Appendix 3 to Section III -- Excerpts from quarterly reports of helicopter units assigned to the 45th Transportation Battalion.

This appendix consists of selected material extracted from quarterly reports entitled: "Evaluation of Helicopter Tactics and Techniques, ROG-6-J3 (T) (C)."

1. From: 93rd Transportation Company (Lt. Hel)(H-21)
   Date: 9 July 1962


   a. Successful contour flight depends to a great extent on good intelligence. For example: A mission involving shuttle troops from an outpost along a valley to a landing zone, on the first shuttle five of the ten helicopters participating were hit by small arms fire. On the second shuttle a different route 1,000 meters east proved free of enemy fire. It appears that contour flying can be highly successful in forested areas if helicopters will stay in the tops of the trees and avoid following cleared fields below the tree line, since these areas afford the enemy good fields of fire. Small arms fire is received along rivers or streams and from rice paddies and along trails. The most effective enemy fire occurs when the helicopters are flying along the tree-tops and inadvertently encounter a cleared field, thus exposing themselves 50 to 100 feet above the ground. The recent decision to obtain L-19 aircraft for vectoring the H-21's along their contour route from a very high altitude, should help us avoid this problem. There are several problems connected with a successful evaluation of contour flying in this area:

      (1) The insistence upon stateside standards of safety in RVN, especially the requirement that pilots will be charged with accidents, causes reluctance on the part of many pilots to get down in the trees as low as possible, for fear of washing out the gear on the H-21 (a major accident.)

   b. Suppressive Fire Capabilities:

      (1) Artillery: When employed, this unit stations a liaison officer with the FSGC to lift fires immediately prior to the airlandings. We have no evidence that use of artillery suppresses enemy fire at the helicopters. On the contrary, it appears to mark the landing zone. In recent operations we feel that absence of preparatory artillery fire is more effective.

      (2) The machine gun mounted on the helicopter is highly effective in suppressing ground fire, if the target is known, and if it is in the correct position beside the route of flight for the machine gun to bear upon it.

      (3) Escort aircraft flown by U.S. personnel are effective in suppressing ground fire both along the route of flight and in the landing zone. We have utilized these aircraft to strafe the landing zone immediately prior to our landing, and we feel this is highly effective. Because of their habit of flying far above us, and because of the language difficulties, and because we are required to mark a target with smoke before they will fire at it, we feel escort aircraft flown by NAP personnel are completely ineffective.

2. From: 33rd Transportation Company (Lt. Hel)(CH-21)
   Date: Period ending 30 June 1962

a. Contour flying.

(1) Conditions for advantageous use of contour flying.

(a) When distance from troop pick up area to LZ does not allow for minimum of 10 minutes flight at altitude.

(b) When range of known or suspected enemy automatic weapons cannot be circumnavigated in reaching the LZ.

(c) In areas where defilade from known or suspected enemy positions can be established.

(2) Disadvantages of contour flying.

(a) Increased difficulty for escort aircraft to give maximum protection.

(b) Increased vulnerability to small arms fire.

(c) Increased pilot fatigue.

(d) Reduced reaction time in the event of mechanical failure to safely land the aircraft.

(e) Intensification of rotor wash and ground turbulence.

d. Under present conditions, i.e., sporadic small arms fire and lightly organized resistance, the suppressive fire capabilities currently being employed is adequate. However, in the event of increased enemy capability the inherent vulnerability of helicopters of the current configuration will require greatly increased pre-landing preparation by fighter aircraft of the landing zones and increased enroute protection for the helicopters to satisfactorily accomplish their mission.

e. Rejected tactics and techniques.

(1) Landing troops on the objective rather than near the objective.

(2) Flying close formations to or into the LZ.

(3) Complicated or parade type formations enroute.

f. Accepted tactics and techniques.

(1) To utilize a staggered trail formation when controlling factors permit.

(2) To utilize an air speed approach where terrain and LZ permit.

(3) To utilize a hoist aircraft for crew and armament recovery during operations over jungle areas.

h. Lessons learned.

(1) That many tactical commanders and advisors are not aware of the capabilities and limitations of helicopters.
ACTIV-AN
Final Test Report — Armed helicopters

Appendix 3 to Section III — Excerpts from quarterly reports of helicopter units assigned to the 45th Transportation Battalion.

(continued)

(2) That most effective cover from F/W escort aircraft can be attained when they are flying from 1500 to 2500 feet altitude.

(3) That very close radio communications with a minimum of administrative calls results in optimum control on assaults.

(4) That refueling from barrels with hand pumps is too slow. This prevents compliance with ground commanders desire to get maximum number of troops into objective area in minimum amount of time.

(5) That contour flying can definitely be used to an advantage when employed under conditions as stated in para 6a(1).

3. From: 8th Transportation Company (Lt Hel)(CH-21)
Date: 9 July 1962

6. Evaluation of current U.S. doctrine for employment of helicopters:

a. Evaluation of contour flying: It is felt that this type of flying offers the best security for the movement of helicopters, over terrain other than mountains. Because of the nature of mountainous terrain and the ever present turbulence, it is necessary to fly a flight level of at least 500 feet above the terrain of the intended flight route. Although complete security cannot be achieved while in flight, contour flying offers a limited amount in that a ground observer has a minimum amount of time in which to bring a helicopter under fire. Contour flying over terrain heavy with vegetation not only limits a ground observer's visibility, but also his field of fire.

d. Evaluation of available suppressive fire capabilities, to include air cover and/or artillery: Because of the nature of guerrilla warfare, and the presence of civilian populace, it is not possible to distinguish friendly personnel from opposing forces. For this reason, indiscriminate suppressive fires are not feasible, and only coordinated close air support combined with heliborne operations is of value. By having air strikes delivered on the objective are prior to a heliborne assault, opposing forces are given warning of an impending operation. More effective air cover can be achieved by having the close air support aircraft accompany the helicopters into the objective area. The air cover should be directed to the target by the helicopter commander.

4. From: 57th Transportation Company (Lt Hel)(CH-21)
Date: 10 July 1962

6. Evaluation of current U.S. doctrine for employment of helicopters:

a. Evaluation of contour flying: Methods used and described in past"validity of Current U.S. Army Airmobile Doctrine" reports still appear to present the best solutions. We use altitude enroute, a rapid descent ten or fifteen miles from the objective, climbing as necessary to clear obstacles and maintaining normally around ten feet over open ground. Our primary purpose is to achieve surprise and shock action, which we are able to do to a great extent on the first trip, and to a lesser degree on the second trip over an alternate route. Subsequent flight over the same area at contour will normally result in ground fire. Even for multiple trips over the same general area, if the distance is short, contour is used to avoid climbing and letting down thru the critical altitudes up to 1000 feet. In this case the desire is to minimize the enemy's observation, and shorten the time he has to engage his target.
Appendix'3 to Section III — Excerpts from quarterly reports of helicopter units assigned to the 45th Transportation Battalion.

(continued)

Weather also dictates contour flight to avoid critical altitudes occasionally, and the need to conserve fuel used in loaded climb out is also a factor taken into consideration by the flight leader. Flight level over jungle presents another problem, and generally contour flight does not appear to be practical for the following reasons. First, it isn't necessary since the thick jungle gives the ground observer only fleeting glimpses of an aircraft at any altitude. It also diffuses the sound and makes the direction of approach difficult to determine. Secondly, the jungle also contains scattered openings around which weapons are most likely to be positioned. Flight at tree level puts the aircraft over these openings at a very vulnerable 100 feet. The third consideration is that a successful forced landing from tree top level would be extremely unlikely. Whereas from a few hundred feet the chances are very greatly improved. We are presently flying over jungle areas at around 1000 feet, or higher if possible again fuel and weather often dictates a lower altitude. We have in the past had two aircraft hit in the forward head which caused partial lack of control although these aircraft were landed without damage from contour level. It is quite possible that at a higher altitude control might have been completely lost and these aircraft destroyed. We have not been hit at altitude, but this thought also is considered in our planning to avoid intermediate altitudes. As we have mentioned in past reports, low level flights present an extremely difficult navigation and landing control problem. The most satisfactory solution has been the use of a control ship at altitude. We consistently utilize a fixed wing control ship for all tactical missions.

d. Evaluation of available suppressive fire capabilities, to include air cover and/or artillery: The communications problem mentioned in past reports have largely been eliminated with a resultant great improvement in air cover responsiveness. There is still a weak element in the F.M. system employed by the WAF L-19A's. The PRC-9 employed by the forward controller in the L-19 has largely been by passed during the enroute phase of the heliborne assault. Helicopter flight leaders may now call fire missions on targets, when being fired on, direct to fight cover if friendly troops still aboard. Again, as mentioned in the past, we still see the need for unit escort aircraft. The use of artillery fire as a suppressive fire means has been non-existent in the past, although on occasion it has been available on request.

5. From: 8th Transportation Company (Lt Hel)(CH-21)
Date: 3 October 1962


a. Evaluation of contour flying: Contour flying has been practiced by this unit on all missions performed over flat, rolling terrain and has encountered very few difficulties. Navigation into and out of landing zones was difficult until the assignment of the TL-190 fixed wing aircraft. The pilot of the TL-190 now directs the helicopters into and out of the landing zone. It is recommended that the same flight route not be utilized for return flights into the same area. Contour flying is not recommended when flying over mountaneous terrain due to the tremendous amount of turbulence, therefore this unit practices flying at altitudes of 2000 feet or above to avoid the turbulence and the effective range of small arms.
6. From: 93rd Transportation Company (Lt Hel)(CH-21)  
Date: 8 October 1962

6. a. Evaluation of contour flying. During this quarter the attitude of most pilots in this unit became firm. Until such time as the enemy obtained weapons capable of antiaircraft fire, all flights possible were made at maximum altitude practicable. Most experimenting with contour flying ceased. In several instances on the coastal plain final runs to an objective were made at contour levels, using a short duration only. There is general agreement that effective use of 50 caliber or larger antiaircraft weapons by the enemy would necessitate a reevaluation of the situation.

d. The only effective suppressive fire was provided by our own machine guns. When an aircraft was downed in a landing zone, for example, and heavy enemy fire was directed at the evacuating crew, other helicopters circling at low altitude provided the only protection, despite the supposed availability of air force type close support aircraft. However, only heroic disregard of personal safety by the flight crews involved made up for the awkward placement of the 30 caliber weapon aboard the H-21’s. Though inadequate at best, they saved the lives of the crew and passengers in several instances.

7. From: 57th Transportation Company (Lt Hel)(CH-21)  
Date: 10 October 1962


a. Evaluation of contour flying: Contour flying to the objective has proven to be the best method of obtaining surprise and shock action. This is particularly true of the first lift into the landing zone. If there are multiple landing zones at least one mile apart, the surprise is maintained during the entire heliborne phase by flying contour on all lifts. In addition to the element of surprise, flying at contour allows the aircraft to form up in formation much faster, using less power and fuel. In the event of multiple lifts, fuel economy becomes very important from the tactical standpoint. In most instances, the tactical plan calls for additional lifts to be made as soon as possible after the first lift. As stated in the last reports, navigation at contour level is extremely difficult and has proven almost impossible during the quarter. The heavy rainfall has flooded all of the Delta Area, making it impossible to recognize small canals and streams. The problem of low level navigation has been successfully solved by the use of a fixed-wing aircraft as a control aircraft. The TL-19D presently used is of minimum satisfaction as a control aircraft. The control aircraft should have a capability of making rapid acceleration from approximately 100 knots to 170 knots or more. The control aircraft is required to fly ahead of the helicopters and then return and pick up the helicopter flight and guide it to the landing area. With the slow speed of the TL-19D, the difference in speed between it and the helicopter flight is so small that this cannot be accomplished properly. The guide system used by control aircraft is similar to the Ground Control Approach system used for instrument landings. With practice, the pilot of the control aircraft can guide the helicopters to an approach within a few feet of the exact touchdown point even though the helicopter pilot cannot see the landing zone more than ten seconds prior to touchdown. We have recently started receiving hits from ground fire at altitudes in excess of one thousand feet. The highest altitude at which a hit has been received is 1500 feet. The hits received at altitude have been on two aircraft non-tactical missions where it is impossible to fly contour due to navigational difficulties.
d. Evaluation of available suppressive fire capabilities, to include air cover and/or artillery:

(1) Suppressive fire has not been used extensively in this zone. In most cases, the helicopters have provided their own suppressive fire with the side-mounted .30 caliber machineguns and crew chief-operated hand-held automatic weapons. It is necessary to note that the nature of the target is not suited to an area fire weapon such as artillery or heavy air attack. The target this helicopter unit is interested in neutralizing consist of one man with a rifle or a small group of men and a crew-served weapon. To stop incoming rounds from tree-lined villages filled with non-combatants, we use tree-top fire to keep their heads down if necessary. A nose-mounted weapon is not desirable. It must be controlled by the pilot or the co-pilot, both of whom are extremely busy when on approach or take-off which is the most critical time during the flight. Most landings are made parallel to an objective, the direction of attack being to the flank and covered effectively by the .30 caliber machine gun or the crew chief. Approaches are normally parallel to tree lines and canals. A target enroute will normally not be located until after the aircraft has passed its position and may best be taken under fire by the flank gunner or crew chief. We are enjoined from indiscriminate firing to clear an area. This is caused by political considerations and the fact that the Viet Cong infiltrates the population of our host nation.

(2) We have found that the only successful air force escort has been the relatively slow T-28 aircraft using an over/under weave when the helicopters are high enough to allow it or weaving to the flanks and hugging tree lines and villages ahead of the helicopters when they are at contour level. We have received very little fire using this method, and when we do, we are usually able to bring the T-28's into the target by use of control and spotter I-17 aircraft over the flight.

7. From: 45th Transportation Battalion
   Date: 17 October 1962

   4. (c) There was a definite relationship between number of aircraft hit and quality of fighter escort aircraft. The Viet Cong were reluctant to fire on helicopters which were escorted by T-28/AD-6 type aircraft. Conversely, when aircover was ineffective, or non existant, the helicopters were subjected to severe enemy counter measures. This was best evidenced during Operation Tan Son II, 30 August 62. On this date, the 93rd Transportation Company (Lt Hel) had nine aircraft hit, two of which were shot down. Aircover was poor and this factor may have contributed to our losses. In this case, the cover aircraft alerted the Viet Cong prematurely and were not effective in suppressing Viet Cong ground fire. Participating helicopter personnel were critical of the air support they received. It also has been evident during this reporting period that the Viet Cong have received instructions on "leading" the helicopters. More and more aircraft were hit in the cockpit area. The National Star Insignia, painted on the fuselage in the engine areas has been painted out wit. OD paint since it was an excellent aiming point.

8. From: 45th Transportation Company (Lt Hel)(CH-21)
   Date: 5 January 1963

   6. Evaluation of current U.S. doctrine for employment of helicopters:
ACTIV-AM
Final Test Report — Armed Helicopters

Appendix 3 to Section III — Excerpts from quarterly reports of helicopter units assigned to the 45th Transportation Battalion.
(continued)

a. Contour flying: The decision to utilize contour flying techniques must be evaluated prior to each individual mission based on mission requirements and the terrain involved.

(1) Considerations favoring contour flight:

(a) The landing zone can be observed by hostile forces.

(b) When avenues of approach restrict hostile observation of the approach route.

(c) Where terrain and vegetation would cause restricted reaction time for overt interference with helicopters; i.e., individual firing by enemy soldiers.

(d) When weather ceilings will not allow aircraft to fly at an altitude high enough to make small arms fire ineffective.

(2) Considerations adverse to contour flight:

(a) The approach and departure routes are open and relatively flat, eliminating the concealment value of contour flying.

(b) The approach is across ridge lines making a true contour impossible.

(c) The approach is over known concentrations of hostile forces.

(d) The mission is of an administrative nature or resupply of secured areas.

(e) When deception is contemplated by bypassing proposed landing sites and when altitude approaches can be made without the loss of tactical surprise or causing aircraft to be vulnerable for excessive periods of time.

d. Evaluation of available suppressive fire capabilities, to include air cover and/or artillery: VNAF air cover in this area of operation has generally been excellent. Artillery support is largely out of range on most missions, and is restricted upon arrival of the air element.

(1) Pre-strikes of assault areas are mandatory.

(2) Close coordination (personal contact if possible) between the tactical support crews and flight leaders of the transport element is mandatory if confusion is not meant to prevail. This coordination and/or simultaneous briefings should establish precise procedures to be followed. The language barrier presented in joint operations of this type require every effort be made to limit the number of voice contacts that are necessary.

(3) Quite frequently the use of VNAF liaison aircraft as an intermediary between tactical and transport elements causes undue complication and delay. On specific occasions when liaison aircraft were not available to the tactical and transport elements superior results were achieved with a minimum of delay and confusion.
ACTIV-AN
Final Test Report — Armed helicopters

Appendix 3 to Section III — Excerpts from quarterly reports of helicopter units assigned to the 45th Transportation Battalion.

(continued)

4. The suppressive fire capabilities offered by the mounting of two LRU's in the doors of the CH-21C helicopter have proven very successful in the opinion of the unit.

e. Established tactics and techniques which have been tried and rejected.

(2) The practice of flying fixed or standard formations has been greatly modified. Mission requirements dictate the type of grouping to be used. The staggered trail and variations of it is generally more satisfactory. Every attempt is made to insure that no two aircraft, regardless of the number of flights, pass over the same ground, and that ground personnel cannot predetermine where an aircraft will cross a given position.

f. New tactics and techniques which have been developed and accepted:

(1) The normal enroute altitude between point of departure and destination has been established as 2500' absolute unless dictated otherwise by mission requirements. With the present VC fire capability it is felt that this is partially responsible for the low ratio of ground fire damage compared to time flown.

g. Lessons learned:

(2) That the CH-21C will suffer prohibitive losses if it is used to assault an enemy position frontally.

(2) That the effect of suppressive fire, by tactical pre-strike, to reduce the overt actions of the defenders, far outweighs any surprise element lost as a result of the pre-strike. Pre-strikes should be planned to commence not more than ten minutes prior to H-hour and terminate a minimum of one minute prior to touchdown.

(3) Landing sites must be selected, within the requirements of the tactical situation, by a member of the helicopter unit making the lift and the main lift effort load by that member of the helicopter unit.

4. Direct contact with supporting tactical air cover is mandatory. Frequently the intervention of VNAF liaison aircraft (O-14 types) make close support difficult, and at times entirely ineffective.

h. Remarks: See inclosure 1. The answers listed in inclosure 1 are based on the following considerations:

(1) The CH-21C helicopter is not, never has been, and never will be a primary offensive assault vehicle or weapons system.

(2) It is inconceivable to imply that the CH-21C helicopter can offer anything but supplemental suppressive fires and can in no way replace artillery, fighter aircraft, or the HH-1 tactical armed helicopters presently being evaluated.

(3) The CH-21C helicopter should be used in the role of sole tactical fire support only when no other air support is available and then only when new weapons systems are mounted (longitudinally).
ACTIV-AN
Final Test Report — Armed helicopters

Appendix 3 to Section III — Excerpts from quarterly reports of helicopter units assigned to the 45th Transportation Battalion

(continued)

(4) The most effective and efficient close support system for helicopter operations is one in which the close support vehicles and operators are an integrated part of the lifting unit.

(5) The above in no way implies that the system under discussion have no value or should be eliminated. Current state of the art in Army Aircraft weapons systems available to operating transport units in RVN are grossly inadequate and any move to improve this situation will receive the full and enthusiastic support of this unit.

9. From: 5th Transportation Company (Lt Hel) (CH-21)
Date: 6 January 1963

6. Evaluation of current U.S. doctrine for employment of helicopters:

a. The evaluation of contour flying remains the same as previously reported. Contour flying has been used extensively by this unit and has proven highly successful.

b. Evaluation of scheme of maneuver: Assault landing of troops into known Viet Cong troop areas places the helicopters in a very vulnerable position. On this type of operation a pre-strike should be made shortly before the arrival of the helicopters and helicopters should enter the area using suppressive fire. The situation is complicated by having women, children and non-partisan personnel in the area. Every effort should be made to avoid landing on hostile forces unless the use of pre-strike and suppressive fires are unrestricted.

c. Evaluation of suppressive fire capabilities:

(1) Artillery: This unit has not utilized artillery for suppressive fires in support of helicopter operations. The current deployment of ARVN artillery units precludes the massing and controlling of observed artillery fire to the degree considered necessary for safe use as suppressive fire immediately preceding a heliborne operation. No evaluation of this capability can be made at this time.

(2) Air cover: Excellent results have been obtained by using fighter aircraft for airstrikes and suppressive fire. Difficulties still exist with communications between fighters and helicopters. Excessive transmissions are required and frequently block the frequency being used. Also fighter pilots continue to request information by radio which might compromise the operation. Fighter pilots when possible should attend the helicopter unit briefing. This would assure a detailed briefing and complete understanding of the mission of the cover aircraft which is otherwise complicated by the language barrier. On occasions where the fighter pilots were not available for unit briefings the effectiveness of the air cover support was greatly reduced.

10. From: 57th Transportation Company (Lt Col) (CH-21)
Date: 7 January 1963


a. Evaluation of contour flying:

Page 9
TAB III-C
ACTIV-AM
Final Test Report — Armed helicopters

Appendix 3 to Section III — Excerpts from quarterly reports of helicopter units assigned to the 45th Transportation Battalion.

(continued)

(1) Tactical.

(a) This unit has determined that contour flying in this type terrain is effective under tactical conditions. Most effective is to go to contour flight 5-10 miles from objective, using a vector control aircraft at altitude for navigation and to maneuver the flight away from terrain features that could make low flying aircraft vulnerable to small arms and sniper fire. Contour flight during an airmobile assault provides a maximum of surprise.

(2) Logistical.

(a) Contour flight during logistical support is not practiced by this unit. Experience has shown that a minimum flight altitude of 1500 ft. has resulted in fewer hits to the aircraft during logistical support missions. Surprise is not considered a factor during these type missions and navigation is extremely difficult at contour flight.

(d) Evaluation of available suppressive fire capabilities, to include air cover and/or artillery:

(1) Tactical.

(a) Due to the terrain features and lack of road networks in this area, artillery fire support is not feasible.

(b) One (1) 30 Cal. machine gun is presently mounted in the emergency rescue door of each helicopter. On certain missions, medical evacuations, convoy cover and route control, two (2) 30 Cal. machine guns are utilized, mounting the second machine gun in the cargo door of the helicopter. These weapons have been effective when the aircraft is fired upon and several kills have been reported during the landing phase of an airmobile assault mission.

(c) Cover aircraft of the fixed wing type, AD-6's, T-28's, and B-26's continue to be effective in providing air cover support for the helicopters in-route. These aircraft are highly successful for pre-strike maneuvers and for flying cover for downed aircraft. Flight endurance without refueling makes these aircraft highly desirable during an airmobile operation.

(d) The armed UTT helicopters are highly efficient in providing air cover and fire support when at contour flight, during landing and take-off's from the landing zone, and while operating in and around the objective. These helicopters are able to maintain the same airspeed as troop carrying helicopters, hover in the landing zone to knock out resistance, and turn-around allows them to get on target with little or no delay. During the landing phase of an airmobile assault the UTT helicopters are able to pick individual targets in the area, this ability accounts for fewer hits of cargo helicopters in the landing zone.

11. From: 93rd Transportation Company (Lt Hel)(CH-21)
Date: 10 January 1963

AST-TO (10 Jan 63)
SUBJECT: Evaluation of Helicopter Tactics & Techniques Report

6. a. Evaluation of Contour Flying: Contour flying is not considered a
Appendix 3 to Section III — Excerpts from quarterly reports of helicopter units assigned to the 45th Transportation Battalion.

(continued)

good practice over open flat terrain, such as the delta and plains areas of South Vietnam. Helicopters can be detected from considerable distance and brought under fire from isolated concealed positions along the flight route. Because of the low altitude the helicopters are flying, these positions are difficult to detect and as a result are not fired upon or marked. Flight at 1500 feet in these areas does not greatly change the element of surprise. Flight at higher altitudes affords greater protection from ground fire, permits easier detection of the source of fire and better permits engagement by escort aircraft and the marking of targets.

b. Selection and reconnaissance of landing zones: (1) A recon of landing zones is essential prior to the commitment of any heliborne force. This recon should include the gathering of as much intelligence of the hostile situation as is possible, to include the flight route and area of operation. (2) Aerial photos of the landing zone should be obtained, if possible, to assist in evaluating the landing zone, orienting and briefing the pilots. (3) A heliborne force should never go into a landing zone for which no intelligence information is available. The strength, composition and disposition of the hostile force should be known. (4) When a heliborne force is to be committed to a landing zone where only sketchy intelligence exists, this force should never be landed in close proximity to tree lines or villages, on the flank or front, which would limit or channelize the maneuver capabilities of the helicopters, in getting out of the area. (ie LZ #4 coord. X309532, mission #52, 2 Jan 63). (5) Alternate landing zones should be selected for each operation. This is particularly valid when intelligence is sketchy or lacking. Alternate landing zones would lend greater flexibility to the operation and not sacrifice the heliborne force in positions where greater hostile power and force is evident.

c. Evaluation of the scheme of maneuver: (1) The over flying of an objective area or landing zone, then turning back into it would achieve an element of surprise where contour flying is unadvisable. (2) The selection of alternate landing areas commensurate with the ground commander's plan would, in many cases, decrease the vulnerability of the heliborne force and increase the flexibility of the plan of maneuver. (3) The flight routes to the landing zone should be varied to avoid hostile enroute fire and maintain the element of surprise.

   Date: 10 January 1963

   6. a. Evaluation of Contour Flying: Contour flying is not considered a good practice over open flat terrain, such as the delta and plains areas of South Vietnam. Helicopters can be detected from considerable distance and brought under fire from isolated concealed positions along the flight route. Because of the low altitude the helicopters are flying, these positions are difficult to detect and as a result are not fired upon or marked. Flight at 1500 feet in these areas does not greatly change the element of surprise. Flight at higher altitudes affords greater protection from ground fire, permits easier detection of the source of fire and better permits engagement by escort aircraft and the marking of targets.

d. Evaluation of Available suppressive fire capabilities to include air cover and/or artillery: (1) Pre-striking an objective should occur immediately prior to the arrival of the heliborne force rather than 30 minutes before
Appendix 3 to Section III — Excerpts from quarterly reports of helicopter units assigned to the 45th Transportation Battalion.

as has been the practice. (2) Likewise, artillery preparatory fires should be coordinated with the arrival of the heliborne force, if the ARVN Commander intends the use of artillery. (3) Air cover (T-28) should remain clear of the landing zone unless requested on a specific target. This will eliminate confusion and congestion when armed UH-1's are operating in the landing zone. (4) The use of dummy airstrikes in areas other than the objective should be considered as a means of attaining surprise.

h. Lessons Learned:

(1) No less than five UH-1 helicopters should be employed in escort of a heliborne force. Continuous fire must be maintained on the target in order to suppress the hostile fire and allow the transport helicopters to clear the landing zone.

(2) Contour flying in flat open terrain is inadvisable.

(3) Wooded areas, tree lines, canals and villages are the most frequent source of fire and should be avoided, when possible along a contour flight route.
Table 1 to Section III — Aircraft hit rate per flying hour

<table>
<thead>
<tr>
<th>TYPE MISSIONS</th>
<th>BEFORE 15 OCTOBER</th>
<th></th>
<th>AFTER 15 OCTOBER</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hrs</td>
<td>Act hit</td>
<td>Act hit / per hour</td>
<td>Hrs</td>
</tr>
<tr>
<td>1. H-21 comt mans 93rd 334, 57th Trans Cos</td>
<td>7383</td>
<td>80</td>
<td>.011</td>
<td>5689</td>
</tr>
<tr>
<td>2. All other mans 45th Trans Bn</td>
<td>15983</td>
<td>17</td>
<td>.0011</td>
<td>22832</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td>1778</td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
<td>7467</td>
</tr>
<tr>
<td>5. Total man Dec 61 to 15 Sep 62</td>
<td>23366</td>
<td>97</td>
<td>.0042</td>
<td>28321</td>
</tr>
</tbody>
</table>

*Hours taken from monthly summaries and differ slightly from individual reports
**Includes two hit when not on escort duty

SOURCE: 45th Transportation Battalion Summary.
ACTIV-AM
Final Test Report — Armed helicopters

Figure 1, Section III — Aircraft hit and hours flown

AIRCRAFT HIT

Unescorted Missions
Escorted Missions

HOURS FLOWN

Dec 61 - 15 Oct 62
Oct 62 - 15 Mar 63

Actual Record
Projected record

TAB III-E

CONFIDENTIAL
Percentages of cases when CH-21's were hit at or below a given altitude. (Based on 108 recorded cases, 9 unknown or unrecorded).
Percentage of cases when CH-21’s were hit at or below a given speed (Based on 106 recorded cases, 11 unknown or unrecorded).
Figure 4. Location on CH-34 of point of entry of hits received. These 70 hits occurred on 52 aircraft.
ACTIV-AM
Final Test Report -- Armed helicopters

Table 2, Section III -- Number of CH-34's that received a given number of hits

<table>
<thead>
<tr>
<th>Number of hits received</th>
<th>NUMBER OF AIRCRAFT THAT RECEIVED HITS AT PLACES INDICATED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Left side</td>
</tr>
<tr>
<td>1</td>
<td>25</td>
</tr>
<tr>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>TOTALS</td>
<td>49</td>
</tr>
</tbody>
</table>

* A total of 5 hits on one ship -- 3 on the right side and 2 on the bottom

CONFIDENTIAL
PART A. General.

1. (U) Questionnaires were given to pilots of the transport helicopter companies to sample their attitudes and opinions concerning escort aircraft, both fixed-wing and rotary wing. The questionnaire, a sample of which is included in Annex Q, was designed to explore the range of the pilots' opinions and to determine how strongly the opinions were held. Open-end questions were used to avoid leading questions and to require the respondent to initiate the categories that he discusses. Such a technique uncovers aspects of the subject that are uppermost in each respondent's mind. Significantly, frequency of responses and the number of self-initiated comments were high.

2. (U) Questions were asked about enemy fire and how it has changed since armed escort helicopters have been used and about the effectiveness of fixed-wing and rotary-wing escort aircraft. Suggestions were solicited for improving support provided by both of these types of escort.

3. (C) Data presented below come from 108 respondents of the 134 pilots in the units. Approximately half of these (49) had been flying in the RVN before UTHCO operations started; the others (59) did not have the experience of flying troop-lift type missions without escort helicopters. The questionnaire was given in late January. Thus, the answers are framed in terms of the rules of engagement at that time; i.e., helicopters were prohibited from firing unless they were first fired on.

4. (C) Questionnaires were analyzed by determining the content of the response made to each question. Content fell into one or more general areas such as responsiveness, suppressive aspects, etc. The number of times each area was mentioned was determined and is presented in tabular form for each question (in Parts B through F, following.)

a. In general, pilots comparing enemy fire before escorting with after escorting thought that there had been a change in the amount of ground fire, that it was less effective, and that the presence of the UTHCO had made this difference. A number of aviators did not answer. (See Part B.)

b. To a question on the effectiveness of the escort helicopters, pilots recently arrived in Vietnam gave essentially the same response as the "old timers." They felt that the UTHCO was very effective in suppressive fire capability and accuracy, and that it was responsive and provided immediate support when needed. Less frequently mentioned were the reduced amount of fire and the effect on morale. (See Part C.)

c. Fixed-wing support was judged to be very effective in the pre-strike role. Other than agreement as to its general merits, relatively few additional points were made by any large proportion of the respondents. Pilots who had flown with only fixed-wing support tended much more than the others to volunteer that it was slow in response and that the language barrier was a serious problem in communications. (See Part D.)

d. Suggestions for improving the support given by escort helicopters tended to stress a need for greater fire delivered on the target either by more escort or by more armament. While a number of newcomers mentioned changing the rules of engagement, few "old timers" commented. Many pilots, especially those who had flown in the RVN more than five months, made no recommendation at all. (See Part E.)
Appendix A to Section III — Data from questionnaires completed by transport pilots (continued)

e. Suggestions for improving the support given by fixed-wing aircraft also stressed a desire for greater fire delivered on the target by increasing either the number of pre-strikes or the number of aircraft in a single pre-strike. Overcoming language barriers was also suggested. As with helicopter escort, many "old timers" made no suggestions. (See Part F.)

PART B. Frequency with which each point was mentioned:

**Question:** Has there been any change in the amount of ground fire the CH-21's in your unit have received since the UTT Company began flying escort?

<table>
<thead>
<tr>
<th>Answers</th>
<th>Number (*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>31</td>
</tr>
<tr>
<td>No</td>
<td>5</td>
</tr>
<tr>
<td>Don't know</td>
<td>13</td>
</tr>
</tbody>
</table>

**Question:** What change?

<table>
<thead>
<tr>
<th>Answers</th>
<th>Number (*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>More effective VC fire</td>
<td>5</td>
</tr>
<tr>
<td>Less effective VC fire</td>
<td>19</td>
</tr>
<tr>
<td>No change</td>
<td>5</td>
</tr>
<tr>
<td>Fewer hits in LZ</td>
<td>1</td>
</tr>
</tbody>
</table>

**Question:** What produced the change?

<table>
<thead>
<tr>
<th>Answers</th>
<th>Number (*)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased VC fire</td>
<td>3</td>
</tr>
<tr>
<td>Presence of UTT Company</td>
<td>25</td>
</tr>
</tbody>
</table>

Total respondents: 49

(*)&: All respondents flew transport mission both before and after escort by the UTT Company was begun.

PART C. Frequency with which each point was mentioned (continued).

**Question:** How effective is the support provided by the UTT Company? Why?

<table>
<thead>
<tr>
<th>Answers</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective suppressive fire on final approach to and within landing zones</td>
<td>25 / 30</td>
</tr>
</tbody>
</table>
Appendix A to Section III — Data from questionnaires completed by transport pilots (continued)

<table>
<thead>
<tr>
<th>Answers</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsive: immediate defensive fires available; escort maneuver</td>
<td>30</td>
</tr>
<tr>
<td>with CH-21's in landing zones; flexible; discriminating</td>
<td>28</td>
</tr>
<tr>
<td>Effectiveness: a. very effective</td>
<td>30</td>
</tr>
<tr>
<td>b. other</td>
<td>8</td>
</tr>
<tr>
<td>Psychological effect: against VC</td>
<td>2</td>
</tr>
<tr>
<td>favorable to pilot morale</td>
<td>7</td>
</tr>
<tr>
<td>Fires accurate, pinpoint, discriminating</td>
<td>16</td>
</tr>
<tr>
<td>Reduced fire received in LZ</td>
<td></td>
</tr>
<tr>
<td>Poor reaction time</td>
<td>1</td>
</tr>
<tr>
<td>Not responsive against targets encountered on route</td>
<td>1</td>
</tr>
<tr>
<td>No comments</td>
<td>2</td>
</tr>
<tr>
<td>Total respondents</td>
<td>49</td>
</tr>
</tbody>
</table>

(* ) Flew transport missions both before and after beginning of escort.

(| ) Flew transport missions only after escort was initiated.

PART D. Frequency with which each general point was mentioned (continued).

Question: How effective is the support provided by T-28 and AD-6 aircraft? Why?

<table>
<thead>
<tr>
<th>Answers</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generally appreciated (expressed as &quot;good&quot; or &quot;excellent&quot;)</td>
<td>29</td>
</tr>
<tr>
<td>Effectiveness of pre-strikes: expressed as</td>
<td></td>
</tr>
<tr>
<td>outstanding</td>
<td>2</td>
</tr>
<tr>
<td>very effective</td>
<td>23</td>
</tr>
<tr>
<td>limited</td>
<td>3</td>
</tr>
<tr>
<td>Immediately responsive to CH-21 requests for target engagement in LZ</td>
<td>1</td>
</tr>
<tr>
<td>Reaction time too great to CH-21 requests for target engagement in LZ</td>
<td>10</td>
</tr>
</tbody>
</table>
Appendix 4 to Section III — Data from questionnaires completed by transport pilots (continued)

### Answers

<table>
<thead>
<tr>
<th></th>
<th>Group I(1)</th>
<th>Group II(#)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed-wing cover desirable</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Increase in fixed-wing pre-strikes in LZ desirable</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Armament is:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. adequate</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>b. needs increase</td>
<td>2</td>
<td>—</td>
</tr>
<tr>
<td>Psychological effect:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>against WC</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>favorable to pilot morale</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Communications/language barrier</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Effective as suppressive fire</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>No comments</td>
<td>9</td>
<td>29</td>
</tr>
</tbody>
</table>

Total respondents .......................... 49 59

(1) Flew transport missions both before and after beginning of escort.
(#) Flew transport missions only after escort was initiated.

**PART E. Frequency with which each point was mentioned (continued)**

**Question:** How can UTT Company support be improved?

<table>
<thead>
<tr>
<th>Answers</th>
<th>Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Permit pre-strikes by UH-1's</td>
<td>5</td>
</tr>
<tr>
<td>Increase number of UH-1's</td>
<td>18</td>
</tr>
<tr>
<td>Increase amount of armament</td>
<td>7</td>
</tr>
<tr>
<td>Change tactics</td>
<td>2</td>
</tr>
<tr>
<td>Change rules of engagement</td>
<td>4</td>
</tr>
<tr>
<td>Attach UH-1's to CH-21 companies</td>
<td>1</td>
</tr>
<tr>
<td>Use scramble missions</td>
<td>1</td>
</tr>
<tr>
<td>Increase ammunition stockage in staging areas</td>
<td>4</td>
</tr>
<tr>
<td>No comments</td>
<td>25</td>
</tr>
</tbody>
</table>

Total respondents .......................... 49 59

(1) Flew transport missions both before and after beginning of escort.
(#) Flew transport missions only after escort was initiated.
Appendix A to Section III — Data from questionnaires completed by transport pilots (continued)

PART F. Frequency with which each point was mentioned (continued)

**Question:** How can support by T-28 and AD-6 aircraft be improved?

<table>
<thead>
<tr>
<th>Answers</th>
<th>Group I($)</th>
<th>Group II(#)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase communications capability (and eliminate language barrier)</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Increase: a. all fixed-wing support</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>b. pre-strikes</td>
<td>24</td>
<td>23</td>
</tr>
<tr>
<td>c. armament</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>d. on-call capability</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Change tactics (Do not change tactics)</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Use US pilots exclusively</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>No comments</td>
<td>23</td>
<td>8</td>
</tr>
</tbody>
</table>

Total respondents: 49 59

(*) Flew transport missions both before and after beginning of escort.
(#) Flew transport missions only after escort was initiated.
ACTIV-AM
Final Test Report — Armed helicopters

SECTION IV — Objective 3 (Command control; communications procedures)

1. (C) OBJECTIVES:

"Determine optimum command control, communications, and coordination procedures used between the transport unit, the armed escort, the supported ground commander and tactical aircraft."

2. (C) DISCUSSION.

a. General.

(1) The UTTHCO escorted transports engaged in lifting ARVN troops (or other elements of the RVNAF) to the scene of military operations. In some cases, the troops lifted comprised the entire ground force scheduled for commitment. In other instances, the troops lifted were intended to reinforce or augment other ground forces already on the scene of the operation. In the interest of clarity, the following distinctions are made with respect to the commanders of and advisors to the ground elements involved,

(a) The senior ground commander is the ARVN officer in over-all command of the ground operation.

(b) The senior US Advisor is the officer assigned as the advisor to the senior ground commander.

(c) The commander of the lifted troops is the ARVN officer in command of the heliborne element of the ground force. He may or may not be, at the same time, the senior ground commander — depending upon whether the lifted troops are the total force involved or are part of a larger force. The commander of the lifted troops may or may not have a US advisor — advisors normally are not assigned below battalion level.

(2) In addition to the commands just described, a heliborne operation usually involved the following forces:

(a) Vietnamese.

Fixed-wing aircraft of the VNAF (sometimes piloted by US aviators engaged in training Vietnamese counterparts) often were available to give cover to heliborne forces en route to landing zones, to make such pre-strikes as might be called for in the operations plan, and to furnish on-call fire support. These ordnance-carrying aircraft often were guided into their areas by or furnished liaison from light fixed-wing aircraft piloted by US aviators and carrying Vietnamese observers or interpreters.

(b) US.

1. One or more transport helicopter units.

2. An element — normally a platoon — of the UTTHCO.

(3) In operations during the reporting period, the ARVN senior ground commander did not have operational control over . . .

(a) US helicopter units;

(b) ARVN ground troops while heliborne during the airmobile phase of the operation; or
ACTIV-AM
Final Test Report — Armed helicopter

SECTION IV — Objective 3 (continued)

(c) VNAF supporting elements.

b. Current directives.

With respect to the en route and approach phases of heliborne operations, allocation of responsibility for protection of the column was fixed, to a degree, by USMACV directives and mutual agreement between the VNAF and the 2d Air Division. In brief, the armed escort helicopters were responsible for providing protection during the period beginning one minute before the arrival of the first transport at the landing zone and ending one minute after the last transport left the landing zone. Outside that time frame, responsibility for protecting the transport helicopters was assumed by VNAF fixed-wing aircraft.

(1) Detailed directives, regulations, and SOP's make for effective control of operations with minimum need for on-the-spot communications. The well-coordinated mission can, in the event communications fail, continue with all units functioning according to plan.

(2) During the latter stages of the test, the need became evident for an over-all directive, applicable to US Army and VNAF participants which would define specifically the relationships, responsibilities, and procedures applying to the senior ground commander and his supporting elements. Such a document would further reduce the requirement for on-the-spot coordination and communications. A directive designed to accomplish this is being prepared by USMACV.

c. Current practice.

(1) Pre-operation phase.

(a) Initial planning. Liaison officers from the transport helicopter company and the tactical air support element are briefed by the ARVN commander and staff (often via the senior US advisor) on the plans for the ground operation and its support. The liaison officers advise on the support available and its capabilities. Requests for tactical air support are forwarded through ARVN channels to the TOC and thence to the joint air operations center.

(b) Advanced planning. The troop transport liaison officer makes an aerial reconnaissance of the landing zone. A briefing is held at the transport helicopter unit for the commander, staff, and pilots of the unit. This briefing is attended by the leader of the armed helicopter element designated to provide escort. Upon return to the UTHCO, the platoon leader briefs his platoon and the company staff. The transport helicopter unit is represented at a briefing, conducted at the operations center, at which time call signs, frequencies, and procedures are assigned or decided upon.

(c) Last-minute briefing. Just prior to or during the loading phase, representatives of the ground unit, transport helicopter unit, UTHCO, and tactical air support unit meet at the loading zone for final coordination. Call signs and frequencies are verified and there is an exchange of the latest intelligence.

(2) Operation phase.

(a) En route. From take-off until the final approach to the landing zone, the formation of transport and escort helicopters is under
the control of the transport unit commander or his liaison officer. This officer leads the formation from a TO-1D aircraft. His transmissions are monitored by all the helicopters, and he can communicate with the accompanying fixed-wing aircraft. The commander of the transported troops usually rides in the fifth or sixth transport. If included in the plan, pre-strikes are conducted during the en route phase.

(b) Approach. One minute out from the landing zone, the helicopter control aircraft turns over control of the transport helicopter formation to the pilot of the lead helicopter (usually the platoon commander). The UTTHCO platoon leader takes over control of the escorts and sends his reconnaissance element to arrive in the landing zone some 15-45 seconds in advance of the first transport. Tactical aircraft leave the immediate vicinity of the landing zone at this time.

(c) Unloading. As troops unload from the transports, they revert to the control of the ground commander. The transport unit commander and the escort platoon leader control their units throughout the period of unloading and until one minute after the last transport has left the landing zone. At this time, control of the helicopter formation passes back to the helicopter control aircraft for the return trip to the loading point. Tactical air is again free to attack the target area under control of the VNAF forward air controller.

(3) Communications practices.

Early heliborne operations in the RVN involved a great volume of radio transmissions, many of which were of marginal utility. With increasing airmobile experience, greater familiarity with terrain, and development of SOP's, this situation improved considerably. Further improvement is needed. In a typical operation, the volume of transmissions within the airmobile force is still high. (Random monitoring of the traffic reveals messages to slow the lead aircraft, to close the formation, and so on, in addition to essential messages relating to insurgent activity.) Traffic can be reduced by increased use of SOP code words and phrases and by closer supervision of flight and radio discipline. Suggested procedure is given in Appendix I.

(4) Chain of command.

(a) US helicopter units are under the operational control of COMUSMACV. In operational matters, that control is exercised through the senior advisor of the ARVN commander whose ground operation is supported by the helicopters. For administrative and logistical support, the UTTHCO is assigned to the 45th Transportation Battalion, which, in turn, is assigned to USASGV. Neither of these last-named units is in the operational chain of command.

(b) Prior to an operation, there is no direct contact between the ARVN commander (or his senior US advisor) and the UTTHCO, and in the airmobile phase of the operation the UTTHCO is linked to the ground commander only through the commander of the transport helicopter force. The latter, under present methods of employment, is granted a relatively high degree of autonomy. Although in support of the ARVN ground commander, the transport force is not under his control; neither is it clearly under the control of the senior US advisor. The transport force commander is authorized to abort the mission, for instance, if he believes a particular landing zone presents an unacceptable degree of risk.
d. Evaluation of current practice.

(1) Advantages.

(a) Control measures can be comparatively simple.
(b) Few radio nets are required.

(2) Disadvantages.

(a) The ground commander has only tenuous control over the heliborne portion of his operation. The decision as to whether and where to land the heliborne troops may be made, in some cases, without the consent of the ground commander or his senior US advisor.
(b) Aerial elements with a fire support capability (i.e., tactical air and armed helicopters) are not controlled by the ground commander.

e. Requirement for improved control.

(1) The task of finding, fixing, and coming to grips with insurgent forces devolves upon the ground commander charged with carrying out an operation. Certain "outside" resources are allocated to his support. These include transport helicopters, armed helicopters, and tactical support aircraft. If these resources are to be used in concert, as parts of an integrated whole, they must be responsive to the individual responsible for the conduct of the operation. This is the meaning of the time-honored principle of "unity of command." Disregard of the principle does not automatically bring failure, but its observance greatly increases the probability of success. In both military and management theory, responsibility is indivisible, and the degree of authority conferred must be commensurate with the degree of responsibility imposed.

(2) As pointed out above, ARVN ground commanders have only tenuous control over heliborne portions of their operations and over aerial elements with a fire support capability. Two factors contribute to this dilution of authority --

- Transport and escort helicopters used in the heliborne phase of operations are US resources.
- Tactical air support is provided from outside the ARVN, i.e., by VNAF aircraft or aircraft piloted by US aviators engaged in giving instruction to their Vietnamese counterparts.

Ownership of the transport and escort helicopters is not an imposing obstacle. Each senior ARVN commander has US advisors. The senior US advisor assists the commander by giving advice and by securing a share of such US resources as are available. The problem of making those resources responsive to the ARVN commander is largely a semantic matter. Solutions are --

- The ARVN commander controls the transport and escort helicopters via his US senior advisor.
- The senior US advisor controls these resources in coordination with the ARVN commander.
SECTION IV -- Objective 3 (continued)

-- The ARVN commander/senior US advisor control the resources.

Each solution recognizes the essential unity of the ARVN commander--senior US advisor relationship. Any one of them is acceptable.

(3) Control of the US helicopter assets by the senior US advisor should present no problem. The armed escort's raison d'être is to protect the transports. It is therefore proper that they be controlled by the commander of the transport helicopter element. That element, in turn, must be responsive to and should be controlled by the senior US advisor--acting in place of and with the authority of the senior ARVN ground commander--or a representative designated by him specifically for this purpose. The helicopter transport commander should be enjoined to counsel the senior US advisor on the capabilities and limitations of the transport unit and on the suitability of the helicopter landing zones selected for the operation; he also should be free to present his views concerning the tactics to be employed--to the extent that they impinge on the heliborne phase of the operation.

(4) US helicopter units are under the operational control of COMUSMACV. This control is exercised through the senior US advisors. The role of the USASGV is to provide administrative and logistical support for the helicopter units. This support is furnished through the aviation battalions to which the helicopter units are directly assigned.

(5) Since rapport between the supported and supporting organizations -- developed by working habitually together -- is a key to successful air mobile operations, a direct support relationship at the lowest level which availability of resources permits should be sought. Under present circumstances, this would call for a helicopter transport company to be continuously in support of the same ARVN division. The parent US aviation battalion, in addition to providing administrative and logistical support, can play a significant operational role -- e.g., by arranging for other helicopter units to reinforce the direct support helicopter company whenever the scope of a division operation might require support by more than one transport company, and by regulating traffic in the forward base of operations.

(6) In the case of tactical support aircraft, the resources are Vietnamese, and the decision as to their control must remain with the GVN. The following discussion of means of improved control of ground operations is based on the principle that the ground commander must retain control of all elements participating in the operation for which he is responsible. It is recognized that, with respect to VNAF aircraft, application of the principle would require the approval of GVN authorities.

f. Means of improved control.

(1) The need for improvement in control over counter-insurgency operations has been discussed above. Once the need is established, and action begun to place operational control of all participating elements in the hands of the ARVN senior ground commander (to be exercised either direct or through the senior US advisor), then attention must be given to provision of means for effective execution of the function of command.

(2) When a commander is given control over a supporting element, he must also be given the means to communicate with that element and, at a critical time, to influence its actions by his physical presence. These are
technical problems whose solution is attainable with relative ease within the present state of the communications and transportation arts.

(3) In order to more closely integrate the heliborne operation with the ground commander's overall operation, and in order to give the commander the requisite tools for exercise of command and control, use might well be made of an airmobile command post. Given such a vehicle, with facilities for direct communication with all participating elements, the ground commander could move rapidly to points from which he could best direct the activities of the combat force and the supporting elements.

(4) A utility helicopter (UH-1) equipped with radios as shown in Appendix 2 would be well-adapted to the aerial command post role.

(5) The potential of the command post can best be realized if space is provided for the following individuals (see Appendix 3):

(a) ARVN ground commander.
(b) Senior US advisor to the ARVN ground commander.
(c) USAF forward air controller (FAC). The presence of this officer is required when tactical air support is in the maneuver area or if its use is anticipated. Through the FAC, the commander can obtain, shift, and terminate air-delivered fires. The FAC communicates directly with the supporting tactical aircraft and with the air liaison officer (ALO) at the ground command post. Additional air support can be requested via the ALO through tactical air control system (TACS). Information on the number, type, and activity of US Army aircraft supporting the operation is made available to the joint air operations center through the ALO and the TACS.
(d) ARVN artillery representative. From the mobile CP this officer commands a good view of the battle area. He is in direct communication with the artillery and can call for fires desired by the commander.

(6) The airmobile CP must have direct communications with the

... troop transport helicopter commander,
... armed escort helicopter commander,
... ARVN staff and subordinate commanders on the ground,
... supporting tactical air, and
... supporting artillery.

(7) Concept of operations.

The ground commander flies to the landing zone, either with or in advance of the heliborne force, together with the other individuals in the airmobile CP element. Through his US advisor, he can direct the troop transports to land in a particular portion of the landing zone, shift to an alternate site, or take other action demanded by the situation on the ground. He can, again through the US advisor, request shifting of fires of the armed helicopters so as to best support the unloading of troops in the landing zone. After they are unloaded, the commander can direct their maneuver from the air,
ACTIV-AM
Final Test Report — Armed helicopters

SECTION IV — Objective 3 (continued)

control air and ground fire support, observe insurgent reactions, and commit his reserve when and where required. He can land and take off as necessary, and can shift to his ground CP if that action has advantages.

3. (C) FINDINGS.

a. Detailed advance planning and coordination are necessary for successful airmobile operations against even a relatively unsophisticated enemy. Careful planning and detailed coordination have paid large dividends in terms of results achieved.

b. A joint and combined directive or SOP on airmobile operations can enhance the degree of success of such operations by specifying the command, control, and communications procedures to be used by the senior ground commander and each of his supporting elements.

c. Command and control could be exercised with increased effectiveness and communications problems minimized if immediate operational control of participating elements in an operation were vested in . . .

... the ARVN senior ground commander in the case of assets of the GVN, and

... his senior US advisor in the case of assets of the US.

Exercising command and control by a ground commander having operational control over all elements participating in an operation probably would be enhanced by use of an airmobile command post.

4. (C) CONCLUSION.

Use of an airmobile command post in counter-insurgency operations should be tested to determine the degree to which such a vehicle offers improved means of command and control.

5. (U) ATTACHMENTS.

Appendix 1 — Suggested communications procedure (Tab IV-A).

Appendix 2 — Radio nets for airmobile CP (Tab IV-B).

Appendix 3 — Interior arrangement of airmobile CP (Tab IV-C).
Section IV -- Suggested communications procedure.

1. Routine and emergency radio transmissions and instructions needed to cope with unforeseeable situations should not have to compete with unnecessary radio traffic. Instructions must be given through brief, concise, code-word transmissions. Reports of emergency situations, location of hostile positions, receipt of enemy fire, aircraft emergencies, and other urgent messages should follow a format similar to the following:

"RIFLE FIRE - FLIGHT ALPHA - NUMBER TWO - FOUR O'CLOCK - FIVE HUNDRED METERS - TREELINE - RIFLE FIRE"

a. RIFLE FIRE - type of emergency (engine failure, etc).
b. FLIGHT ALPHA - flight to which reporting aircraft is assigned.
c. NUMBER TWO - identification within flight of reporting aircraft.
d. FOUR O'CLOCK - direction from reporting aircraft (in event of aircraft emergency, type emergency should be repeated at this time with amplification as necessary).
e. FIVE HUNDRED METERS - distance from reporting aircraft to enemy.
f. TREELINE - supplementary identification of location of enemy.
g. RIFLE FIRE - repetition of type emergency with full amplification only as necessary.

2. The above example follows the format outlined in the 45th Transportation Battalion Communications SOP, currently in preparation.

3. Commands used to announce selected formations, institute approach or withdrawal from the landing zone, and give other repetitive instructions, should be limited to single word or phrases, such as:

a. Trail formation.
b. Begin approach.
c. Lift off.

4. Radio and flight formations that conform to SOP's contribute to minimization of command and control problems.
ACTIV-AH
Final Test Report — Armed helicopters

Appendix 2 to SECTION IV — Radio nets for airborne CP.

Troop Transports

Tactical Air Force

Armed Escorts

FM or UHF

AIRMOBILE COMMAND POST

GROUND COMMAND POST

SUBORDINATE COMMANDERS

ARTILLERY

FM

FM

FM

FM

FM
Helicopter pilot
(2) Helicopter co-pilot (can be LNO from armed escort helicopter or troop transport unit)
(3) Senior ground unit commander
(4) Senior US advisor
(5) Forward air controller
(6) Artillery forward observer
(7) Existing radio compartment
(8) Space for additional radios
Final Test Report — Armed helicopters

SECTION V — Objective 4 (Optimum formations)

1. (C) OBJECTIVE.

"To determine optimum in-flight formation and deployment of armed helicopters in relation to the transport helicopter formation."

2. (U) DISCUSSION.

Optimality of formations is inextricably bound to platoon size; platoon size, in turn, is conditioned by requirements — imposed by mission, terrain, and enemy activity — for particular methods of employment, i.e., tactics and techniques. In view of these interrelationships, it appeared that formations could best be dealt with most fruitfully in the context of Objective 1 (tactics and techniques).

3. (U) FINDINGS.

See Section II.
SECTION VI — Objective 5 (Communications procedures)

1. (C) OBJECTIVE.

"To determine communications procedures to be employed in-flight, while landing, off-loading and during withdrawal of transport helicopters."

2. (U) DISCUSSION.

This objective overlaps with Objective 3. As the latter is the broader objective, data on communications procedures are presented in this report under Objective 3.

3. (U) FINDINGS.

See Section IV.
SECTION VII -- Objective 6 (Suppressive fire)

1. (C) OBJECTIVE.

"To determine the effectiveness of close in aerial suppressive fire support delivered in protection of helicopters and ground forces during the off-loading from transport helicopters."

2. (C) DISCUSSION.

Objective 2 (see Section III, supra) calls for a determination of whether "the presence of armed escorts reduces the amount and accuracy of fire placed on transport helicopters by insurgent forces." The word "presence," in Objective 2, has been analyzed and determined to mean, in effect, "presence plus delivery of protective fires." It is evident that there is no easy way to separate the effects of "mere presence" from the effects of actions that normally accompany presence. For the purposes of this report, "presence" has been defined in an active rather than a passive way — i.e., to include the firing undertaken by armed helicopters when they are in the landing zone and when firing is required. If this meaning is accepted, then Objectives 2 and 6 become substantially identical. They have been so treated here. Data applicable to either of the objectives are considered to be responsive to the other.

3. (U) FINDINGS.

See Section III.
SECTION VIII — Objective 7 (Insurgent identification)

1. (c) OBJECTIVE.

"To determine methods employed by armed helicopters to locate insurgent forces."

2. (c) DISCUSSION.

a. General.

(1) The success of a counter-insurgency effort hinges upon the ability of its forces to locate and identify the insurgents. Insurgency is, by definition, an "irregular" form of warfare. Standard insurgent practice calls for mingling with the civilian population, gaining the support and loyalty of the populace and applying economic, sociological, and psychological influences—not to exclude terrorism, where the "climate" is deemed right for that approach—to alienate the people from the constituted government or to show the people that sympathy for the government is a hopeless and perhaps dangerous attitude. "The people are the sea, and the guerrilla is the fish that swims in the sea" is an apt metaphor to the extent that it dramatizes the guerrilla's need for support—he will die if his sources of supply dry up. It is a poor metaphor, however, from the point of view of insurgent identification, for insurgents are not fish and the populace is not sea—both are people, and the problem is to pick out the insurgents.

(2) Problems of identification and location are exacerbated by the wide range of the scale of commitment to the insurgent cause. Commitment may vary from ...

... total, as in the case of the "hard core," full-time VC professional fighter, to ...

... partial, as represented by the farmers and laborers who are part-time participants in VC actions, to ...

... marginal, i.e., sympathizers who might engage in action if and when insurgent operations are conducted in their immediate neighborhoods, to ...

... involuntary, as in the case of the uncommitted individuals forced to assist the VC or threatened with force.

(3) The insurgent usually is indistinguishable from the general public unless he ...

... commits an overtly hostile act, or

... chooses to disclose himself by wearing distinctive garb, or

... segregates himself from the rest of the population, either...

... voluntarily, for purposes of his own, or

... involuntarily, as the result of social or military pressures or (most likely) a combination of both.
ACTIV-AM
Final Test Report — Armed helicopters

SECTION VIII — Objective 7 (continued)

(4) The problems of locating and identifying the enemy are crucial.

(a) In areas where the VC is not segregated, identification is paramount. VC's must be positively and surely identified in order to avoid injury to people who are not insurgents. And when insurgents are identified, the force brought to bear against them must be accurate and graduated so as not to bring harm to the surrounding population.

(b) In areas where insurgents are segregated, identification is simpler. Here, location of the insurgents is the more difficult problem, since the very fact that they are segregated implies that they have room in which to operate and terrain that offers concealment.

(5) It would appear that the helicopter's wide field of vision and its ability to fly low and slow, and to hover, might make it a highly suitable vehicle for identifying insurgents who are in distinctive garb or who demonstrate hostile intent. By the same token, the UH-1's ability to fly relatively quietly and quickly at the nap of the earth might be expected to confer a comparatively high degree of probability of locating insurgents — especially where they are segregated — by achieving surprise and thus preventing them from taking cover. One of the objectives of the test was to determine whether and to what degree these potentialities were — or could be — realized.

(6) In airmobile operations against the VC, the enroute and approach phases seldom presented situations calling for identifying or determining the location of insurgents. Any person who fired at the heliborne force was self-identified if seen. Even if seen, however, he often was immune to retaliation, as the escort helicopters could not leave the formation for long, and usually reacted passively by conveying information as the source of the fire to other helicopters farther back in the formation. Those farther back seldom could locate targets from verbal descriptions alone. If the targets were fired at by the lead ships (using tracer ammunition), or if smoke marking rounds were dropped as reference points, the insurgent location could be picked up with relative ease by the helicopters following on.

(7) In landing zones, enemy fire always was expected. If received, the problem was to locate the source — the act of firing having identified the threat as insurgent. If no fire was received, there was no requirement for suppressive fire. Individuals seen fleeing from the vicinity of the landing zone (a common occurrence) ordinarily did not constitute a "clear threat" — in terms of the rules of engagement — to the heliborne force; they were not taken under fire.

b. Determining location of insurgents.

(1) The UH-1 helicopter was particularly suited to the task of locating insurgents by reason of its ability to fly quickly and quietly along the nap-of-the-earth and thus surprise the enemy. Its wide field of vision and its ability to fly low and slow and to hover made it an excellent observation platform. Experience indicated that, in the vicinity of landing zones, VC were most likely to be found...

... in a tree line near a road, village, or canal in the Mekong Delta region, or...

... in the jungle-covered high ground adjacent to landing zones in the mountainous areas.
ACTIV-AK
Final Test Report -- Armed helicopters

SECTION VIII -- Objective 7 (continued)

The VC made some use of prepared positions -- foxholes, trenches, and weapons emplacements. These often were camouflaged to resemble streamtanks, junkes, or huts.

(2) Scout helicopters normally entered a landing zone at an altitude of 20-50 feet and flew a zig-zag course across the zone and around its perimeter. From that altitude, camouflaged positions often could be detected, and people bearing arms sometimes could be seen.

(3) Armed escorts, other than scouts, usually flew or hovered at about 100-foot-altitude while in the landing zone. This was a good height from which to watch for insurgent reaction to the assault and transport helicopters. Sources of insurgent fire sometimes could be pinpointed. Suppressive fires often were directed at an identifiable point on the landscape rather than at specific VC individuals or groups because, where cover was abundant, individual firers sometimes were never seen. Here the UH-1's wide range of vision and its low-and-slow capability contributed to precise location of sources of fire, and its stability as a platform from which to fire weapons of close accuracy enabled it to bring its suppressive fires to bear directly on the located sources, thereby avoiding "spill-over" on noncombatants who might be nearby.

(4) On combat support missions, each armed helicopter carried an AHVN observer -- usually a junior officer or senior noncommissioned officer. His knowledge of the area and of the habits and customs of the inhabitants was helpful in locating insurgents and -- once suspected VC were located -- in contributing to a determination of identity.

(5) Although overtly hostile acts were interpreted as positive evidence of the presence of insurgents, detection of the source of hostile fire was sometimes difficult, particularly in full daylight. Use of the sun visor on the APH-5 helmet was found to be an aid in locating muzzle flashes from insurgent weapons; by cutting down on surface glare, it also was of some help in locating individuals hiding under water in canals and rice paddies.

b. Insurgent identification.

(1) Members of organized VC units sometimes were identifiable by their uniforms. Helicopter pilots reported hostile acts committed by insurgents garbed in...

... green fatigues or khaki uniforms, with or without steel helmets (see Photo A, attached); and

... black shirt and trousers, with either a straw coolie hat or a helmet (see Photo B).

Hostile acts were committed also by individuals in peasant dress. Examples of typical peasant garb are picture in photos C and D. The individuals shown presumably were caught while engaging in hostile activity or were, at least, suspected of having participated in such activity.

3. (C) FINDINGS.

a. The ability of the UH-1 helicopter to fly relatively quietly and quickly at the nap of the earth enhanced the probability of taking insurgents by surprise, thus establishing their location.
b. The UH-1's wide field of vision and its ability to fly low and slow, and to hover, make it an effective vehicle from which to locate and -- to a lesser degree -- identify insurgents.

4. (C) CONCLUSIONS.
   Same as the findings above.

5. (U) ATTACHMENTS.
   Photographs A through D, as described above.
ACTIV-AM
Final Test Report -- Armed helicopters

Photo A, SECTION VIII -- VC in uniform
ACTIV-AM
Final Test Report -- Armed helicopters

Photo B, SECTION VIII -- VC in uniform.
ACTIV-AM
Final Test Report -- Armed helicopters

Photos C and D, SECTION VIII -- Un-uniformed VC.
ACTIV-AM
Final Test Report — Armed helicopters

SECTION IX — Objective 8 (Optimum organization)

1. (C) OBJECTIVE.

"Determine optimum organization to include whether armed helicopters should be included in the TOE of transport companies or should the armed helicopter unit be in support of the transport company?"

2. (C) DISCUSSION.

a. "Optimum" organization was not determined during the test period. Full discussion of this point is given in Section II.

b. Certain deficiencies in UTTHCO organization were revealed during the test. These are covered in Appendix 1, attached.

c. UTTHCO assets and liabilities were reviewed continually during the test period and were weighed against the tactical, logistical, and administrative requirements of the escort role. From this appraisal has come a formulation of an organizational structure that would be viable — in terms of the performance of that role in the environment of the RVN. Such a proposed armed helicopter company (PAHCO) is presented in Appendix 2, attached.

3. (C) FINDINGS.

a. As presently organized and equipped, the UTTHCO is not ideally constituted to perform its assigned mission. With the personnel augmentation requested earlier, but not yet approved, and with the continued attachment of a maintenance detachment, the company can meet the demands of its mission.

b. It is possible to provide an equivalent armed escort capability with somewhat fewer personnel resources than are represented in the UTTHCO, its attached maintenance detachment, and its requested augmentation.

4. (C) CONCLUSION.

The armed escort helicopter mission could be performed adequately by a unit such as the proposed armed helicopter company (PAHCO).

5. (U) ATTACHMENTS.

Appendix 1 — UTTHCO organizational deficiencies (Tab IX-A).
Appendix 2 — Proposed armed helicopter company (Tab IX-B).
ACTIV-AM
Final Test Report — Armed helicopters

Appendix 1 to SECTION IX — Deficiencies in UTTHCO organization

1. (U) Organization (TD 76-6756-00)

2. (C) Personnel.

<table>
<thead>
<tr>
<th></th>
<th>Authorized</th>
<th>Attached (*)</th>
<th>Total</th>
<th>Requested augmentation (#)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Officers</td>
<td>14</td>
<td>1</td>
<td>15</td>
<td>8</td>
</tr>
<tr>
<td>WO</td>
<td>16</td>
<td>1</td>
<td>17</td>
<td>13</td>
</tr>
<tr>
<td>EM</td>
<td>83</td>
<td>56</td>
<td>139</td>
<td>59</td>
</tr>
<tr>
<td>TOTAL</td>
<td>113</td>
<td>58</td>
<td>171</td>
<td>80</td>
</tr>
</tbody>
</table>

(*) Attached

# 571st Transportation Detachment, attached to the UTTHCO.

(#) Augmentation requested on 20 November 1962.
AFTERMATH

Final Test Report — Armed helicopters

Appendix 1 to SECTION IX — Deficiencies in UTTHCO organisation.

3. (U) Aircraft.

Twenty-five UH-1 helicopters are authorized by the TD.

4. (C) Deficiencies.

a. The TD provides 30 pilots for the 25 helicopters. Experience has shown a need for two pilots per helicopter.

b. Each helicopter is armed with a flexible weapons system of considerable sophistication. No personnel are provided to maintain these weapons. The unit needs an armament section for maintenance and repair of weapons systems and locally-fabricated augmentations such as the rocket kits used by the UTTHCO throughout most of the test period.

c. No avionics maintenance personnel are authorized by the TD. Considering the relative wealth of communications equipment within the company and the need for reliable communications during operations, an avionics maintenance capability should be organic to the unit.

d. The TD makes no provision for gunners for the armed helicopters. Gunners are needed to give flank protection during escort operations. In the absence of assigned gunners, field maintenance personnel have been called upon to perform this duty.

e. The company has an inadequate organic aircraft maintenance capability. During the first two months of the test period, the UTTHCO service platoon attempted to perform organizational maintenance on all unit aircraft; field maintenance support was given by the attached transportation detachment (571st). During the final three months, maintenance personnel from the service platoon were consolidated with the maintenance detachment; responsibility for all maintenance was given to the detachment commander, who, in effect, became the maintenance officer of the company. This consolidation produced higher standards of maintenance, higher aircraft availability, and minimum duplication of effort. Much paperwork was eliminated; administrative personnel were freed for more productive duties.
ACTIV-AM
Final Test Report — Armed helicopters

Appendix 2 to SECTION IX — Proposed armed helicopter company (FARCO).

PART A. General.

1. An organization chart for the proposed company is presented in Part B, below. A detailed breakout of personnel and major items of equipment is in Part C. (On-aircraft radios and navigation aids are not shown. Each on-aircraft radio is assumed to be provided with an auxiliary power source to allow operation of radios when the aircraft is on the ground).

2. The following features of the FARCO make it a feasible alternative to the UTHHC type of organization:

a. Headquarters. The company commander is assigned an armed helicopter. This allows him to move independently to and at the sites of operations of his platoon. It also provides a command vehicle for those occasions on which two or more platoons are employed simultaneously in the same operation.

b. Operations section. This element has a helicopter to enable it to participate in airborne operations. The section is staffed for continuous 24-hour-a-day operation.

c. Escort platoons. These are flexibly organized. Each has a reconnaissance, two fire-and-maneuver elements, and a contingent of gunners to provide flank protection during operations.

d. Service platoon. This element has a capability for maintaining ground vehicles.

e. Aircraft maintenance platoon. This organic platoon eliminates the need for a supporting field maintenance detachment. It has a capability for performing all required 1st through 3d echelon maintenance for the unit.
ACTIV-AM
Final Test Report — Armed helicopters

Appendix 2 to SECTION IX (continued)

PART B. Organisational chart.
PART C. Personnel and equipment.

1. Company headquarters.

   a. Personnel (2-0, 1-WO, 14-EM).

<table>
<thead>
<tr>
<th>Duty position</th>
<th>MOS</th>
<th>Grade</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company commander</td>
<td>61204/1542</td>
<td>Maj</td>
<td>1</td>
</tr>
<tr>
<td>Executive officer</td>
<td>61204/1542</td>
<td>Maj/Capt</td>
<td>1</td>
</tr>
<tr>
<td>Rotary-wing aviator</td>
<td>0628</td>
<td>WO</td>
<td>1</td>
</tr>
<tr>
<td>First sergeant, NCO</td>
<td>13380/11580</td>
<td>E8</td>
<td>1</td>
</tr>
<tr>
<td>Mess steward, NCO</td>
<td>94160</td>
<td>E6</td>
<td>1</td>
</tr>
<tr>
<td>Crew chief</td>
<td>67520</td>
<td>E5</td>
<td>1</td>
</tr>
<tr>
<td>First cook</td>
<td>94110</td>
<td>E5</td>
<td>2</td>
</tr>
<tr>
<td>Company aid man</td>
<td>91110</td>
<td>E5</td>
<td>1</td>
</tr>
<tr>
<td>Cook</td>
<td>94110</td>
<td>E4</td>
<td>2</td>
</tr>
<tr>
<td>Personnel clerk</td>
<td>71620</td>
<td>E5</td>
<td>1</td>
</tr>
<tr>
<td>Company clerk</td>
<td>71610</td>
<td>E4</td>
<td>1</td>
</tr>
<tr>
<td>Cooks helper</td>
<td>94000</td>
<td>E3</td>
<td>1</td>
</tr>
<tr>
<td>Lt truck driver</td>
<td>64000</td>
<td>E3</td>
<td>1</td>
</tr>
</tbody>
</table>

   b. Equipment.

<table>
<thead>
<tr>
<th>Nomenclature</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helicopter, UH-1B</td>
<td>1</td>
</tr>
<tr>
<td>Truck, utility, 1-ton</td>
<td>1</td>
</tr>
<tr>
<td>Truck, mess, 2-ton</td>
<td>1</td>
</tr>
<tr>
<td>Trailer, cargo, 1-ton</td>
<td>1</td>
</tr>
<tr>
<td>Trailer, tank, water, 1½-ton</td>
<td>1</td>
</tr>
<tr>
<td>AN/VRC-2</td>
<td>1</td>
</tr>
</tbody>
</table>

   c. Mission.

Exercises command and control over the unit. Furnishes personnel and equipment for the unit mess.

2. Operations section.

   a. Personnel (2-0, 7-EM).

<table>
<thead>
<tr>
<th>Duty position</th>
<th>MOS</th>
<th>Grade</th>
<th>Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operations officer</td>
<td>61204/1542</td>
<td>Capt</td>
<td>1</td>
</tr>
<tr>
<td>Asst ops officer</td>
<td>61204/1542</td>
<td>Lt</td>
<td>1</td>
</tr>
<tr>
<td>Avn ops sergeant, NCO</td>
<td>90770</td>
<td>E7</td>
<td>1</td>
</tr>
<tr>
<td>Comm chief, NCO</td>
<td>31260</td>
<td>E6</td>
<td>1</td>
</tr>
<tr>
<td>Avn operations Sp</td>
<td>90730</td>
<td>E5</td>
<td>1</td>
</tr>
<tr>
<td>Intel sergeant, NCO</td>
<td>13360</td>
<td>E6</td>
<td>1</td>
</tr>
<tr>
<td>Crew chief</td>
<td>67520</td>
<td>E5</td>
<td>1</td>
</tr>
<tr>
<td>Rad tel operator</td>
<td>67000</td>
<td>E3</td>
<td>1</td>
</tr>
<tr>
<td>Driver</td>
<td>64000</td>
<td>E3</td>
<td>1</td>
</tr>
</tbody>
</table>
b. Equipment.

<table>
<thead>
<tr>
<th>Nomenclature</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helicopter, UH-1B</td>
<td>1</td>
</tr>
<tr>
<td>Truck, utility, 2/3-ton</td>
<td>1</td>
</tr>
<tr>
<td>Truck, cargo, 3/4-ton</td>
<td>1</td>
</tr>
<tr>
<td>Truck, van operations 2-ton</td>
<td>1</td>
</tr>
<tr>
<td>Trailer; cargo, 3/4-ton</td>
<td>1</td>
</tr>
<tr>
<td>Trailer, cargo, 1-ton</td>
<td>1</td>
</tr>
<tr>
<td>Generator set, FU 322/6</td>
<td>1</td>
</tr>
<tr>
<td>AN/VQ-24</td>
<td>1</td>
</tr>
<tr>
<td>AN/VQ-2</td>
<td>1</td>
</tr>
<tr>
<td>AN/VQ-2</td>
<td>1</td>
</tr>
</tbody>
</table>

e. Mission.

Assists the commander in exercising control over unit combat support operations and provides communications between the company and the supported unit.

3. Escort platoon (3)(12-0, 30-WO, 60-EM).

a. Platoon headquarters.

(1) Personnel.

<table>
<thead>
<tr>
<th>Duty position</th>
<th>MOS</th>
<th>Grade</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platoon leader</td>
<td>61204/1542</td>
<td>Capt</td>
<td>1</td>
</tr>
<tr>
<td>Rotary-wing aviator</td>
<td>062B</td>
<td>WO</td>
<td>1</td>
</tr>
<tr>
<td>Platoon sgt, NCO</td>
<td>67560</td>
<td>E6</td>
<td>1</td>
</tr>
<tr>
<td>Sr hel mech</td>
<td>67520</td>
<td>E5</td>
<td>2</td>
</tr>
<tr>
<td>Crew chief</td>
<td>67520</td>
<td>E5</td>
<td>1</td>
</tr>
<tr>
<td>Hel mech</td>
<td>67520</td>
<td>E4</td>
<td>2</td>
</tr>
</tbody>
</table>

(2) Equipment.

<table>
<thead>
<tr>
<th>Nomenclature</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helicopter, UH-1B</td>
<td>1</td>
</tr>
<tr>
<td>Truck, cargo, 3/4-ton, w/trl</td>
<td>2</td>
</tr>
<tr>
<td>Carrier, cargo, combat</td>
<td>1</td>
</tr>
<tr>
<td>VHC-9</td>
<td>1</td>
</tr>
</tbody>
</table>

b. Scout team.

(1) Personnel.

<table>
<thead>
<tr>
<th>Duty position</th>
<th>MOS</th>
<th>Grade</th>
<th>Strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team leader</td>
<td>61204/1542</td>
<td>Lt</td>
<td>1</td>
</tr>
<tr>
<td>Rotary-wing aviator</td>
<td>062B</td>
<td>WO</td>
<td>3</td>
</tr>
</tbody>
</table>