopters a total of seventeen hours flying time to complete the mission. (8:41)

Helicopters on the battlefield can be a decisive asset to the infantry commander. There are, however, some definite disadvantages to the use of helicopters. In trying to determine whether the Infantry Division should have sufficient organic tactical transport aircraft to perform the battlefield airlift of a rifle company, it would be helpful to compare the advantages of helicopters with their disadvantages.

The principal advantages of using helicopters to transport troops and equipment in the Infantry Division are as follows:

1. Helicopters can land and take off without the benefit of prepared, preplanned landing sites, which under battle conditions are not likely to exist.

2. Helicopters have the ability to hover, thus enabling troops and cargo to be loaded and unloaded without the helicopter's having to land. Cargo can be slung externally, thus enabling cargo to be delivered to areas into which landings are not feasible.

3. Helicopters have the ability to operate at speeds varying from 0 to 150 knots.

4. For low altitude operations, they can fly safely and efficiently, using slopes, valleys and vegetation for cover and concealment.

5. Shuttling of personnel and equipment is rapid, due to the short turn-around time.

6. Helicopters in tactical formation can land troops in objective areas, thus maintaining unit integrity.

7. Marginal weather conditions (300 foot ceiling and 1 mile visibility) do not curtail the operations of helicopters, because they have the ability to decelerate, fly and land at very low air-speeds.

8. The autorotative feature of the helicopter, which permits landing without power, is useful. However, sufficient forward speed is a must. (14:8 and 18:1)

The principal disadvantages of using helicopters to transport troops and equipment in the Infantry Division are as follows:

1. The helicopter's radius of action is limited, due to its high fuel consumption rate.

2. The helicopter has a relatively slow speed, as compared with fixed-wing aircraft.

3. Another handicap in the operation of the helicopter is pilot fatigue. The helicopter's controls are very complex, and its inherent instability requires the pilot's continuous attention. Helicopter controls differ from those of fixed-wing aircraft in that the pilot has three controls to manipulate instead of two.

4. Flight controls in the helicopter are adversely affected if the loads are not properly distributed. The center of gravity must be kept within specific limits.

5. Inclement weather may curtail or limit helicopter use, though they are not as adversely affected as fixed-wing aircraft.

6. The use of helicopters must be limited in operations where secrecy is of paramount importance, because engine and rotor noise may draw considerable attention to their presence.

7. Helicopter maintenance requirements are considerably greater than those of fixed-wing aircraft. Maintenance problems are a primary consideration when helicopters are employed. "A helicopter unit has a deadline of about 33 1/3 percent during continuous operations." (13:2) Furthermore, they require skilled maintenance personnel and an array of specialized equipment to perform the necessary maintenance. Commanders throughout the Korean War were constantly harassed by the problem of having enough flyable helicopters available. Helicopter utilization will therefore have to be restricted if the lack of trained personnel that existed in Korea is not corrected. (8:62)

The three general principles of transport helicopter employment are: freedom of utilization, economy of utilization and ready availability.

Commanders at all echelons should know how to employ transport helicopters properly. Combat unit commanders should have freedom to employ them in a manner which will enable them to accomplish their missions.

Commanders must keep in mind the high unit cost and the great

complexity of helicopters. Today, they are classified as special or emergency equipment, rather than standard equipment. When utilized, helicopters should be used within their capabilities.

Helicopters, in order to be of maximum value to a commander, must be readily available. Transport helicopters must be located well forward in the combat zone. "This is expected to be in the division sector of the combat zone." (13:10) At present, tactical transport units are assigned to the field army or separate corps.

The present operational concept is that units having requirements for transport helicopters are to submit their requests through normal channels to the headquarters to which the helicopters are assigned or attached. The request is then either approved or disapproved, based on availability of aircraft, priorities, recommended courses of action or other information. (13:10)

The Infantry Division has fifty organic aircraft, which include eight utility helicopters with a lift capability of one fully equipped rifle platoon, or approximately 4,400 pounds of supplies and equipment. These utility helicopters are the only transport helicopters immediately available to the Infantry Division commander. Thus, the Infantry Division does not have the capability of ~~shut-~~^{lifting} ~~ting~~ an entire rifle company simultaneously with its present utility helicopters. However, "a company lift is considered essential, as this is the smallest self-sustaining combat organization available." (4:Incl 4, App 2, Annx B)

If the Infantry Division is to have the capability of airlifting a rifle company simultaneously, it will take at least four times the present number of utility helicopters, or 20 light cargo helicopters of the H-34 or H-21 class. Twenty H-34s or H-21s are capable of lifting 252 fully equipped troops, 31.5 tons of cargo or 168 litter patients. (14:7)

The Maintenance Section of the Service Platoon in the Infantry Division Aviation Company, is responsible for the organizational

maintenance of the division aircraft. The Maintenance Section is composed of 1 warrant officer and 28 enlisted men. In order for the Maintenance^{section} to perform maintenance on twenty additional helicopters, its organizational maintenance capability would have to be expanded. This would add to the logistical support needed within the division.

In 1957, the Combat Developments Office of the United States Army Aviation School at Fort Rucker, Alabama, conducted a "Study of Division Aviation Organization." The purpose of this study was "to determine the Army aviation organizational structure best suited to support the combined arms of the division, so as to exploit to the maximum the inherent capabilities of the Army aircraft." (4:1)

Letters were sent to all divisions within the continental United States, with certain questions to be answered. The question pertaining to the subject of this monograph was, "Do you feel your division should have sufficient utility and/or cargo type aircraft to provide an infantry company with tactical lift capability?" Five of the six divisions that replied gave an affirmative answer to the question. (4: Annx B, 3)

Some individual division replies are as follows:

1. The 1st Infantry Division stated, "It is considered that each ROCID Division should have the organic capability to airlift one reinforced infantry company. This statement is based on the need for the rapid shift of units in the battle area, as visualized in the ROCID concept. Although the equipment of the present TOE allows for movement of companies by shuttle movements, it is believed that this type of movement will normally be impractical from a tactical point of view. In view of the above, it is recommended that the ROCID Division be provided with the same number of H-34 type helicopters that are included in the TOE of the ROTAD Division. This will provide the mobility required by giving the

division the organic means to airlift one rifle company at a time by air." (4:Incl 2, App 2, Annx B)

2. The 3rd Infantry Division stated, "Yes. Recommend cargo type, rather than utility, since the former can do everything the latter can do with fewer numbers. ROCID doctrine does not lend itself to mission type airlift; but instead, requires constant patrolling and resupply effort. Such capability should be organic." (4:Incl 3, App 2, Annx B)

3. The United States Army Infantry School, which was also questioned, answered, "The United States Army Infantry School states its position that helicopters should be organic to the division in sufficient numbers to lift simultaneously one reinforced infantry company, less vehicles and equipment heavier than a ½ ton truck, and considers this capability as a matter of high priority." (4: Annx E)

CONCLUSIONS

I have tried to show in this paper, that there is a continually growing need for added mobility within the Infantry Division, whether it is engaged in an atomic war or a non-atomic war.

Tactical atomic weapons have increased the division's requirement for dispersion, speed of movement and flexibility. The Infantry in future conflicts will have to move about rapidly so as not to present too lucrative an atomic target. Furthermore, it will be riding into combat in high speed ground vehicles and tactical transport aircraft.

In comparing the two types of tactical transport aircraft currently available in the Army (fixed-wing and helicopters), the transport helicopter seems best to suit the needs of the Infantry Division commander. The increased mobility gained by using transport helicopters will enable the division commander to disperse his units over wider areas so as not to present lucrative atomic targets. This increased mobility will also result in greater flexibility in the employment of the division.

Since the rifle company is the smallest self-sustaining combat unit in the Infantry Division, it is felt that sufficient tactical transport helicopters should be made organic to the Infantry Division to perform the simultaneous airlift of at least one rifle company.

Many tactical opportunities and situations that should be exploited to our advantage without delay, will appear on the division level, and the division commander should be able to take immediate advantage of them. Under the present concept for

procuring the necessary transport aircraft to move simultaneously a company of fully equipped combat troops, where the division commander must request these aircraft through channels from the field army or separate corps headquarters, rapid exploitation of these tactical opportunities hardly seems possible. The Infantry Division commander must therefore have a sufficient number of these tactical transport helicopters available at division level. This requires making them organic to the division.

The only real problem presented by having additional helicopters organic to the Infantry Division is the one of the increased logistical support that would be required for their maintenance. This problem can easily be overcome, however, by expanding the maintenance support units responsible for these aircraft. Furthermore, the increased efficiency with which these organic tactical helicopters would enable the Infantry Division to accomplish its mission, far outweighs the disadvantage of increased maintenance and logistical support.

ANNEX A - SIKORSKY H-19D (12:313)



Capable of Transporting -

Troops: 10

Litter Patients: 6

Normal Cargo Load at Normal Cruise: 555 pounds

Crew: 2

Cruising Speed: 81 knots

Range: 327 nautical miles

Service Ceiling: 11,800 feet

ANNEX B - SIKORSKY H-34 (12:313)



Capable of Transporting -

Troops: 12
Litter Patients: 8
Normal Cargo Load: 2,290 pounds
Crew: 2
Cruising Speed: 90 knots
Range: 233 nautical miles
Service Ceiling: 8,900 feet

ANNEX C - SIKORSKY H-37 (12:313)



Capable of Transporting -

Troops: 23

Cargo Load: 6,000 pounds

Range: 120 nautical miles

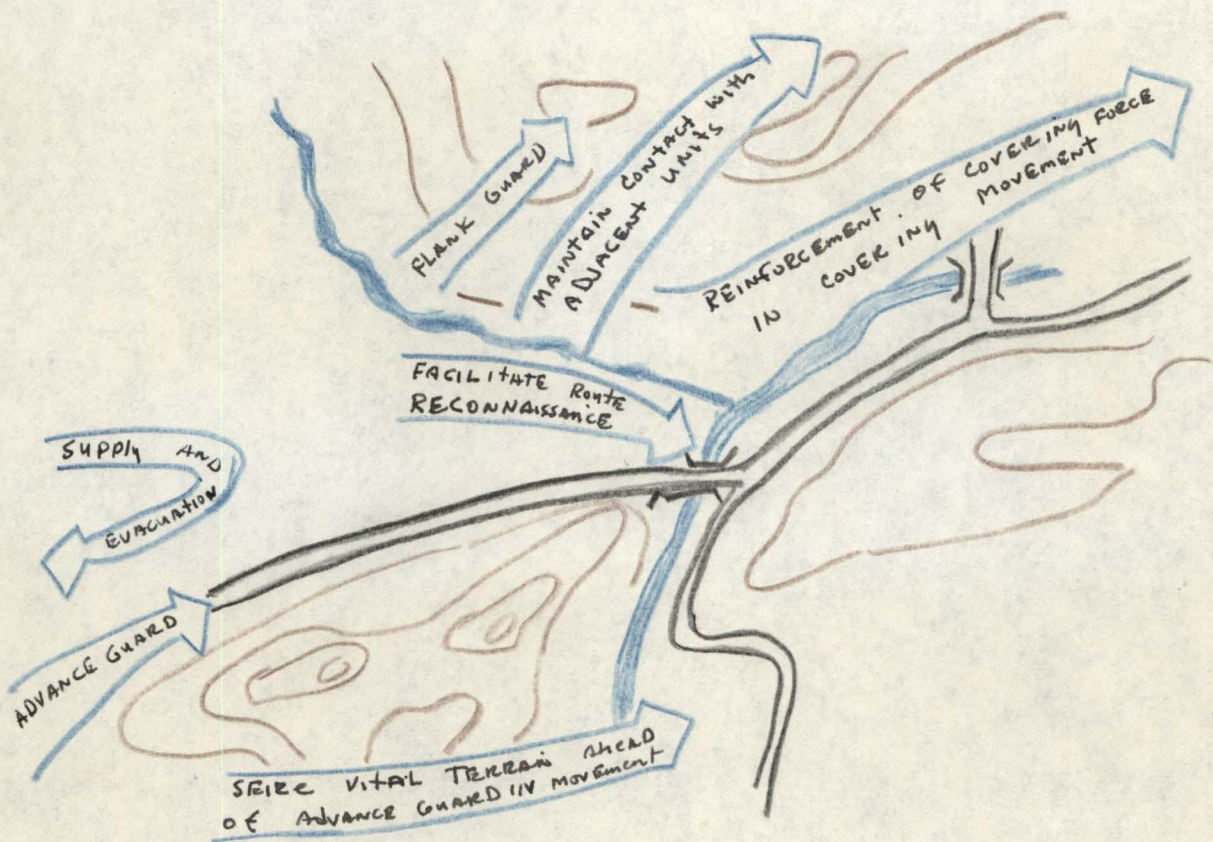
ANNEX D - VERTOL H-21C (12:313)



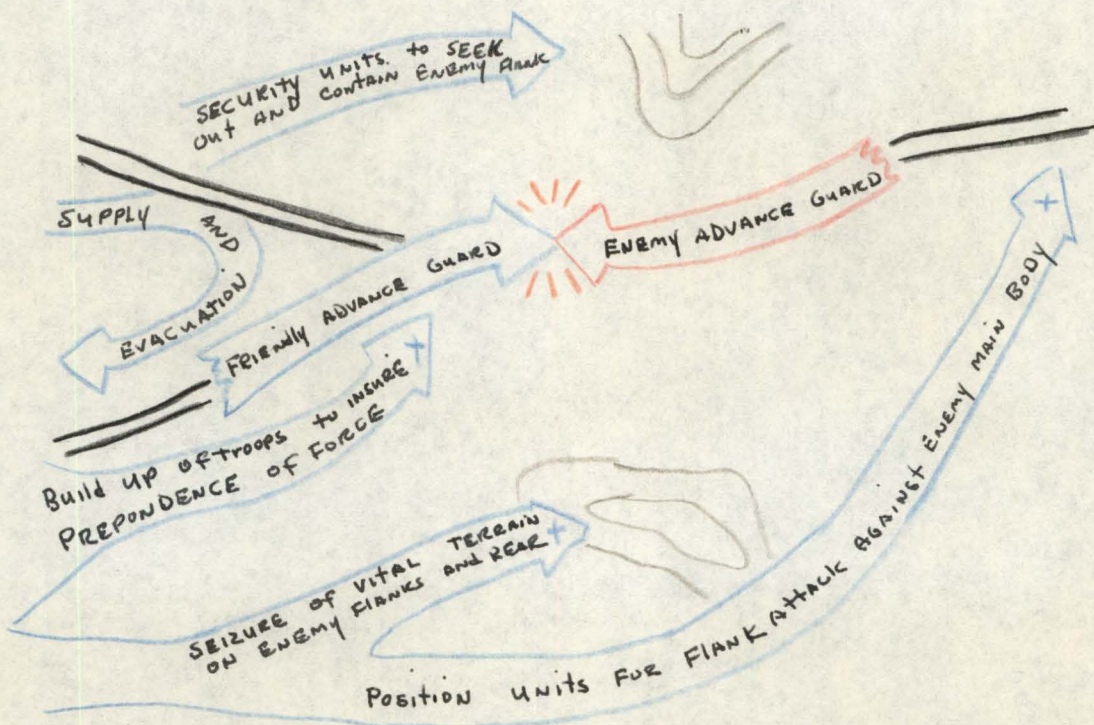
Capable of Transporting -

Troops: 20
Litter Patients: 12
Normal Cargo Load: 2,064 pounds
Crew: 2
Cruising Speed: 85 knots
Range: 293 nautical miles
Service Ceiling: 8,900 feet

ANNEX E - MOVEMENT TO CONTACT (14:56)

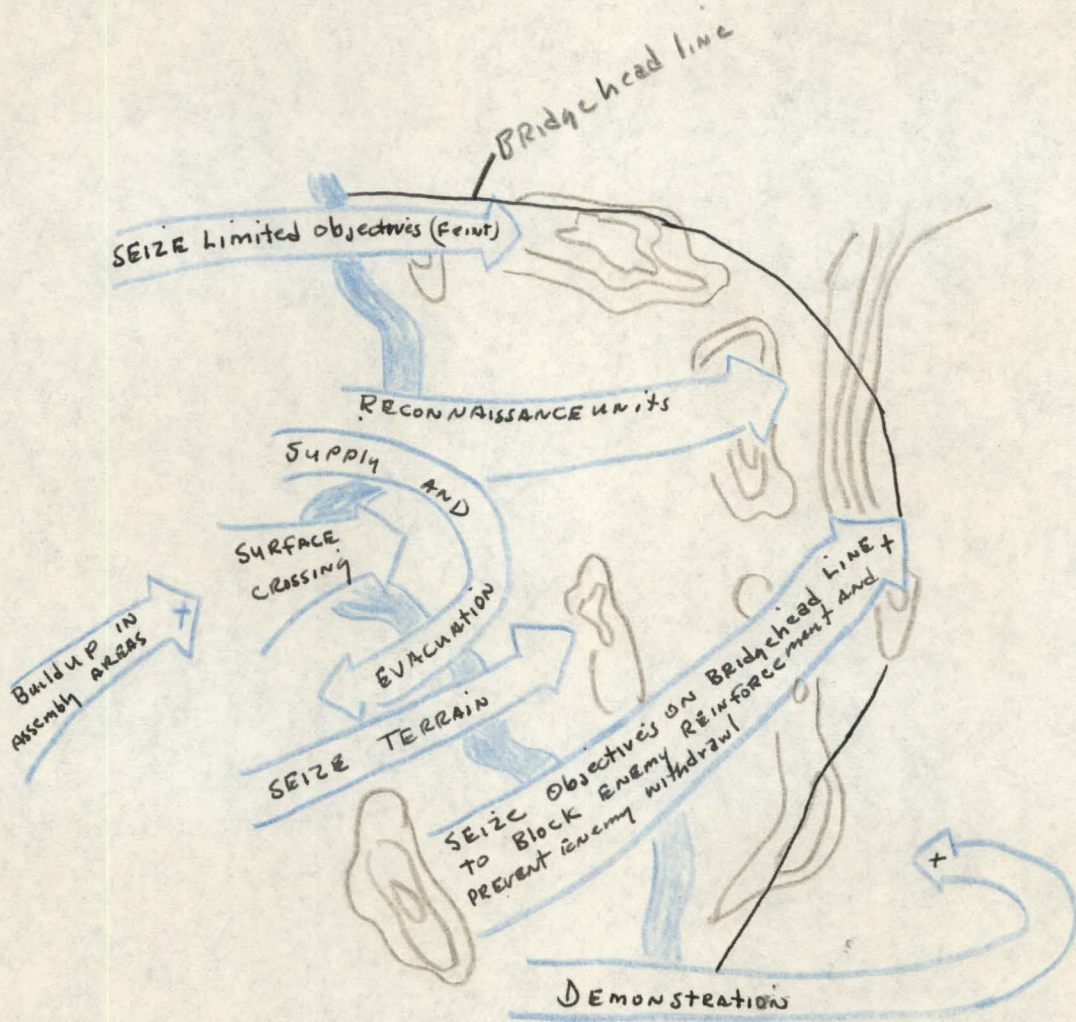


ANNEX F - MEETING ENGAGEMENT (14:57)

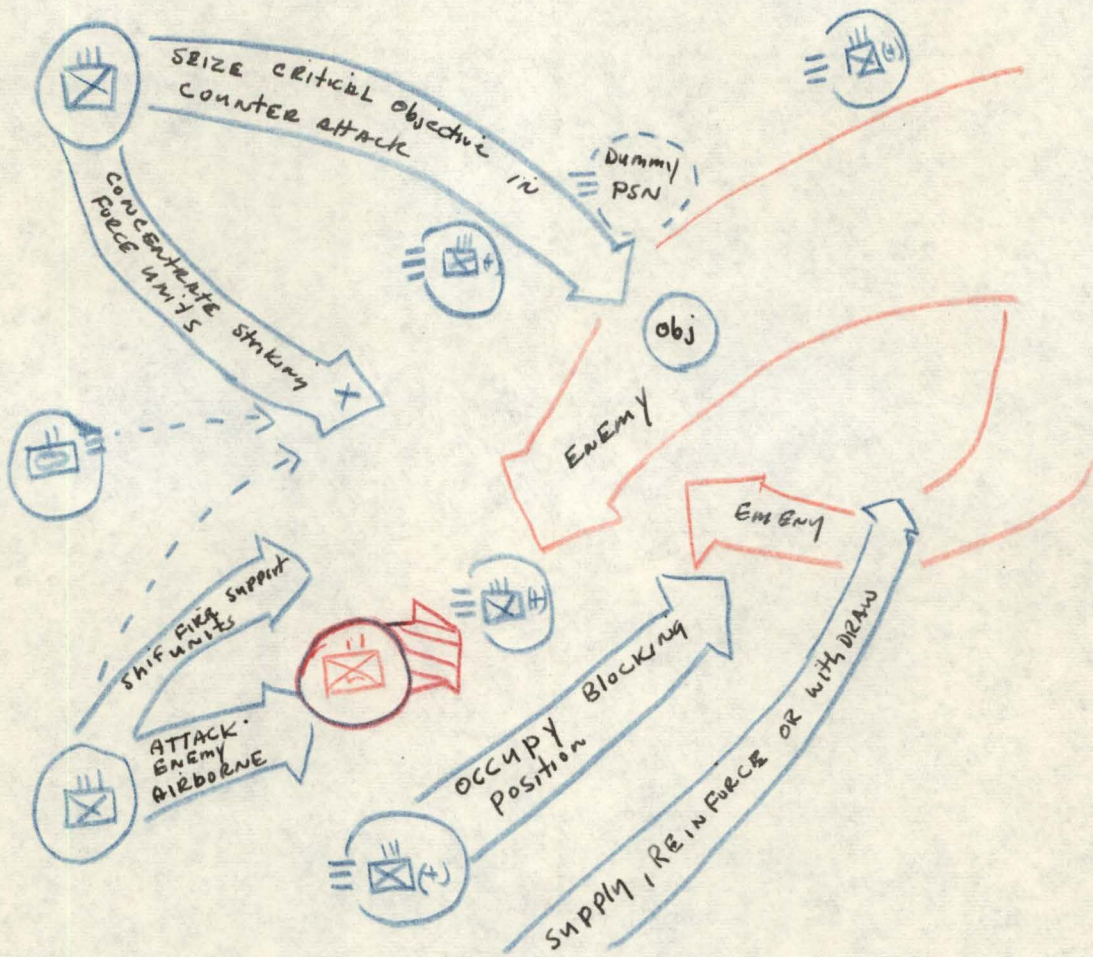


"Like cavalry forces in armies of the past, the transport helicopter in modern division tactics can extend the scope of operations of less mobile ground forces and recover our freedom of action on the battlefield." (13:12)

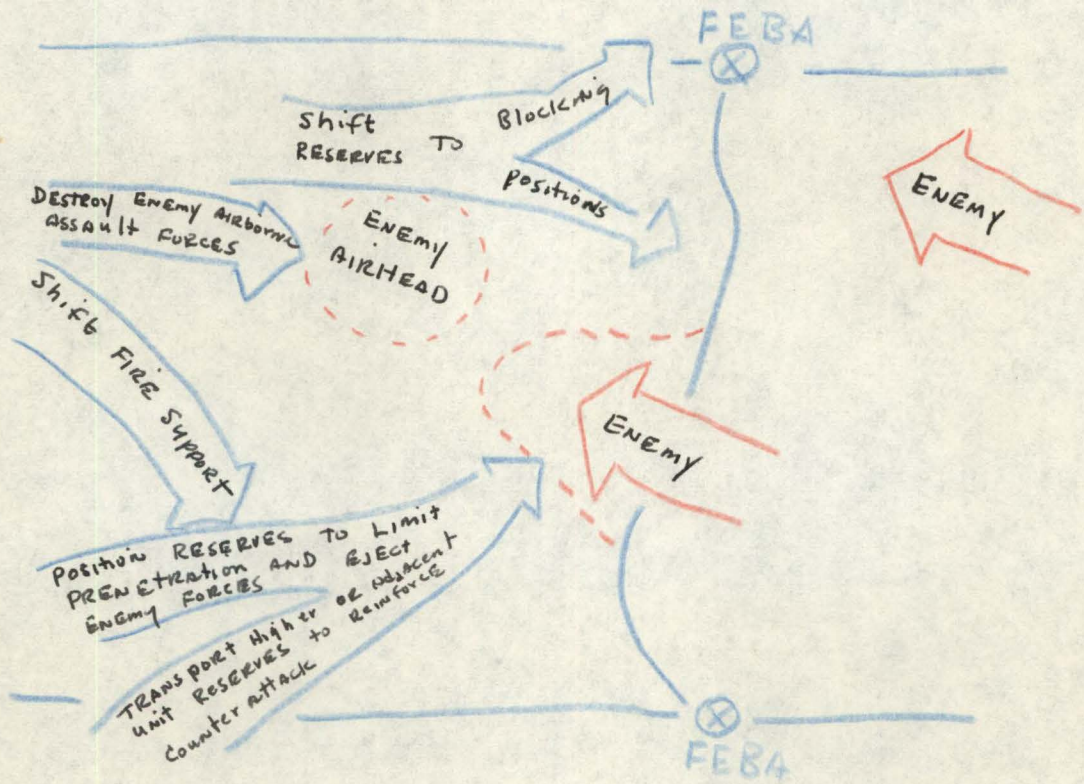
ANNEX G - ATTACK OF A RIVER LINE (14:60)



ANNEX H - MOBILE DEFENSE (14:62)



ANNEX I - COUNTERATTACK (14:64)



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