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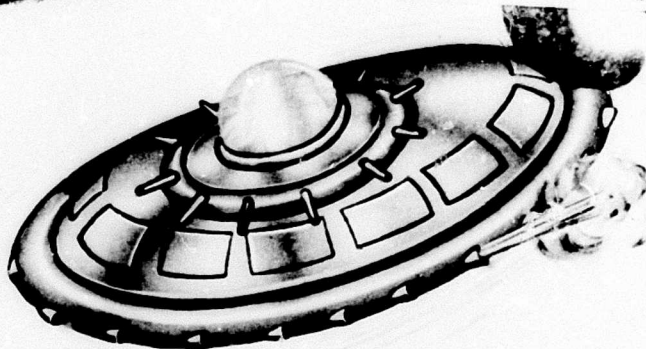
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**HEADQUARTERS
UNITED STATES CONTINENTAL ARMY COMMAND
Fort Monroe, Virginia**

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HEADQUARTERS
UNITED STATES CONTINENTAL ARMY COMMAND
Fort Monroe, Virginia

ATSWD-P 452.1/29(S)(25 Jul 58)

25 July 1958

SUBJECT: Army Aircraft and Ground Force Mobility 1958-1970 (U)

TO: Deputy Chief of Staff for Military Operations
Department of the Army
Washington 25, DC

- 1 (UNCLASSIFIED) Reference is made to:
 - a. Letter, OPS OT DC 4, DCSOPS, DA, 2 July 1958, subject: "Establishment of an Experimental Aerial Battalion (Infantry) (U)."
 - b. Letter, OPS OT DC 4, DCSOPS, DA, 13 March 1958, subject: "Transition Plan for Period 1958-1965 (U)."
 - c. Letter, ATAVN 322(BN), Hq USCONARC, 10 February 1958, subject: "Establishment of an Experimental Aerial Battalion (Infantry) (U)."

2. (UNCLASSIFIED) In compliance with instructions contained in letter, reference 1a, a study, subject as above, is inclosed. The study is also responsive to the request for specific proposals concerning airphibious combined arms organizations contained in subparagraph 4e of letter, reference 1b.

3. (CONFIDENTIAL) This study represents an objective analysis which develops initial concepts for employment of US Army aircraft in conjunction with ground combat forces during the period 1958-1970. As suggested in paragraph 4 of letter, reference 1a, the study was prepared without specific reference to existing concepts contained in other documents. For example, although letter, reference 1c, was carefully reviewed, no effort was made to confine the study to the concepts which it contains.

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4. (UNCLASSIFIED) The recommendations contained in letter, reference 1c, are withdrawn and those contained in the inclosed study substituted therefor.

5. (CONFIDENTIAL) The Commanding General, United States Continental Army Command, emphasizes that approval of the study recommendations will:

a. Permit organization and test of aerial combat reconnaissance elements in the infantry division, the armored division, and the armored cavalry regiment without an increase in personnel spaces. Aircraft required will be obtained by reducing the number of aircraft in low priority units.

b. Permit Army-wide training in airmobile task force operations within equipment and personnel resources currently available in the zone of interior and oversea commands.

c. Not require additional aircraft for CDEC experimentation.

FOR THE COMMANDER:



EDWARD T. WILLIAMS
Lieutenant General, U. S. Army
Deputy Commanding General

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1. **STATEMENT OF THE PROBLEM** To develop concepts for improving the capabilities of ground combat forces through the use of army aircraft during the period 1958-70.

2. **ASSUMPTIONS.**

a. The strategic, tactical, logistical, and organizational concepts forecast by the Army Requirements Development Plan for the Period 1966-1969 (Short Title: ARDP-69), 1 February 1958, will be valid during the period 1965-70.

b. The size and composition of the Active Army with respect to major units during the period 1958-70 will be essentially similar to that contained in the current Army Strategic Objectives Plan, FY 61.

c. The concepts and organizations contained in the PENTANA study, as modified by Department of the Army comments, are sufficiently valid to be used in conjunction with ARDP-69, as a framework for developing qualitative and quantitative materiel requirements for the period 1965-70.

d. The Transition Plan for Period 1958-1965 (U), (OPS OT DC 4, 13 Mar 58) is sufficiently valid to indicate the phasing of equipment and units into the Army organization for the period 1958-65.

3. **FACTS BEARING ON THE PROBLEM.**

a. The roles, missions, and limitations governing organic army aviation are prescribed by Department of Defense Directive 5160.22, 18 March 1957 (AR 95-100).

b. The feasibility of arming helicopters has been proven by experimental units at the US Army Aviation School. Further development of the armed helicopter concept has been approved by the Commanding General, United States Continental Army Command, and the Department of the Army.

c. Organic army aircraft designations are prescribed by AR 705-42.

d. Definitions

(1) Airmobile operation. Airmobile operations are operations in which combat forces and their equipment move by air vehicle

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about the battlefield to engage in ground combat as a normal part of all types of land operations. These operations are usually tactical operations of limited range and duration. Movement is normally by Army vertical or short takeoff and landing aircraft. Combat forces normally enter battle by air landing.

(2) Aerial combat reconnaissance units Units organized and equipped to perform missions requiring great mobility, fire power, and shock action. The combat personnel are mounted in organic armed aerial vehicles. It performs missions of security, mobile combat, and reconnaissance.

(3) AMTF. Airmobile task force.

(4) ACRP(T). Aerial combat reconnaissance platoon (troop).

4. DISCUSSION.

- a. Annex A, Study Directive.
- b. Annex B, Basic Considerations.
- c. Annex C, Roles and Phased Integration of Army Aircraft in Current and Future Organizations.
- d. Annex D, Operational Concepts and Organization of Airmobile Forces.
- e. Annex E, Operational Concepts and Organization of Aerial Combat Reconnaissance Elements.
- f. Annex F, Statement of Organization, Training, and Evaluation of Aerial Combat Reconnaissance Elements and Airmobile Forces.
- g. Annex G, Concepts of Experiments at CDEC for the Long-Range Future.
- h. Annex H, Bibliography.

5. CONCLUSIONS.

- a. Improved conventional tactical atomic and chemical weapons, and the relative combat power of potential enemies make necessary the development of Army combat forces with increasing mobility.

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b. Although determination of their vulnerability requires further CDEC experimentation, aircraft with suppressive fire capability can be employed to increase the mobility of ground forces.

c. The ARDP-69 long-range objective of a universal air-transportable division is feasible if its assault elements can be provided with organic zero ground pressure vehicles - or other combat vehicles with a high degree of strategic and tactical mobility - capable of assuming the combat roles currently associated with tanks, personnel carrier, or other fighting vehicles.

d. Initiation of a series of CDEC experiments is required to determine the technique of combat operations with zero ground pressure vehicles in lieu of wheeled and tracked vehicles for all combat elements, including assault forces, reconnaissance and security forces, fire support elements, and those designated to provide logistical support.

e. In the interim, assault forces of infantry, airborne, and armored divisions can conduct small airmobile combat operations in conjunction with ground operations using pooled rotary-wing aircraft organic to the division, and larger operations by using pooled aircraft at higher headquarters. Aircraft used for such operations should be armed with a suppressive fire capability.

f. There are no limiting factors which preclude the immediate initiation of Army-wide training of assault forces in airmobile operations. Transport aircraft units and the ROCID, ROTAD, and ROCAD aviation companies (lift for 1 platoon), and those available in the type corps (lift for 1 battlegroup) are adequate to support airmobile training. Action should be taken without delay to prepare the necessary training literature to permit such training to begin.

g. In the interim, those units primarily responsible for reconnaissance, such as division cavalry squadrons and corps armored cavalry regiments, will require a gradual increase in their ability to augment their ground capability with an aerial capability.

h. To increase the capabilities of division cavalry squadrons to accomplish their missions on a dispersed battlefield, an aerial combat reconnaissance platoon should be included in each squadron (infantry and armored divisions) and placed directly under control of the cavalry squadron commander. This can be done without additional personnel spaces.

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i. To increase the capabilities of the armored cavalry regiments, organizations should be modified to include an aerial combat reconnaissance troop placed directly under the control of the regimental commander. No additional personnel spaces are required.

j. Aerial combat reconnaissance elements of divisions and corps should be organized subsequent to tests by 1 infantry and 1 armored division cavalry squadron and a specified armored cavalry regiment.

k. The army aircraft required to conduct tests of the aerial reconnaissance elements in 1 infantry, 1 armored division, and 1 armored cavalry regiment can be made available by reducing the number of aircraft in low priority units.

l. In conjunction with operations of armor-infantry assault elements, aerial combat reconnaissance units will:

(1) Extend the reconnaissance capability of the squadron (regiment) by operating in conjunction with ground reconnaissance elements of the squadron (regiment).

(2) Conduct armed reconnaissance between dispersed battle groups, task forces, and divisions.

(3) Provide armed reconnaissance for airmobile forces.

(4) Act as a cavalry force for advance, flank, or rear guard actions in conjunction with ground elements of the cavalry squadrons (regiments).

(5) Provide rear area security against small enemy infiltrated or guerrilla forces.

(6) Conduct armed reconnaissance and security in bridgeheads and beachheads.

m. The use of aerial vehicles available to corps and field army for logistical support of combat forces will gradually increase during the period 1958-70.

6. RECOMMENDATIONS.

a. That the conclusions in paragraph 5 be approved.

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b. That Department of the Army direct a training program for airmobile operations in oversea theaters based upon training literature to be prepared by USCONARC for use in the continental Army.

c. That, in order to develop the techniques and doctrine for aerial combat reconnaissance elements based upon the concepts described in Annex E, Operational Concepts and Organization of Aerial Combat Reconnaissance Elements, USCONARC be authorized to organize, equip, and train:

(1) An aerial combat reconnaissance platoon as an organic part of the infantry cavalry squadron of one infantry division (TOE 17-85T ROCID).

(2) An aerial combat reconnaissance platoon as an organic part of the armored cavalry squadron of one armored division (TOE 17-45T ROCAD).

(3) An aerial combat reconnaissance troop as an organic part of an armored cavalry regiment (TOE 17-51R).

d. That the Department of the Army continue to develop a family of zero ground pressure combat vehicles to provide all combat elements with optimum operational mobility for the future battlefield.

8 Anx:

- A - Study Dir
- B - Basic Cons
- C - Roles and Phased Integration of Army Acft in Current & Future Org
- D - Op Concepts & Org of Airmbl Forces, W/6 app
- E - Op Concepts & Org of Aerial Cmbt Reconnaissance Elm W/8 app
- F - Stmt for Org, Tng, & Eval of Aerial Cmbt Reconnaissance Elm & Airmbl Forces
- G - Concepts of Exper at CDEC for the LR Future
- H - Bibliography

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ANNEX A (STUDY DIRECTIVE)

HEADQUARTERS
DEPARTMENT OF THE ARMY
OFFICE OF THE DEPUTY CHIEF OF STAFF FOR MILITARY OPERATIONS
WASHINGTON 25, D. C.

OPS OT DC 4

2 Jul 1958

SUBJECT: Establishment of an Experimental Aerial Battalion (Infantry)
(U)

TO: Commanding General
United States Continental Army Command
Fort Monroe, Virginia

1. References:

a. Briefing of Commanding General, United States Continental Army Command, by the Director of Army Aviation, Office of the Deputy Chief of Staff for Military Operations, Department of the Army, at Fort Monroe, Virginia, on 12 December 1957.

b. Letter, Headquarters United States Continental Army Command, ATAVN 322(Bn), subject as above, with two inclosures, dated 10 February 1958.

c. Memorandum for Record, OPS AV PA 1, subject as above, dated 19 June 1958.

d. Letter, Headquarters, Department of the Army, OPS OT DC 4, subject: "Transition Plan for Period 1958-1965(U)", with five inclosures, dated 13 March 1958.

2. a. In reference 1a, a concept of "Air Cavalry" was presented to the Commanding General, United States Continental Army Command.

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SUBJECT: Establishment of an Experimental Aerial Battalion (Infantry)
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b. By reference 1b, United States Continental Army Command recommended establishment of an experimental Aerial Battalion (Infantry) as a TD organization to test the validity of the concept.

c. A briefing on the concept and the proposed experimental unit was presented to the Chief of Staff on 16 June 1958. The same presentation was given to United States Continental Army Command representatives at a conference at Fort Monroe, Va., on 26 June 1958. Copies of the memorandum for record covering comments of the Chief of Staff on the concept and the unit have been furnished separately to Headquarters, United States Continental Army Command (reference 1c). As noted in reference 1c, this office has been directed to develop additional data to provide the basis for decisions on this subject.

d. By reference 1d, Headquarters, Department of the Army requested that United States Continental Army Command submit at an early date specific proposals concerning organization, testing, evaluation, and adoption of airphibious combined arms organizations of appropriate types. A close relationship exists between these units and the subject unit. In addition, reference 1d noted the requirement for examination of the interrelationships within and among all elements of the field army which contribute to reconnaissance and security, combat surveillance, and target acquisition functions; and, in particular, for examination of the relationships between airphibious combined arms organizations, armored cavalry regiments, and airborne reconnaissance groups.

3. It is requested that United States Continental Army Command develop and submit to Headquarters, Department of the Army, the following data, in order to assist this office in meeting the requirements covered in reference 1c:

a. Experimental Aerial Battalion (Infantry).

(1) The role and echelon(s) of assignment of the unit and its relationship with other units utilizing Army aircraft in the performance of varied combat tasks. As a minimum, this should include consideration of airphibious combined arms organizations, divisional and nondivisional reconnaissance and security organizations, units

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SUBJECT: Establishment of an Experimental Aerial Battalion (Infantry)
(U)

whose primary missions relate to the fields of combat surveillance and target acquisition, and infantry battle groups or elements thereof air-lifted on short notice by Army aircraft provided from pooled resources.

(2) Concepts of employment of the unit, to include illustrative, schematic representations of the tactics to be employed by the unit in accomplishing the various combat and/or reconnaissance missions visualized for such a unit in conjunction with other combat forces.

(3) The extent to which the unit should possess an organic ground fighting capability, plus an analysis of the extent to which the unit normally fights from the air as opposed to fighting on the ground.

(4) A general visualization of how units of this general type should be expected to fit into the Army during the period 1958-1970, plus a visualization of the extent to which the concept should be implemented on a phased basis effective immediately, utilizing existing equipment. In other words, a clear indication is needed of the concept for phased integration of such units into the Army.

(5) A general statement of test objectives.

b. Air-Armor Mobile Task Force Concept. An analysis of the requirement for, a proposed organization for, and concepts of employment of typical air-armor mobile task forces evolving from the guidance in subparagraph 3b, reference 1c. This evaluation also should consider the extent to which the air element of the air-armor task force should possess a ground fighting capability, plus an indication of the extent to which such task forces should be provided from within standard units (armored and infantry divisions) when required, rather than as special purpose units.

4. In developing the required data, it is essential that United States Continental Army Command develop those concepts and organizations designed to provide the Army the best attainable integrated capability for future land warfare, regardless of previous actions or guidance on this subject. If changes are considered necessary, to provide the optimum capabilities for future warfare, the recommendations of

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OFS OT DC 4

SUBJECT: Establishment of an Experimental Aerial Battalion (Infantry)
(U)

United States Continental Army Command need not necessarily adhere exactly to the concepts and organizations contained in referenced documents.

5. It is desirable that the completed studies be forwarded to reach this office no later than 28 July 1958. If this is not practicable, the most comprehensive studies possible should be submitted by 28 July 1958, with final studies to follow as soon thereafter as feasible.

s/ JOHN C. OAKES
Major General, GS
Assistant DCSOPS for
Operations & Programs

t/ J. E. MOORE
Lieutenant General, GS
Deputy Chief of Staff
for Military Operations

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ANNEX B (BASIC CONSIDERATIONS)

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1. **INTRODUCTION.** Land forces are particularly sensitive to their environment. The unprecedented range of possible environment for land operations in future conflict will require versatile land forces of the highest quality. Since the force structure of the US Army must provide land forces for the entire range of environments, the design of an optimum Army forces must consider this range.

2. **THE OPERATIONAL ENVIRONMENT OF ARMY FORCES DURING 1958-1970.**

a. General. The operational environment encompasses the purposes of the force and the elements of the situation which exercise a controlling influence on the optimum characteristics and employment of the force. The operational environment includes the limitations imposed by national policy or higher command, the scale of use of nuclear weapons, the scale of use of chemical and biological weapons, and other factors such as the geographic locale, the friendly force structure, and the nature of the enemy.

b. Limitations.

(1) Field commanders may expect to conduct operations for limited objectives and under such limitations as a restricted area of combat, restrictions on weapons systems employed, restrictions on the timing of operations, and denial of the opportunity to strike specific targets or types of targets.

(2) Each operational decision involving the exercise of restraint has both military and political considerations. Generally, political considerations increase with the level of command. At lower levels (division and below), the commander in war is concerned primarily with using available means most effectively to accomplish his mission. In more limited conflict, the responsibility for decisions involving self-imposed restraints may be found at lower levels.

(3) A field commander may be required to conduct combat operations using less than the full combat power of his command. This situation places a heavy responsibility on the field commander, particularly when he considers that adherence to the limitations imposed will jeopardize the integrity of his force. Measures should be taken to avoid such situations or to reduce their complexity for the field commander.

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c. Role of fire power.

(1) Nuclear weapons from fractional kiloton to multimegaton yield are an accepted component of military force, creating problems of a type never before faced on the battlefield. Low-yield nuclear weapons can be made with destructive power comparable to that of such nonnuclear means as an air bombardment or an artillery concentration. Thus there exists an essentially indivisible spectrum of force available in the form of fires from small high-explosive weapons to multimegaton weapons of the greatest destructive power. Further, nuclear radiation, through denial, inhibits surface movement in the battle area, and may inhibit operations over large areas for prolonged periods.

(2) The variety of scales of use of nonnuclear and nuclear weapons makes possible an unprecedented range of possible operational environments of the field forces. While there can be no clear-cut formulas or rules, it is essential to develop subjective, qualitative impressions of the various conditions which may exist in the battle area.

(3) No clear dividing line can be drawn between atomic and nonatomic warfare operations. Nonnuclear ammunition is always employed in atomic war and may be employed in large quantities. Both the atomic and nonatomic battlefield are conditioned by the ever-present threat of employment of nuclear weapons. This threat may lead to nonatomic warfare operations which resemble operations of atomic warfare. Very infrequent use of nuclear weapons or the use of very low-yield weapons will cause the distinction between nonatomic operations and atomic operations at a low level of usage to disappear.

(4) The complex effect of nuclear weapons on operations can be considered in terms of a simplified concept of the relation between fire and maneuver in war.

(5) Generally speaking, in the lower ranges of the spectrum of employment of fires, in both atomic and nonatomic war, maneuver is predominant. Fires, both nuclear and nonnuclear, generally support maneuver, which is essential to maximize limited fires and achieve decision. Improved mobility of the force and other measures which permit speed and dispersion and reduce vulnerability offset an increase in the level of employment of fires, restore the balance of the fire-maneuver relation, and permit operations in a war of movement. The maximum mobility is always desired in war. With the greatly increased fire power available in nuclear weapons, the attainment of the greatest possible air and ground mobility on the battlefield is of paramount importance.

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(6) Generally speaking, toward the higher end of the spectrum of employment of fires, the large-scale use of nuclear weapons changes the fire-maneuver relation to the degree that fire predominates. In the higher levels of usage two significant variants are visualized:

(a) The employment of many low-yield weapons delivered with precision and discrimination on targets of military significance.

(b) The employment of large numbers and yields of weapons by both sides, blanketing large areas and inhibiting the employment of large maneuvering forces. The intensity of nuclear attack which a force can withstand and retain relative freedom of maneuver will depend on tactics and organization and on force vulnerability. Mobility, dispersion, and active and passive protective measures permit the reduction of vulnerability.

(7) The tactics and organization for combat of the force must continuously adjust to the environment. As the level of use of atomic weapons increases, the combat organization is increasingly built on smaller, maneuverable, semi-independent close combat forces with organic fire power. Passive protective measures assume increasing importance.

(8) With a sufficiently high level of use of nuclear weapons, the ability of small close combat forces to maneuver may be hampered to the degree that significant maneuver is not possible. This condition can eventually occur regardless of the characteristics of the force. This is essentially a condition of nuclear saturation, in which the immediate requirement of the field force is to preserve force integrity so as to contribute to the battle within its capabilities until the introduction of force from outside the battle area changes the environment to one more propitious for land operations.

(9) Land forces are capable of fighting throughout the entire range of environments. They reach their maximum effectiveness in support of national strategy under conditions in which movement is significant or decisive. These conditions allow achievement of decisive objectives without initiating a war of complete destruction.

(10) The prolonged employment of very large numbers of high-yield nuclear weapons by both sides is destructive in the extreme and results in very high casualties to both combatants and to civilians within the battle area and outside. The effects of such warfare will make its deliberate initiation unacceptable to either side except in extreme cases where vital objectives are at issue.

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(11) Because modern nuclear weapons provide highly destructive force at a relatively lower investment in logistics and weapons systems, the tendency of combatants will be to employ these weapons. This tendency will increase as nuclear weapons of subkiloton yield become available and the distinction between the effect of nuclear and nonnuclear weapons disappears.

(12) Conduct of limited atomic warfare may involve consequences or risks which neither combatant is willing to accept. In certain contingencies, it may be to the advantage of both combatants to conduct the entire war without employing nuclear weapons in any form.

(13) The commander must continually assess and prepare for the conditions associated with the various scales of use of nuclear weapons. In view of the futility of predicting the scale or timing of the use of nuclear weapons in any future war, field forces must be prepared to the maximum feasible extent to operate in any environment.

d. Chemical and biological warfare.

(1) The considerations of limited warfare apply to the use of chemical and biological weapons. Toxic chemicals may be employed either tactically or strategically with greater emphasis on their tactical role. Biological agents are primarily a strategic weapon. They can be used tactically on deep targets in all operations when delay in casualty effects is acceptable and on close-in targets during retrograde and similar operations. Military forces must be prepared to employ and defend against biological and chemical weapons. This preparation is a deterrent to their use.

(2) The choice of toxic chemical effects adds to the range of combat power which can be selectively applied in proportion to the particular objectives sought. These agents may be used alone or in conjunction with nuclear and conventional weapons depending on the target effect desired. The effect of weather on both chemical and biological weapons and cloud travel is a limiting factor in their employment. Toxic chemical weapons properly selected and employed may contribute to the speed of decision. Since their presence may not be readily detectable, forces must be prepared for their surprise use.

e. Other elements of the operational environment. Other elements of the operational environment include such aspects as the geographic locale, the friendly force structure, and the nature of the enemy.

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(1) The geographic locale of a campaign determines such important factors as the type of terrain, the climate, and the degree of development of the area of operations. These factors have a material bearing on the character of the operation and the composition of opposing forces. US Army forces can operate in any land area on the earth's surface. Special training and equipment are required for certain areas.

(2) The friendly force structure will vary in a wide range from that of a land force of armies, corps, and divisions in a large theater of operations, to that of a small independent task force consisting of land-sea-air elements committed with little warning and relying primarily on air transport. US Army forces must be able to operate in any of the variety of force structures possible.

(3) The enemy may vary in quality from the most modern to relatively primitive forces. The enemy will frequently have a numerical superiority. Enemy forces will often possess qualities of endurance, hardiness, and persistence which make them extremely effective under difficult conditions. US Army field forces must be trained and psychologically prepared for actions against any likely type of enemy.

3. SOVIET BLOC CAPABILITIES AND LIMITATIONS.

a. General.

(1) Since World War II, Russia has vigorously continued to modernize its ground combat forces. In training, tactical doctrine, and weapon system development the Soviets are emphasizing mobile operations in atomic, CBR, and conventional warfare. As in the past, the USSR regards ground forces as decisive in future war and has equipped these forces, estimated in excess of 4 million, with modern weapons and equipment on a scale exceeding any other nation in the world. Unless there is a major change in US national policy, USSR ready forces during the time frame will have higher combat efficiency and be better trained than like US and Allied forces. Production of modern war materiel provides stockpiles currently capable of supplying about 300 divisions for approximately 6 months.

(2) Satellite ground forces equal approximately 1-1/2 million, to which may be added China's Communist Army of 2-1/2 million. These forces are primarily infantry and are receiving some modern weapons and equipment though at a lesser priority than Russian units. The mechanization of these forces will improve as the USSR passes on equipment that is replaced with newer items.

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b. Capabilities.

(1) The USSR has given primary emphasis to increasing the contribution of science and technology to Soviet military and industrial capabilities. While much of their current weapons and equipment is equal to or superior to similar US items, Soviet scientific research and development has demonstrated its capability to produce significantly new weapons and equipment. Shortages of scientific and technical personnel are being overcome to the point where the Soviets may soon enjoy a superiority over the Western World in this regard which, coupled with a determined military program and large defense budgets, permits development and production of revolutionary new items.

(2) Adequate quantities of fire power items of ground equipment can be expected to augment conventional cannon artillery. They include tactical surface-to-surface missiles with accuracies and weapon yields comparable to their US counterparts and ranges up to 700 nautical miles; surface-to-air missiles with ranges of 100 to 200 nautical miles and altitudes of 100,000 to 300,000 feet employing implosion-type nuclear warheads; a new heavy gun tank to replace or complement the T-10; self-propelled assault guns of improved range and accuracy over previous models; modernized flame weapons, including tank mounted types; and improved night fighting equipment.

(3) While the USSR currently is in an inferior position with respect to number and location of bases for delivery of nuclear weapons, the Soviets will, during the time frame, develop nuclear weapons of sizes and types comparable to the existing US weapons. The USSR will have the capability of allocating sufficient nuclear weapons to specific forces to equal or exceed the US Army force capability in a particular area. Due to the prestige of the Soviet Army and the apparent dependence on this force for execution of the major effort in future war, the Soviet Army will probably be allocated a large percentage of the total Soviet stockpile. The USSR policy of stockpiling weapons and equipment in selected dispersed locations could result in a delay of approximately 6 months in a general war before the effects of US strategic attacks on the Soviet industrial base would cause a shortage of weapons. Prior to 1970 the use of nuclear energy could increase the capabilities of the Soviet bloc ground forces by the employment of nuclear reactors in underdeveloped geographical areas in support of transportation and communications facilities and logistical installations.

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(4) The Soviet bloc will have an extensive capability for mass employment of chemical and biological agents which may equal or exceed that of the US. Nerve gases, to include G-series agents, are known to be available and the far more lethal V-series agents can be produced in large quantities in the period under consideration. The USSR is capable of covert biological warfare and by this period can develop the capability for mass employment of BW agents. Like the US, the USSR will be unable to stockpile significant quantities of radiological warfare agents for military use.

(5) Since they do not require a surface fleet to protect sea lines of communications, the Soviets have concentrated upon developing a strong submarine force that can seriously interfere with US and Allied naval and amphibious operations. A significant number of long-range submarines, perhaps nuclear-powered, are expected to be guided missile carriers. This would enable the Soviet Navy to attack industrial and military targets up to 500 miles inland in the Northern and Southern Hemisphere. European satellite nations are not expected to contribute materially to a Soviet naval threat. The Chinese Communist Navy has a small number of destroyers and submarines which is primarily a defensive force. However, it is increasing its capabilities and could conduct some active operations against Chinese Nationalists and other Allied shipping in the Indian and Pacific Oceans.

(6) (a) As in the US, the capabilities of Soviet airpower will be significantly advanced during the period 1960-70. Fighter bombers and ground attack aircraft will be jet types equipped with advanced aircraft weapons and fire control equipment. Surface-to-surface and surface-to-air missile developments will have a profound effect on the number of Soviet aircraft with a probable reduction in the number of fighter interceptors at a relatively early date. As short- and medium-range missiles are integrated into Soviet ground force units, a reduction in tactical aircraft will result. The need for long-range heavy bombers will drop sharply with the development of intercontinental ballistic missiles and submarine-launched missiles. Although technological development will stress improved target acquisition means during this period, a requirement will still exist for tactical aircraft to be employed for reconnaissance, EW, or where the use of missiles would be uneconomical.

(b) The USSR has about 18,000 tactical aircraft including those assigned to naval aviation. While jet fighters will be responsible for the fighter air defense of the area in which they are based, the

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integration of surface-to-air missiles in Soviet ground force units will sharply reduce the aircraft required for this purpose. Soviet jet light bombers capable of high subsonic cruise and supersonic dash will be used for ground support. Russian field forces will employ VTOL and STOL aircraft extensively and technological advancements should insure that these forces will be equipped with STOL and VTOL aircraft with capabilities comparable to US Army aircraft. Assignment of these forces to air armies organic to Soviet Army groups (Fronts) insures close air-ground operational cooperation.

(7) The USSR will continue to have a significant unconventional warfare capability. Covert nets, led by agent intelligence officers assigned to Fronts, will find support from indigenous Communist sympathizers and agents planted in the guise of refugees. Overt sabotage-intelligence groups (airborne, air-landed, or infiltrated behind enemy lines) are also assigned to Fronts. These have an organic POW interrogation capability and supplement ground reconnaissance by combat units and use of tactical aviation for target acquisition.

c. Limitations. Certain Soviet bloc weaknesses exist now and although they may exist to a diminishing degree, they may extend through 1970.

(1) The Sino-Soviet bloc area covers 12 million square miles. The significant military, industrial, and population centers are concentrated in an area of about 2 million square miles in European Russia, the satellite nations, and the Soviet Far East. The vast areal extent of the USSR, the preoccupation of the Red army with NATO forces, the satellite nations and internal order, the relatively limited transportation and communication facilities, and the requirement for concentrating air defense means in the vital highly populated areas preclude adequate protection of all avenues of approach into the Soviet Homeland. There will be a number of relatively unguarded avenues of approach along the Northern Siberian coastline, in Central Siberia, and along the southern borders of Central Asia.

(2) Soviet psychology does not permit decentralized control and rapid reaction to the degree inherent to US Army doctrine. Although future Soviet doctrine can be expected to emphasize increased authority at lower echelons, this is in conflict with the fundamental Communist philosophy of centralized control and progress can be expected to be slow. Because of this trait, Soviet reinforced regiments and some smaller reconnaissance and security units will normally comprise the smallest operational elements on the battlefield.

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(3) Although Soviet technological developments will be directed toward improvement and refinement of target acquisition means, Soviet ground forces will depend primarily on ground reconnaissance by combat units to obtain close-in target information while tactical aviation and an organized agent network will be used for deeper targets.

(4) The Soviet air defense may be capable of providing significant protection for static installations against attacks from strategic aircraft and guided missiles. It is doubtful, however, if Soviet tactical air defense systems that are capable of defeating short-range ballistic missiles and aircraft operating at extremely low altitudes will be available by this period.

(5) An important USSR vulnerability is its dependence on a limited and inflexible transportation system. Rail service in European Russia is far inferior to US standards and only the Trans-Siberian line exists in Asiatic Russia. There are few hard-surfaced highways in Russia. These inadequacies will be only partially improved and will cause many bottlenecks in the system that will seriously impede movement of personnel and war materials. The Soviet Army continues to use artillery, armor, and other combat equipment that is extremely heavy and therefore tends to limit its cross-country mobility. This aggravates the situation created by the sparsity of rail and road facilities.

(6) Satellite nations and dissident elements in the USSR will require large forces to keep them suppressed. Should the opportunity occur, large portions of the populations will be openly hostile to the USSR and friendly toward the US and Allied nations.

(7) The Soviet Union has not been capable of producing adequate foodstuffs to feed its people and also create sizable food surpluses. Rationing and famine accompany a year of low food productivity. This marginal condition and the increasing population makes Russia extremely vulnerable to destruction of its crops which could be achieved in a most devastating manner by strategic use of biological agents.

d. Tactical doctrine.

(1) Soviet tactical doctrine for atomic warfare calls for increased mobility, maneuverability, and dispersion of combat units during all types of operations. New doctrine will continue to be an evolution or modification of conventional nonatomic doctrine and will

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consider superiority in conventional weapons a matter of continuing importance. Combat units will be supported by tactical aviation under ground force commanders and will have a greatly increased capability in tactical nuclear weapons. They will have, as well, a highly effective air defense system which will severely limit Allied air operations. Depths and frontages for combat units have been extended; the tempo of operations has been increased; deeper objectives are assigned; and greater flexibility is employed on the defense. Soviet nuclear weapons will be used for their mass and surprise effects in conjunction with the massed fires of conventional weapons.

(2) Soviet offensive tactics. Offensive action is stressed in the adoption of Soviet tactical doctrine for atomic warfare. The normal Soviet offensive, whether or not atomics are employed, is an encircling maneuver. It consists basically of the concentration of numerically superior forces for wide envelopments and deep and rapidly executed armored thrusts designed to completely annihilate the enemy in specified sectors and bring about the collapse of his defenses over a wide front.

(3) Soviet defensive tactics.

(a) Current Soviet nuclear doctrine calls for the defense to be organized in greater depth and width to allow greater dispersion. Strong reserves and mobile counterattack forces are employed to provide flexibility. Nuclear weapons may be used to augment conventional weapons whenever they can be employed without endangering the defense. Defensive forces would rely on dispersion and maximum use of cover to protect personnel and materiel from the effects of enemy nuclear weapons.

(b) Soviet organization for defense in 1960-70 would probably follow their current nuclear defensive doctrine very closely. A typical rifle corps in the defense under nuclear conditions would most likely be organized into two echelons, with the rifle divisions in the first echelon and the mechanized division in the second. The corps would defend a zone up to 36 miles in width, with each forward division covering up to 18 miles of front. The main defense zone would extend 20-30 miles in depth.

(4) Airborne operations. Current trends indicate that the Soviet Army is concentrating on improving airborne capabilities. Their doctrine calls for employment of company- and regimental-size parachute or air-landed (employing STOL and VTOL aircraft) operations to sabotage missile launching sites, nuclear storage areas, communications, and

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rear area activities. Airborne operations will be employed for armed reconnaissance and in advance of ground exploitation forces. These operations can be successful when US and Allied air defenses are weak or adequately suppressed.

4. VULNERABILITY OF AERIAL VEHICLES.

a. General.

(1) Vulnerability is the susceptibility of a force to enemy action by all means. Vulnerability of a force should be reduced to the minimum commensurate with the accomplishment of the mission. Acceptance of a degree of vulnerability by a commander in the accomplishment of his mission is a calculated risk inherent in warfare. While the commander tries to minimize the vulnerability and attendant risk in each operation, the accomplishment of the mission is the dominant consideration. The decision to take certain risks is based on a careful consideration of the possible consequences. If the risk is unacceptable, the plan of action must be revised.

(2) All forces and their weapons systems are vulnerable to enemy counteractions in combat. Vulnerability of forces attacking from the air is relatively higher than for other forces because of the relative lack of protection. The vulnerabilities of any type of force must be considered in light of the visualized concept of employment. Appropriate operational techniques, i. e., speed of movement, camouflage, surprise, dispersion digging in, etc, must then be employed to minimize the vulnerability of a particular type force. The tactical movement of combat forces in aerial vehicles points up a number of vulnerabilities that are associated with the mode of operations, the effects of conventional, nuclear, and CW-BW weapons, command of the air, weather, terrain, darkness, ground disturbance, and noise.

b. Mode of operation.

(1) Airmobile forces are transported in aerial vehicles which move in the ground environment only a few feet above the surface of the earth. In the attack, these forces, supported by ground-to-ground and air-to-surface fires delivered from aerial vehicles, move rapidly to an objective area where close combat elements are air-landed to fight on foot. Should a force be faced with defeat by superior forces, it may disengage and displace to avoid excessive losses. Resupply is effected by an air line of communications from the field army area to the objective area.

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(2) To reduce vulnerability during offensive operations, an airmobile force exploits its capabilities. These features include surprise, flexibility, speed of movement, use of suppressive fires, and dispersion. The movement by aerial vehicles at low altitudes takes full advantage of terrain irregularities for protection from enemy action. These nap-of-the-earth operations enable surprise of the enemy and shorten the time for detection and engagement by enemy countermeasures systems. Normally, movement is independent of surface routes. This permits extreme flexibility in selection of avenues of approach that avoid known or suspected enemy defenses. Flexibility is also enhanced, and vulnerability reduced, by the agility of aerial vehicles which enables them to move slowly and cautiously or at high speeds through danger areas. Should a route become untenable, an alternate route can be adopted with relative ease. Maneuvers are executed rapidly in a manner to surprise and deceive the enemy and to throw him off balance, thus facilitating his destruction. The capability for a relatively high rate of movement reduces the exposure time to enemy weapon systems and permits rapid extrication of forces on completion of a mission. This capability tends to lower losses. Responsive administrative support by air speeds up early completion of tasks and shortens exposure time. Nuclear and/or nonnuclear air-to-air, air-to-surface, and surface-to-surface supporting fires neutralize enemy weapons systems which in turn reduces the susceptibility of airmobile forces. The use of sudden, hit-and-run, evasive tactics with appropriate variations will also diminish the vulnerability of these forces. By exploiting their mobility, airmobile forces may be dispersed over extensive areas during movement to the objective area. Just prior to arriving at the objective area, the intervals between elements are closed, as required for success of the operation. Sufficient data on the effects of nuclear weapons on army aircraft are not available to ascertain the magnitude of optimum intervals. Two criteria must be considered when determining the distance between elements of an overall force; first the accomplishment of the mission and second the calculated risk that is acceptable in the light of enemy counteraction capabilities. The ability to rapidly increase intervals between elements of a force in the face of a suddenly developed enemy threat and to diminish these intervals as the threat dissipates should lower the relative susceptibility of the overall force.

c. Effects of conventional, nuclear, and CW-BW weapons.

(1) At present the vulnerabilities of men and aircraft to conventional weapon effects are generally known. The continued evolutionary development of conventional weapons can be expected to increase the lethality of these weapons by 1970. However, the lethality of even the smallest nuclear weapons will continue to be many times that of

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their conventional counterparts. The mode of operations and pattern of deployment of airmobile forces are so designed as to be adaptable to both atomic and nonatomic warfare. Since these forces have the capability for survival and reduction of their vulnerability in an atomic environment, they can readily adjust to and adopt those protective measures essential for nonatomic conditions even though significant improvements in conventional ammunition are realized.

(2) The initial effects of atomic weapons against airmobile forces, either airborne or in an objective area, can have a devastating impact on operations. The high-velocity gust winds generated by a nuclear air burst over an airmobile formation may, within the radius of effect, damage aerial vehicles structurally or blow them into tree tops or into the ground. Damage criteria reflecting the effects of nuclear explosions on low-flying army aircraft are not available. Therefore, detailed evaluation and conclusions of vulnerability of airmobile forces, while airborne or on the ground, to these weapons effects cannot be made until further test data are available. As more data is accumulated, a more accurate assessment of the feasibility of nap-of-the-earth operations in the face of nuclear attacks will be possible. It is expected that the radius of effects of nuclear weapons on aircraft operating in the nap-of-the-earth will be greater than those on aircraft flying at higher altitudes. Aircraft at a high altitude can absorb gust and blast effects to some extent within the air medium. Very low-flying aerial vehicles do not have sufficient altitude to take advantage of cushioning by the air and may be forced into the ground. While airborne, the best protection that an airmobile force has against nuclear attack is through the dispersion of its component parts. When a force is attacked by atomics, only elements of the total force are destroyed but normally the combat effectiveness of the overall force is not sufficiently reduced to prevent the force from continuing its mission.

(3) Combat forces moving by aerial vehicles have a definite advantage over surface combat units when CW-BW agents or radioactive fallout (accidental or intentional) are present. These forces may skirt or fly over known contaminated areas with relatively low overall vulnerability to CW-BW or fallout effects. The mobility of these forces permits early departure from an area of operations following detection of CW-BW agents or radioactive contamination. This results in relatively lower losses by these forces when exposed to CW-BW agents of radiological contamination.

d. Command of the air.

(1) General command of the air embraces both offensive counterfire power and an active-air defense to deny the enemy effective

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penetration of the air space over areas occupied by friendly field forces. By the use of offensive counterfire power, enemy ballistic missiles, aerodynamically supported carriers, their auxiliary equipment, and weapons in storage are destroyed on the ground. Army surface-to-surface missiles, attack aircraft, long-range cannon, and the weapon systems of the Air Force and Navy are employed for offensive counterfire power missions to destroy enemy weapons on the ground. In addition, Army air defense forces are employed to attack enemy missiles and aircraft after they are airborne. An effective field army air defense should provide a protective umbrella which extends 30-40 miles beyond the limits of the area actually dominated by friendly forces. Further discussion of the relation of friendly command of the air to the vulnerability of airmobile forces requires that we first consider operations over friendly occupied areas and then subsequently consider operations over enemy occupied areas.

(2) Airmobile operations over friendly occupied areas will involve combat forces which are assigned tactical missions of screening, reconnaissance, antiguerrilla, etc. In addition, maintenance of an air LOC to airmobile forces operating in enemy-dominated areas will require that logistical aerial vehicles move over friendly as well as enemy areas to deliver supplies, evacuate casualties, etc. The degree of success of tactical and administrative operations within friendly areas will depend largely on the degree of effectiveness of air defense forces in the combat zone. When friendly forces have a high degree of command of the air, the airmobile operations may be conducted (within the limits of the protective air defense umbrella) without substantial interference from the enemy. The degree of command of the air enjoyed depends basically on the availability of air defense means and the enemy's capability to counter or reduce their effectiveness. Should the enemy achieve a degree of command of the air over friendly dominated areas, he may be able to inflict sufficiently heavy losses on airmobile forces to enforce suspension of these operations until friendly forces can regain the necessary degree of command of the air.

(3) (a) The enemy will have air defense means similar to our own to counter the ballistic missile, aerodynamically supported carrier, and airmobile attacks on his forces in the field. Enemy-manned, low- and high-speed attack aircraft operating with relative impunity within the limits of an air defense umbrella can attack our aerial assault formations. Our aerial vehicles will also be targets for enemy rifle, automatic weapons, and other ground fires. In addition, as the threat of airmobile attacks increase, the enemy will give increased attention to modifications of existing weapons systems or development of new weapons systems to meet this threat. These countermeasures

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may include the increased use of airborne and air-tethered surveillance radars in conjunction with his existing air defense systems to enable detection and engagement of the low-flying airmobile formations at long ranges. Land mines could be employed to damage or destroy aerial vehicles operating in the nap-of-the-earth. These might be simple multiple fragment devices similar to and larger than the Umbrella or the Claymore. These mines could be placed on the ground along likely avenues of approach and could be activated selectively or automatically at the proper time to destroy very low-flying aircraft.

(b) The success of airmobile operations over enemy-held territory, beyond the friendly air defense umbrella, will depend largely on the enemy's capability to detect and engage low-flying aerial vehicles with his weapons systems, upon our ability to neutralize or suppress hostile counteraction with long-range counteroffensive fires, and with the fires delivered from the aerial vehicles of an attacking force.

e. Weather and terrain. Inclement weather is the greatest nemesis to flying. Bad weather will continue to restrict and degrade flight operations to a significant degree. The use of VTOL and STOL aerial vehicles by airmobile forces eliminates most of the restrictions currently imposed by terrain. Nevertheless, heavily wooded areas, large bodies of water, swamps, and precipitous hills and mountains will continue to restrict landing operations. In addition, mountainous terrain causes unpredictable weather phenomena that increase the hazards of very low-altitude flight. Weather and certain terrain are important limitations that must be given detailed consideration during the planning and execution of airmobile operations. Operations conducted during favorable conditions will increase the susceptibility of participating forces to losses.

f. Darkness. Darkness imposes many restrictions on low-level flying. Most obstacles encountered at very low altitudes do not exist at higher altitudes. Some natural obstacles of the ground environment which influence nap-of-the-earth operations are trees, sudden change in the ground form, erratic surface winds, etc. In addition, the enemy may install artificial obstacles such as cables between trees or suspended from balloons. During daylight, pilot action can reduce the hazards imposed by such obstacles. However, at night pilot vision is extremely limited and he must depend primarily on navigational aids which, although they may be greatly improved, cannot detect all obstacles nor react as a pilot would. This will result in higher aircraft attrition at night. Since there are many other detrimental factors that tend to reduce combat

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effectiveness of forces operating at night in the ground environment, it is felt that the increased problems imposed by the condition of darkness will normally limit airmobile operations.

g. Ground disturbance and noise. VTOL and STOL vehicles operating just above the surface of the earth create extensive ground disturbance and noise and make the achievement of a high degree of surprise difficult. These undesirable effects will alert the enemy, increase his action time, and contribute to the vulnerability of airmobile forces. Unless a major technological breakthrough is conceived that can substantially reduce these undesirable effects, deceptive actions must be implemented in conjunction with airmobile operations to confuse or deceive the enemy as to the nature and location of impending operations. These deceptive measures should reduce a force's overall vulnerability and enhance the achievement of surprise. In addition to deception operations, coordinated preparatory and counteroffensive fires are delivered in support of airmobile operations. These supporting fires, delivered to neutralize or destroy enemy positions, contribute to the overall chaos and noise level in the battle area and further confuse the enemy as to the nature of the operation.

h. Summary. Airmobile operations are feasible when losses can be held within acceptable rates. Actual attrition rates can only be obtained from experience derived from combat. However, experimental factors which should be of value are being developed in tests at the US Army Aviation School, US Army Infantry School, and US Army Combat Development Experimentation Center. Additional data pertaining to nuclear effects on army aircraft must be obtained from further nuclear weapons tests. The mode of operation visualized for airmobile forces, with their capability of moving rapidly in dispersed formations and concentrating only to the degree necessary to achieve success, should tend to make these forces less vulnerable than forces operating on the surface in a similar environment. Airmobile forces are no more vulnerable to improved conventional weapons and less susceptible to the lethal effects of CW-BW agents or radiological contamination than corresponding combat organizations. Damage criteria for immediate nuclear effects on very low-flying aircraft are inadequate to formulate a detailed assessment of these effects. The successful suppression of enemy countermeasures against airmobile operations and a significant degree of command of the air over friendly occupied areas will markedly reduce the vulnerability of these forces. Inclement weather, certain terrain, and darkness will significantly degrade airmobile operations. The limitations imposed by these factors may be lessened by complete and realistic planning. Deceptive measures and coordinated supporting fires can be implemented in conjunction with airmobile operations to offset the noise and ground disturbance created by the aerial vehicles.

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5. COST CONSIDERATIONS.

a. Training and provision of aerial vehicles for airmobile forces will, in terms of dollar costs, be expensive. However, it appears that airmobile forces will have the capability of performing certain critical combat missions more effectively by utilizing aerial vehicles. Under these circumstances cost should become secondary. In other words, cost must be related to need. When an item is needed badly enough to insure success in battle, and there is no satisfactory substitute, the expense to satisfy this need is justified.

b. The operational environment for modern war strongly points out the need for highly mobile forces that can move independent of terrain and that can dominate large areas. It is recognized that to provide the airmobile capability it will cost more than similar units operating on the surface. However, airmobile forces are capable of controlling much larger areas. Thus when cost is considered on the basis of square miles of controlled territory, the costs of airmobile operations should not be prohibitive.

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ANNEX C (ROLES AND PHASED INTEGRATION OF ARMY AIRCRAFT IN CURRENT AND FUTURE ORGANIZATIONS)

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1. Discussion of the operational and organizational characteristics for the very long range field army.

a. Division.

(1) General. ARDP-69 and the USCONARC PENTANA Study establish as an ultimate objective a universal air-transportable division. The division will be able to execute the Army combat functions of assault, reconnaissance, surveillance, and target acquisition, and apply fire support against the enemy in the field. It requires organic logistical elements and logistical support from higher echelons.

(2) Assault.

(a) Definition: This function is that of destroying the enemy or his will to fight by applying the lethal means available to those army organizations in close proximity to the enemy. The function is different from the application of fire support normally associated with atomic or conventional artillery, missiles, or Air Force bombardment. It is also different from the function of reconnaissance or armed reconnaissance, which is designed to provide information for assault and fire support elements. Reconnaissance operations may be as violent as those associated with the assault, but the purpose of these operations is normally that of obtaining information upon which to base other operations.

(b) The bulk of the assault elements of the universal air-transportable division will be mounted in organic fighting vehicles with zero ground pressure or vehicles optimized for cross-country maneuver independent of roads and bridges. The proportion of zero ground pressure vehicles to others will be dependent upon the ultimate capabilities and complexity of each. An important characteristic of each will be ease and simplicity of operation and maintenance. These highly mobile assault forces will be organized into small elements capable of widely dispersed independent or semi-independent operations. They will accomplish those functions now associated with infantry and tank units.

(3) Reconnaissance, surveillance, and target acquisition (RESTA).

(a) Definitions as applied to this study: Reconnaissance includes armed reconnaissance. Surveillance includes the capability of applying the principle of economy of force on flanks or in rear areas.

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Target acquisition is related to reconnaissance and surveillance and includes the accurate location by x-y-z coordinates of enemy targets in the battle area.

(b) RESTA missions will be assigned to those elements responsible for executing assault functions. Organic zero ground pressure vehicles and other fighting vehicles will have the necessary combat force, including fire power, to execute armed reconnaissance. Additionally, zero ground pressure vehicles will be able to operate as mobile elevated platforms to extend the RESTA function from 2 to 3 dimensions. Selected few vehicles will carry radar, infrared, or other electronic equipment as required.

(c) At division level there will be an aerial surveillance unit operating under control of a division TOC which will supplement the capabilities of the division assault elements in performing the RESTA function. The special operations unit will be equipped with armed zero ground pressure vehicles and drones mounting electronic and the sensory devices. The electronic and other sensory devices that are organic will be more numerous and complicated than those available to the assault elements.

(4) Fire support. Atomic and nonatomic fire support will be provided by integrated, attached, or supporting fire units. Fire support units organic to the division will have mobility comparable to that of the division's assault elements. Target location information, to include the x-y-z coordinates, will be furnished to the fire support units by a TOC located at division or subordinate headquarters. The TOC will, in turn, receive information from assault units executing RESTA functions and the division aerial surveillance unit.

(5) Logistical transport support. Organically, the division will have a limited transportation capability to effect its own logistics support. Normally, unit distribution of supplies and replacements will be effected by a higher echelon which is also responsible for medical evacuation. The small transportation unit will be equipped with zero ground pressure cargo carriers or other types of ground vehicles with optimum cross country characteristics. Here, the relative economy of the vehicles will govern the type to be utilized.

b. Nondivisional (corps and army).

(1) General. The primary combat functions of corps and army will be RESTA and fire support (ground and air). Corps and army

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will also be responsible for the logistical support of universal air-transportable divisions, as well as corps and army troops.

(2) RESTA.

(a) For RESTA definition, see 1a(3) above.

(b) The corps commander is provided an aerial surveillance unit designed to carry out the RESTA function in those portions of the corps' area of influence not dominated by its divisions. Particular emphasis is on security and application of economy of force in rear areas and on exposed flanks; for this concept these missions are considered as part of the surveillance function. The aerial surveillance unit, while similar to that which is organic to the universal division, is larger in order that it may be employed over a larger area. Its equipment, relationship to the TOC, and its mode of operation is analogous to that of the division.

(3) Fire support. Atomic and conventional fire support units provide general support within corps area of influence. Fire support units are self-propelled, highly mobile, or air-transportable by army aircraft. In cases where weapons systems are compatible, fire support units are mounted in zero ground pressure vehicles. Target location is provided to fire support units by the corps TOC, which receives its target information from division TOC or the corps aerial surveillance unit.

(4) Logistical transport support.

(a) The corps and army are administrative echelons. Mobile support groups in support of divisions and in support of corps and army troops have organic logistical transport. Zero ground pressure vehicles, or other types optimized for cross-country mobility, are utilized to effect unit distribution of supplies and replacements. The same vehicles are used for medical evacuation. The factors employed to determine the ratio of zero ground pressure vehicles to other types of vehicles are economy of operation and speed of movement. All transport-type vehicles are armed to effect suppressive or close-in protection fires.

(b) In the event that separate supply, maintenance, evacuation, and transportation facilities are retained in the corps and army echelons, vehicles of the mobile support groups will be found in

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transportation corps units. The vehicles will be made available to those organizations responsible for other logistical functions.

2. Review of the operational and organizational characteristics of the PENTOMIC army.

a. Divisions.

(1) Infantry - airborne.

(a) General. The organizational concepts for the ROCID and ROTAD organizations are similar except for the logistical support systems, the qualities of transportation, the tank and reconnaissance battalions of ROCID, the engineer battalion structure, and the field artillery structure. ROTAD enters combat by parachute and is dependent upon US Air Force aircraft. Generally, the subparagraphs which follow are based upon ROCID, but - with the above exceptions - apply to ROTAD.

(b) Assault.

1. Definition: The same as subparagraph 1a(2)(a) above; i. e., this function is that of destroying the enemy or his will to fight by applying those lethal means available to those army organizations in close proximity to the enemy.

2. The assault elements of the ROCID are the infantry companies of five battle groups and the division tank battalion. The organic mobility of an infantry company is, primarily, foot movement. The division tank battalion is a mounted fighting unit; however, its mobility is restricted by the weight of its vehicles, its short range without refueling, and its dependence on bridges. Infantry companies are air-transportable in fixed-wing aircraft or helicopters. These assault elements have excellent mobility in very rugged terrain, but they are vulnerable to the effects of improved conventional and atomic munitions. With proper training, air-transportable assault elements can form airmobile task forces for particular operations utilizing aircraft attached from higher echelons (anx. D). Without the attachment of armored personnel carriers, trucks, or air vehicles, infantry assault elements are relatively incapable of participating in mobile warfare or effecting maximum dispersion between units. Two armored personnel carrier companies, pooled in a division transportation battalion, a division aviation company equipped with eight H-40 utility-type

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helicopters, are available to increase the mobility of the infantry assault elements. (In ROTAD there are 20 helicopters available for this purpose.) The division transportation battalion also can provide, in addition to logistical support requirements, truck transport capable of lifting one battle group.

(c) RESTA.

1. Definition. Reconnaissance includes armed reconnaissance. Surveillance includes the capability of applying the principle of economy of force on flanks or in rear areas. Target acquisition is related to reconnaissance and surveillance and includes the accurate location by x-y-z coordinates of enemy forces in the battle area.

2. Battle group. The RESTA function is accomplished by all commanders and units. An armored reconnaissance platoon executes reconnaissance and surveillance for the battle group commander. Target acquisition is accomplished by organic or supporting artillery unit forward observers. The battle group does not have an organic aerial capability to extend its RESTA function. However, aircraft of the division aviation company are earmarked for attachment to the battle group for liaison, personal reconnaissance, surveillance and, to a degree, target acquisition.

3. Division. Those elements responsible for the division's assault function (i. e., battle group and the tank battalion) are normally assigned RESTA functions. However, the division cavalry squadron, with organic armored ground reconnaissance vehicles, is the division commander's major unit to execute reconnaissance and surveillance missions. The reconnaissance battalion has a limited target acquisition capability. The division's artillery is the primary target acquisition agency. Its ground forward observers, working in coordination with division assault and reconnaissance elements, forward target locations to an artillery fire direction center which, in turn, assigns fire missions to fire support units. Pooled in the division aviation company are fixed-wing and rotary aircraft - the former mounting radar and infrared sensory devices - earmarked to extend the RESTA capability of the cavalry squadron and the division artillery.

(d) Fire support. Atomic and nonatomic fire support is provided by integrated, direct, and general support batteries and/or battalions. These fire support elements of the ROCID have the degree of mobility normally associated with towed artillery. Fire units of

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batteries or batteries of battalions are capable of echelon displacement to support the division's assault elements. Target location information is gathered, primarily, by artillery air and ground forward observers. Request for fire missions are forwarded direct to artillery fire direction centers located in close proximity to command headquarters (CP). Fire missions are assigned to the integrated artillery unit, the direct support artillery unit, or their accomplishment requested from higher echelon general support artillery units. Pooled in the division aviation company are fixed- and rotary-wing aircraft earmarked for use by artillery fire units in extending the capabilities to acquire targets. Airborne observers request fire missions from the artillery to which they are attached.

(e) Logistical transport support. Since the supply point distribution system is normally employed, a transportation battalion is located in the division. The battalion has 1 truck company and 2 armored personnel carrier companies. Although the latter are primarily used for the tactical movement of the division's infantry assault elements, all vehicles of the transportation battalion may be used to transport supplies from Army supply points to the division and its subordinate elements. There are no aerial vehicles in the division aviation company with sufficient payload to effect emergency distribution of supplies. Therefore, except for very small items, the division is dependent on higher echelon for aerial resupply of assault, RESTA, or fire support units.

(2) Armored divisions.

(a) General. The ROCAD has relatively great ground mobility except for the following limitations: Its vehicles require large quantities of POL since the bulk of its vehicles are heavily armed and, since weight and range are in inverse proportion, the division's effective range is between 60 and 160 miles; and the division is largely dependent on roads and bridging. The armored division is not strategically air-transportable.

(b) Assault.

1. Definition: The same as subparagraph 1a(2)(a) above; i. e., this function is that of destroying the enemy or his will to fight by applying the lethal means available to those Army organizations in close proximity to the enemy.

2. The assault elements of the ROCAD are its armored personnel carrier mounted infantry battalions and its tank battalions. These battalions are normally fragmented and make up the

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assault portion of mobile task forces. Several task forces are assigned to combat commands. There are no organic aerial vehicles available to the ROCAD assault elements. However, pooled in the division aviation company are 6 light cargo helicopters and 8 utility helicopters with a lift capability of approximately 120 personnel. These could be utilized to move infantry-type assault units in an appropriate operation requiring an armored, airmobile task force.

(c) RESTA.

1. Definition: Reconnaissance includes armored reconnaissance. Surveillance includes the capability of applying the principle of economy in force on flanks or in rear areas. Target acquisition is related to reconnaissance and surveillance and includes the accurate location of x-y-z coordinates of enemy forces in the battle area.

2. The RESTA function is accomplished by all commanders and units. However, a division cavalry squadron is designed, specifically, to perform reconnaissance and surveillance for the division commander. This squadron may operate as a unit or may be fragmented and attached to combat commands. Target acquisition is accomplished primarily by artillery forward observers organic to the division fire support elements. Pooled in the division aviation company are 19 fixed-wing, liaison-type aircraft (L-19) and twelve H-13 helicopters which can be attached to the division's assault elements (task forces or combat commands) or to fire support organizations to extend their RESTA capabilities. Additionally, the light cargo helicopters and utility helicopters with a lift capability of 120 men, referred to in (b) above, may be attached to the cavalry squadron. Further, radar and infrared sensory devices are mounted in some of the five L-20-type aircraft for attachment to the division cavalry squadron. By attaching all or a part of these aircraft to the cavalry squadron, the commander has a capability of performing his RESTA function not only on the ground but also in the air. With this augmentation, it is obvious that reconnaissance and surveillance missions can cover greater areas.

(d) Fire support. Atomic and nonatomic fire support is provided by direct and general support batteries and/or battalions to task forces or combat commands. These units have a ground mobility comparable to that of armored carrier mounted infantry since the field artillery units are self-propelled. Artillery forward observers locate targets and request fire missions from artillery fire direction centers. As indicated above, light aircraft and helicopters can be attached to the division artillery elements to extend their capability for target acquisition.

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(c) Logistical transport support. The ROCAD utilizes its organic ground vehicles to proceed to Army supply points to effect supply point distribution. Occasionally, higher echelons provide unit distribution of bulk POL. There is no significant capability in the division aviation company for aerial resupply except light, critical emergency items.

b. Nondivisional (corps and army).

(1) General. The primary combat functions of corps and army are RESTA and fire support. The assault mission is discharged by assigned divisions. Army is responsible for the logistical support of corps and divisions. The corps headquarters is primarily tactical, but it can indicate logistical priorities to the army commander.

(2) RESTA.

(a) The corps commander is provided with an armored cavalry regiment designed to carry out the RESTA function in that portion of the corps area of influence not dominated by its divisions. Particular emphasis is on security, the application of economy force in rear areas and on exposed flanks, and the screening of the corps front (for this concept these missions are considered to be a part of the surveillance function). The armored cavalry regiment has relatively greater ground mobility since the bulk of its vehicles are light and not entirely dependent on roads and bridging. To assist in reconnaissance and surveillance, the armored cavalry regiment has eight L-19 aircraft. In a type corps there are no army aircraft pooled for the purpose of augmenting the reconnaissance and surveillance capability of the armored cavalry regiment.

(b) The primary responsibility for target acquisition and target location in the corps is vested in corps artillery. In addition to the ground observers of corps artillery unit, a type corps contains an observation battalion and a corps artillery aviation company. The corps artillery observation battalion utilizes sound and flash ranging techniques, and can be considered a ground target acquisition unit. The corps artillery aviation company is designed primarily to extend the area target acquisition and target location capability. In addition to fixed-wing and rotary-wing liaison-type aircraft (L-19, L-20, H-13, H-40), the corps artillery aviation company contains four HPOA-type aircraft (MOHAWK). Certain of the aircraft of this company carry radar or infrared sensory devices to augment trained observers and increase target location accuracy. Since the location of aircraft employing electronic sensory devices

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must be known at all times, they are tracked by radar available to corps artillery. Position location for tracking radar is surveyed by corps artillery. Target acquisition information is forwarded to appropriate fire direction centers and fire missions are accomplished.

(3) Fire support. Corps and army artillery provide atomic and nonatomic fire support by reinforcing the fires of divisions. Corps and army artillery battalions have various degrees of relative mobility. A CORPORAL unit is relatively immobile, but it has ranges up to 75 miles. On the other hand, some corps battalions are self-propelled and have the same degree of mobility as that which is associated with armored carrier mounted infantry. Target information is provided to corps artillery by ground observers, the corps artillery observation battalion, and the artillery aviation company.

(4) Tactical transport support. Transportation tactical armored carrier battalions and companies assigned to corps and army provide ground and limited amphibious mobility and transport support for division and task forces. Two armored carrier companies can transport the assault elements of a battle group; 1 company can lift 60 tons of resupply. Through these carrier units is applied the principle of pooling scarce transport equipment not habitually required by units. It supplements the ROCID transport capability.

(5) Logistical transport support.

(a) Ground transport. Transportation truck battalions, with light and medium truck companies, are assigned to a corps as required, to increase the ground mobility of elements of the corps. They are assigned divisions which do not have an organic capability for vehicle movement. Although this truck transport may be used to increase the mobility of infantry division elements, it is vulnerable to enemy action and restricted by limited cross-country mobile characteristics. This transportation can also be used to effect unit distribution of supplies to combat units and divisions or may be further attached to division for their use in obtaining supply point type logistical support. The provisions of transportation truck battalion apply the principle of pooling that transportation not habitually required by combat elements.

(b) Aerial transport. There is one transportation aviation battalion per type corps. It contains fixed-wing light transportation companies, rotary-wing light transportation companies, and rotary-wing medium transportation companies. The fixed-wing light transportation company has the U-1 (OTTER) aircraft with a payload of 2,500 pounds. The rotary-wing light transportation company is equipped with

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H-34 or H-21 helicopters. The rotary-wing medium transportation company is equipped with H-37 helicopter with a pay load of 6,000 pounds. These aircraft are primarily tactical support aircraft with a secondary mission of logistical support. They may also be used for aeromedical evacuation when required. However, within a type corps is an air ambulance company (medical) equipped with utility helicopters for aeromedical evacuation.

3. A concept for transition with emphasis on US Army aerial vehicles.

a. General. The purpose of this paragraph is to illustrate how the Army in the field should progress from the current operational and organizational characteristics of the PENTOMIC army, outlined in paragraph 2 above, to the operational and organizational characteristics for the very long range field army outlined in paragraph 1 above.

b. Divisions.

(1) Assault forces.

(a) Infantry.

1. The increased use of tactical atomic munitions will require that infantry assault forces be provided with the necessary armored transportation to achieve a degree of dispersion between smaller combat elements, greater mobility to permit the application of the principle of mass for only so long as it is required, and a degree of protection against the effects of atomic munitions and new conventional munitions of great lethality.

2. Armored personnel carriers must be procured as rapidly as possible for these purposes. Armored personnel carriers in these quantities should be pooled at division or corps level and trained to habitually operate with the infantry assault forces. When the terrain permits the habitual use of these vehicles, they should be on a permanently attached basis or assigned to infantry assault elements.

3. A future generation of the personnel carrier may be a truly fighting vehicle or a zero ground pressure vehicle. These vehicles will replace the armored personnel carriers, permit a reduction in the size of the infantry squad, and permit the achievement of greater mobility.

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4. Until such time as the zero ground pressure vehicle can be placed in the hands of infantry assault elements, all infantry elements of the PENTOMIC army, including those with organic or attached personnel carriers, should be trained in the techniques of airmobile forces (anx. D).

(b) Armor.

1. In accordance with the current army tank development program, tanks will be designed to achieve greater mobility without sacrificing their fire power potential to the point where strategic air transportability in US Air Force aircraft can be achieved. If the future generation of the armored personnel carrier, the fighting vehicle, or the zero ground pressure vehicle can assume the role of the tank, they may be substituted in appropriate numbers.

2. Since the capabilities of infantry and armor assault forces tend to merge with the advent of the zero ground pressure vehicle, or the fighting vehicle, the objective of a single type division can be achieved.

(2) RESTA.

(a) General. All combat units, assault forces, fire support elements and those specifically designed for accomplishment of the RESTA function, will habitually be engaged in reconnaissance, surveillance, and target acquisition activities.

(b) Division.

1. Battle groups, combat commands, and comparable echelons will continue to be provided with minimum numbers of aircraft to extend their capability for liaison, reconnaissance, surveillance, and target acquisition.

2. The division cavalry squadrons require modification in order that each may be provided with a small organic aerial combat reconnaissance (anx. E) element. This element should initially be equipped with existing rotary-wing aircraft capable of delivering suppressive fires. Its size is dependent upon the ability of the cavalry squadron commander to control not only his ground reconnaissance element, but also this element. The unit will be utilized to perform armed reconnaissance missions and surveillance, as described in annex E. It should also be trained to adjust artillery fire; however, target location will not be its primary function. As a combat unit, the

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aerial combat reconnaissance element of the cavalry squadron will be capable of participating in task force type operations with battle groups, combat commands, and armored task forces.

3. Initially, the primary division element to perform the target acquisition and target location function will be the division artillery. A minimum number of aircraft will continue to be provided to division artillery elements to extend their capability. As electronic equipment such as automatic data processing system(s) (ADPS) can be made available to a division TOC, the target acquisition function should be phased out of the division artillery and placed with the division aerial surveillance unit (the successor to the cavalry squadron). The necessary aircraft, drones, or other devices should be provided to augment the special operations unit.

4. When divisional assault elements can be provided with zero ground pressure vehicles, or a fighting vehicle with combat power and sufficient mobility, the ground reconnaissance element of the cavalry squadrons will be phased out of the organization. The divisional cavalry squadrons will be redesignated as special operations units and charged, primarily, with responsibility for aerial reconnaissance, surveillance, and target acquisition, utilizing special purpose aircraft, drones, and electronic sensory devices.

(3) Logistical transport support.

(a) The cargo-type aircraft pooled at division to provide a lift capability for division assault elements will be utilized to assist in providing logistic support to division elements as required.

(b) With the advent of zero ground pressure vehicles, the retention of the pool of aircraft at division level may not be justified. The logistics function may be accomplished by aircraft pooled at corps.

c. Corps and army.

(1) RESTA.

(a) The armored cavalry regiment will be reorganized to include an organic aerial element capable of performing reconnaissance and surveillance under the direction of the regimental commander (anx. E). Initially, this aerial element will be equipped with rotary- and fixed-wing aircraft in appropriate numbers, with a suppressive fire capability. The aerial element will be capable of being utilized as an economy of force unit, a surveillance unit for flanks and rear areas,

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and a unit capable of armed reconnaissance in conjunction with armored and infantry ground forces. Target acquisition and location will not be a primary mission for this unit, but the unit will be trained to direct artillery fire.

(b) Aerial target location and target acquisition is the function of corps artillery. This function will be accomplished by the corps artillery aviation company, utilizing aerial observers, airborne radar and infrared sensory devices, and drone aircraft. This is designated as a corps artillery function because, initially, survey-located tracking radar will be required to permit efficient use of airborne or drone sensory devices. With the advent of simplified electronic equipment, to include ADPS, and the development of the corps TOC concept, the target acquisition function will be phased out of the corps artillery area of responsibility and given to the armored cavalry regiment.

(c) Ultimately, when zero ground pressure vehicles or a fighting vehicle with sufficient combat power and cross-country mobility can be provided in adequate numbers to the division, the divisions within a corps can accomplish the reconnaissance and security function presently associated with the armored cavalry regiment. The armored cavalry regiment will then be redesignated as a special operations unit and charged, primarily, with the responsibility for aerial, reconnaissance, surveillance, target acquisition and location, utilizing high performance aircraft, mounted sensory devices, and special purpose drones.

(2) Logistical transport support.

(a) Corps and army echelons will include aerial transport battalions in sufficient quantities. These will be utilized to assist in the logistical support of division and corps forces and to transport combat elements, not only in administrative movements, but also in airmobile operations. Aircraft of the transport battalions required to operate in the vicinity of the enemy will have a suppressive fire capability.

(b) When the bulk of the combat force, to include divisions, are provided zero ground pressure vehicles, there will no longer be a requirement for corps and army transport battalions to participate in airmobile operations, including the tactical movement of assault forces. The battalions will still be required for logistical support but their size and numbers may be reduced. The transport battalions

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themselves may be provided with cargo-type, zero ground pressure vehicles to accomplish this mission.

(c) Special medical aerial companies will be retained at corps and army echelon to effect aeromedical evacuation. The single type division, equipped with zero ground pressure vehicle, will not alter this requirement.

4. Requirements for Army aircraft.

a. Initial Requirements (anxs. D & E). For the present and until such time as the equipment available permits the adoption of a single type of division organization for the Army, the general requirements for army air vehicles will be substantially as follows:

(1) Battle group.

(a) The function of reconnaissance and surveillance becomes more urgent and complex when the gaps that will exist between battle groups on the dispersed battlefield are considered. The availability of a small number of light fixed- and rotary-wing aircraft, appropriately armed for protection when operating over such gaps, will enhance the commander's ability to perform these functions. These are continuing and normal functions of the battle group. Whether or not aircraft for this purpose are organic to the battle group, or provided from outside sources, is not within the scope of this study.

(b) In addition to the reconnaissance, surveillance, and liaison function outlined above, there is a need for sufficient army aircraft to move small elements of a battle group in support of plans of maneuver, security of gaps between battle groups, and for security of the battle group as a whole, or in support of other elements operating in association with the battle group. Because of the number of helicopters involved, and the fact that these are not continuing requirements, this air support should be supplied from a pool at a higher echelon.

(c) There is no continuing need for a combined arms aerial combat unit at the battle-group level; when required, it can be provided from higher headquarters.

(2) Division.

(a) There is a requirement for a pool of army rotary- and fixed-wing aircraft at the division level to provide:

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1. The lift outlined in a(1)(b) above.
2. Emergency resupply and evacuation.
3. Liaison and courier service for the division headquarters and other headquarters and units of the division requiring aircraft support and who do not have organic aircraft.
4. Aircraft support to the battle groups.
5. Target acquisition and fire adjustment.

(b) Under conditions of the modern battlefield, it is considered that the cavalry squadron of the division should contain a small combined arms aerial combat element. This small element should be constituted substantially as a normal reconnaissance platoon, with the usual ground vehicles being replaced by air vehicles properly armed to permit operations in and over areas where small or infiltrated enemy forces may be. It should be capable of:

1. Augmenting the ground reconnaissance capability of the squadron.
2. Conducting armed aerial reconnaissance for the division.
3. Being attached to battle groups when the situation requires.
4. Being employed to cover wide frontages between ground units (economy of force).
5. Conducting minor independent operations for short periods of time, and for use in rear security, or operating in conjunction with airmobile forces.
6. Employing DAVY CROCKETT and directing other fire support as required.

(c) Those aircraft of the division that are likely to be in the vicinity of enemy forces should be appropriately armed.

(d) There is a need for enough aircraft to lift small elements of the division beyond the capability of the pool of aircraft at the division level.

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(3) Corps.

(a) There is a requirement for composite organic and supporting army aviation units at corps level to provide:

1. The lift outlined in a(2)(d) above for small units of the division.
2. Emergency resupply and evacuation.
3. Liaison and courier service for the corps headquarters.
4. Augmentation of aircraft of the divisions other than the lift indicated in a(2)(d) above.
5. Command, courier, and liaison for corps non-divisional units.
6. Traffic control and coordination.
7. Transport for emergency repair teams and critical items of supply.

(b) Under conditions of the modern battlefield, it is considered that the armored cavalry regiment of the corps contain, organically, a small combined arms aerial combat element. This small unit should be made up of a small number of aerial combat elements similar to those in the divisions, with the necessary command and control element to insure proper use. It should be capable of:

1. Augmenting the normal reconnaissance unit's capability of the armored cavalry regiment.
2. Being used to cover wide frontages between ground elements (economy of force).
3. Being attached in whole or part to divisions when the situation requires.
4. Conducting independent operations for short periods, and for use in rear area security.
5. Employing DAVY CROCKETT, and of directing other fire support as required.

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6. Performing armed reconnaissance mission independently or in conjunction with ground elements of the armored cavalry regiment.

(c) Aircraft of the corps that are likely to be used with combat elements of the corps should be appropriately armed or have the capability of being armed.

(d) Aircraft used primarily in the role of electronic surveillance and target acquisition are pooled in aviation units at the headquarters, which is responsible for this function.

(4) Field army.

(a) A requirement exists for a pool of transport aircraft at field army level to provide tactical augmentation and logistical support throughout the field army.

(b) There is a requisition for army aircraft at the field army level to provide the necessary liaison and courier service for the army headquarters and for other units that do not have organic aircraft.

(c) There is no need for a large, combined arms aerial combat unit at the army level.

b. Transition.

(1) As aircraft improve, or when major breakthroughs in the field are made, the extent of the combined arms aerial combat capability in the divisions and the armored cavalry regiment can be expanded as necessary.

(2) When the single division organization is adopted by the Army, there will be no need for combined arms aerial combat elements in the division or the armored cavalry regiment since this capability will be an inherent part of each combat unit. In the single division organization it is considered that operations may be conducted by major combat elements being mounted in zero ground pressure vehicles in lieu of ground vehicles of any type.

(3) There will be a requirement for special purpose aircraft, such as drones or high performance aircraft with electronic devices, in division and corps special operations units.

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ANNEX D (OPERATIONAL CONCEPTS AND ORGANIZATION OF AIR-MOBILE FORCES)

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1. GENERAL.

a. The information presented previously reveals certain specific conditions pertinent to current and future US Army strategy and tactics that warrant grave consideration. These conditions, biproducts of the operational environment and the Soviet bloc capabilities in the 1958-70 period, establish requirements that must be met in full or by acceptable compromises in developing operational concepts, designing combat organizations and establishing materiel development criteria.

b. The threat of or actual use of atomic and CW-BW weapons in future warfare greatly amplify the functions of command and control and create significant problems that relate to the vulnerability and mobility of Army forces in the field. The increased tempo of operations establishes the need for improved responsiveness through early and accurate combat intelligence, faster staff action, increased decentralization of authority, standardized procedures and faster, more reliable transportation and communications. The use of nuclear and improved conventional weapons and the employment of CW-BW agents materially increase the lethality of the battle area. To counter this lethality, units must be small, they must have excellent mobility and they must conduct dispersed semi-independent operations. Improved mobility of Army forces and other measures which permit speed and dispersion and reduce vulnerability offset an increase in the level of employment of fires, restore the balance of the fire-maneuver relation and permit operations in a war of movement. The maximum mobility is always desired in war. With the greatly improved fire power available in nuclear and improved conventional weapons, the attainment of the greatest possible mobility on the battlefield appears to be attainable primarily by a progressively increased integration of aerial vehicles. The air vehicle adds new dimensions to the land battle.

2. OPERATIONAL CONCEPTS.

a. Airmobile operations are operations in which combat forces and their equipment move by air vehicle about the battlefield to engage in ground combat as a normal part of land operations. These operations are usually tactical operations of limited range and duration. Movement is normally by Army vertical or short take off and land aircraft. The combat forces enter the battle by air landing.

b. Aviation for airmobile operations conducted by divisions is normally provided by attaching corps or army aviation units, or placing them in support. Aviation control units and equipment are attached concurrently. Command of aviation units, together with responsibility for

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air traffic control, is assigned to the echelon most able to direct the entire operation. For airmobile operations conducted by elements of a division, aviation is attached to the division and may be further attached to battle groups. For independent airmobile operations conducted under corps control, the airmobile unit with its aviation support is commanded directly by corps.

c. (1) Airmobile operations provide the commander the flexibility required to extend the depth of combat beyond the immediate area of ground contact to seize critical objectives; outflank and assail enemy positions; conduct reconnaissance, security and screening missions; dominate areas; and to conduct raids. During offensive operations, troops and their fire support may be shifted rapidly to gain a tactical advantage or to counter an enemy attack. Vulnerability of attacking forces to nuclear attack may be reduced by using air vehicles to facilitate rapid concentration of forces from dispersed locations just prior to the attack, to assist in rapid dispersal of forces after the offensive mission has been accomplished, to shift forces, and to move reserves from distant and dispersed locations. Airmobile operations will be conducted throughout the period under question (1958-70). As air vehicles and other materiel with improved characteristics for air movement become available, the nature and magnitude of these types of operations will change. For example, penetration will become deeper, larger troop formations may participate in a single operation, and the numbers and frequency of such operations will increase.

(2) In the defense, forces committed to forward defensive areas may be reduced by organizing strong airmobile reserves held in dispersed areas for timely delivery to critical areas.

(3) Limited offensive and defensive operations may be conducted without air superiority by the employment of such techniques as low-level flight and operations during periods of limited visibility.

d. (1) Airmobile forces are normally assault elements and their immediate support. However, an airmobile operation may specifically require the movement of fire elements or other combat support elements by air. Because of its ready tactical air mobility, the infantry assault element is most adaptable to airmobile operations.

(2) Airmobile operations are characterized by the ability to shift rapidly combat forces within the combat zone with little regard to intervening obstacles. Airmobile operations normally employ aviation units organic to the field army. They present fewer command control

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problems than do joint airborne operations. They have a great advantage in that they are immediately responsive to the desires of the force commander.

(3) The characteristics of airmobile operations permit their employment in terrain normally considered unsuitable for airborne operations. The simplicity of airmobile operations permit their execution with less preparation time than is required for airborne operations. There is no requirement for airfields or improved air-landing facilities; however, landing areas free from obstacles are required.

(4) Army aircraft when employed tactically fly close to the ground. Flight routes are planned to take advantage of any protection afforded by valleys, forests, and other terrain features. Known enemy locations are avoided when possible. Enemy occupied areas that cannot be avoided are neutralized by supporting fires delivered by combat aviation or by artillery or missile support.

3. ORGANIZATIONS (App.1 - 3).

4. ORGANIC ARMY AVIATION CAPABILITY AND TRAINING REQUIREMENTS.

a. The ability to form type airmobile forces within the resources of the division, corps, and field army, separately or by augmentation with other forces, increases the Army's flexibility in the organization of a task force for the accomplishment of any given mission.

b. To improve the capability of army aviation to support the airmobile concepts, all aircraft must either be armed or be capable of being armed with appropriate suppressive fire weapons system.

c. To insure maximum effectiveness of airmobile task forces, both the aviation units and ground troops must be given some specialized training. Those training areas which appear most pertinent to ground and aviation units are:

(1) Ground units.

(a) Orientation in the capabilities and limitations of aircraft to be utilized.

(b) Loading, unloading, and in-flight procedures.

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(c) Familiarization with the capabilities of aerial weapons systems, to include operation and maintenance.

(d) Utilization of VTOL vehicles in fire support roles.

(e) Air-ground communications techniques.

(2) Aviation units

(a) Camouflage of aircraft.

(b) Low-level navigation and contour flying.

(c) Appropriate ground tactics.

(d) Aerial weapons system employment techniques.

(e) Air-ground communications techniques.

d. The above special training will provide a sound basis for combined training of units for airmobile operations at all echelons.

e. With the approval of the concepts which are recommended by this study, an intensive training program must be established immediately that will provide as a minimum the following:

(1) That application of airmobile concepts will be considered during all tactical exercises even though aerial vehicles are not available.

(2) That each platoon-sized infantry organization participate in a minimum of one airmobile operation each year. This requirement can be met by divisions utilizing the aircraft which are organic to the division aviation company.

(3) That each division conduct a minimum of two battle group size airmobile operations each year. To accomplish this the transport battalions which are currently available in CONUS and all overseas major commands must be made available for this type training mission.

5. TYPE MISSIONS. Type missions which the airmobile force is capable of accomplishing on the modern battlefield more rapidly and efficiently than any other force available to the commander are:

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- a. Engage and destroy enemy ground forces by highly mobile fire and maneuver tactics.
- b. Seize and hold critical terrain features or objectives.
- c. Rapidly exploit the successful use of mass destruction weapons on enemy units.
- d. Counter enemy action in exploitation of mass destruction weapons.
- e. Cover an advancing, stationary, or withdrawing force.
- f. Secure rear areas against guerrilla or airborne forces.

6 App

- 1. Type "A" Armed Hel Mbl TF
- 2. Type "B" Armed Hel Mbl TF
- 3. Avn Gp - Type Fld Army
- 4. Op Cpbl Avn Gp - Type Fld Army
- 5. Airmbl TF of Armd Div in Xplt of an Atomic Attack
- 6. Airmbl Op WO the Aerial Cmbt Reconnaissance Plat

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TYPE "A" ARMED HELICOPTER MOBILE TASK FORCE

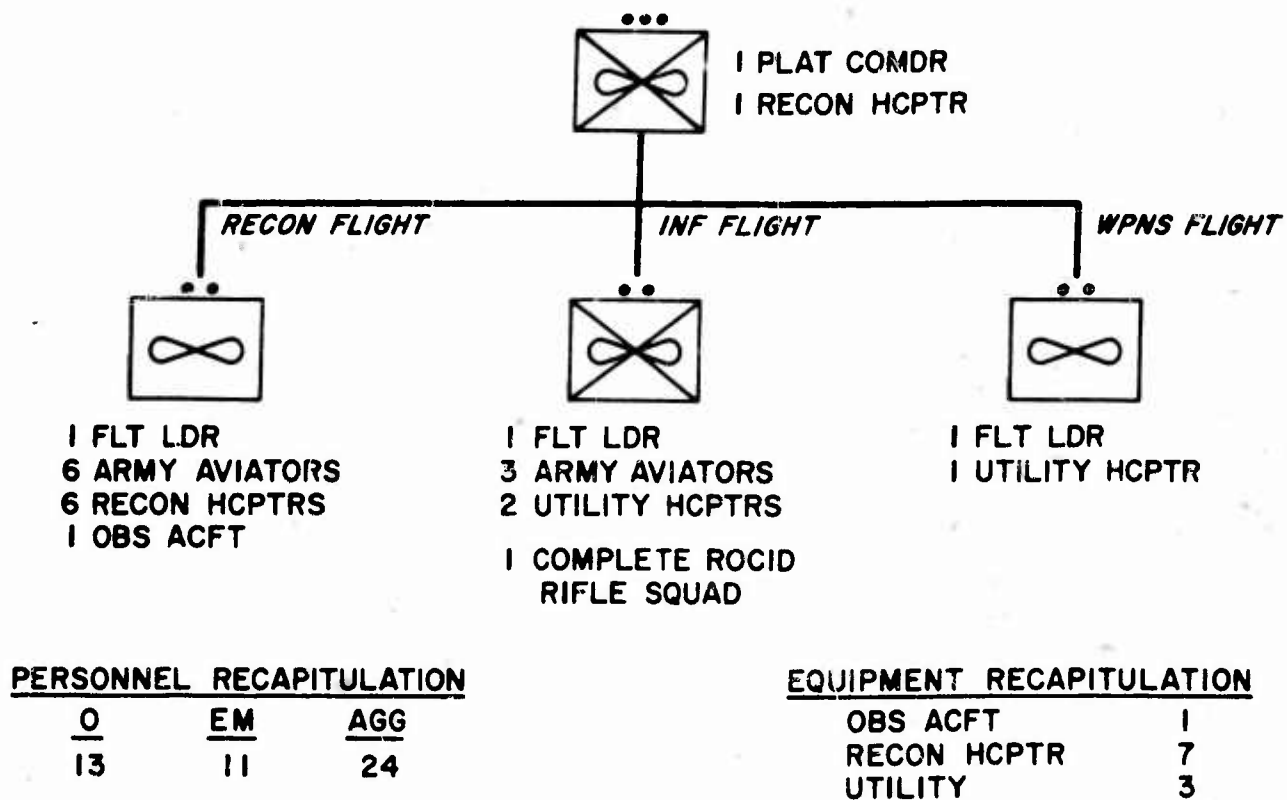


Fig 1

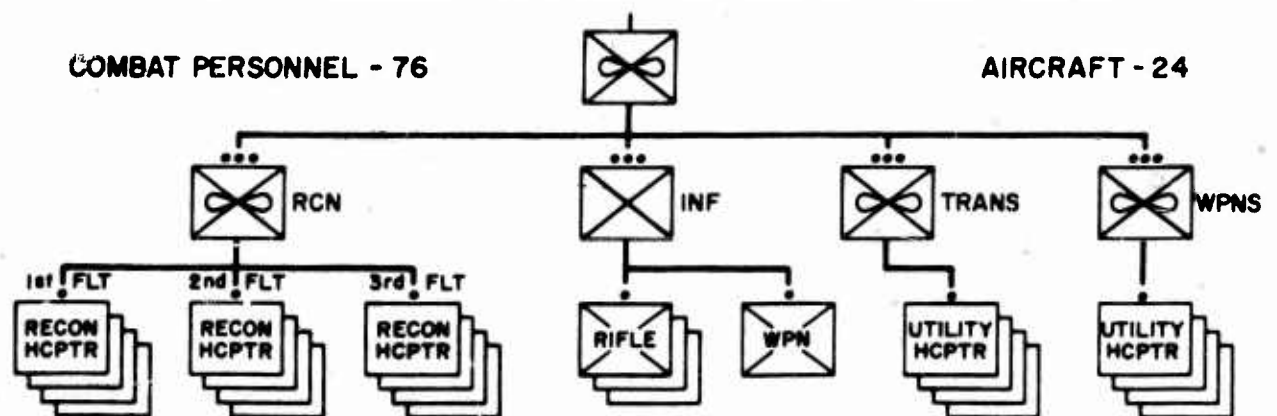
APPENDIX 1

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TYPE "B" ARMED HELICOPTER MOBILE TASK FORCE



<u>AIRCRAFT</u>	
RECON HCPTTR	16
UTILITY HCPTTR	8
TOTAL	24

NOTE: If 4 of the utility hcptrs are utilized primarily as a fire support means, the Infantry Platoon will require 2 lifts.
If fire support is available from another source, platoon can be lifted utilizing all 8 utility hcptrs.

Fig 1

APPENDIX 2

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AVIATION GROUP - TYPE FIELD ARMY

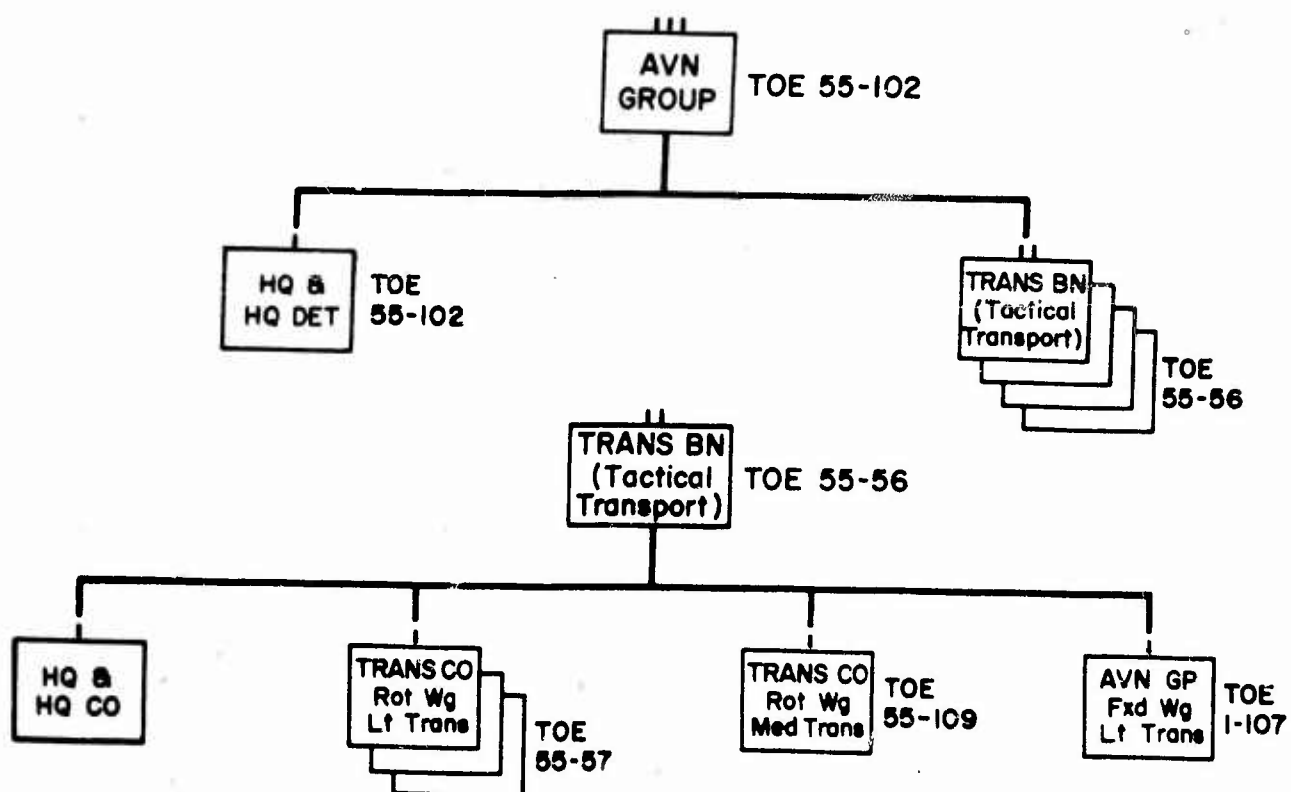


Fig 1

APPENDIX 3

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APPENDIX 4 (OPERATIONAL CAPABILITIES AVIATION GROUP TYPE FIELD ARMY)

1. Headquarters and Headquarters Company Aviation Group. Provides command, control, staff planning, and administrative supervision of assigned or attached army aviation units. Plans and supervises employment of army aviation units to include aviation transport battalions.

2. Headquarters and Headquarters Company Transport Battalion. Provides command, control, staff planning, and administrative supervision of assigned or attached army aviation units.

3. Aviation Company, Rotary Wing, Light Transport. Provides air transport to expedite tactical operations and logistical support in the combat zone. For maximum effort, with all helicopters operational, within a 50-mile radius, at sea level to 100 feet elevation, the company can transport simultaneously any one of the following loads:

<u>Type Helicopters</u>	<u>Troops (240 lb)</u>	<u>Cargo (tons)</u>
H-34	280	34.0
H-21	280	28.8

4. Transportation Company, Rotary Wing, Medium Transport. Provides air transport to expedite tactical operations and logistical support in the combat zone. For maximum effort, with all helicopters operational, within a 50-mile radius, at sea level to 100 feet elevation, one of the following loads:

<u>Type Helicopters</u>	<u>Troops (240 lb)</u>	<u>Cargo (tons)</u>
	384	80.0*
H-37		46.4

5. Aviation Company, Fixed Wing, Light Transport. Provides air transport to expedite tactical operations and logistical support in the combat zone. For maximum effort with all aircraft operational, within a 100-mile radius, the company can transport simultaneously one of the following loads:

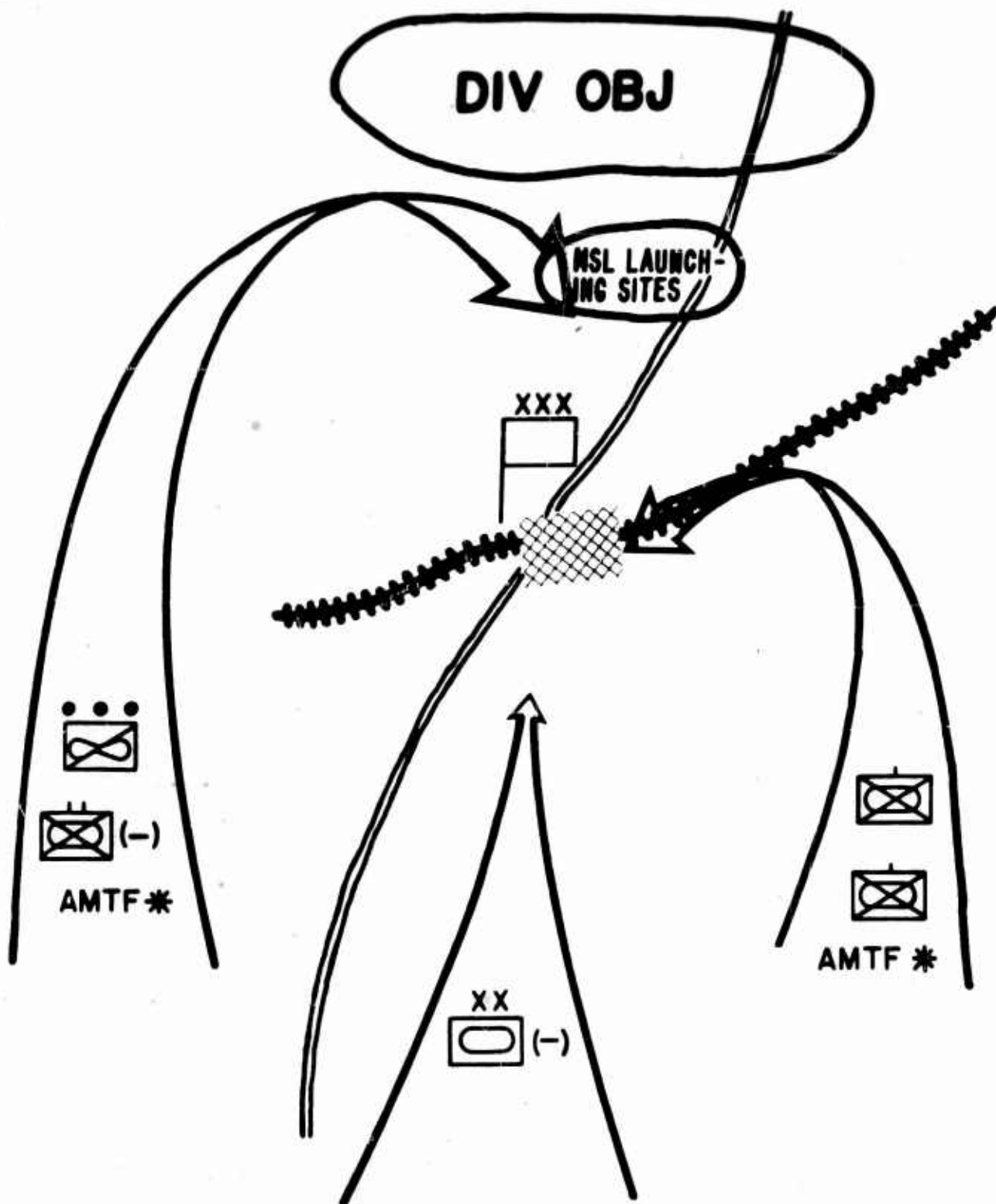
<u>Type Aircraft</u>	<u>Troops</u>	<u>Cargo (tons)</u>
U1-A	180	20

*External loading.

D-4-1

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DISRUPTION AND DESTRUCTION OF ENEMY REAR AREAS BY AIRMOBILE TASK FORCES TO FACILITATE THE ADVANCE OF THE ARMORED DIVISION.
*** AMTF AIRMOBILE TASK FORCE**

APPENDIX 5

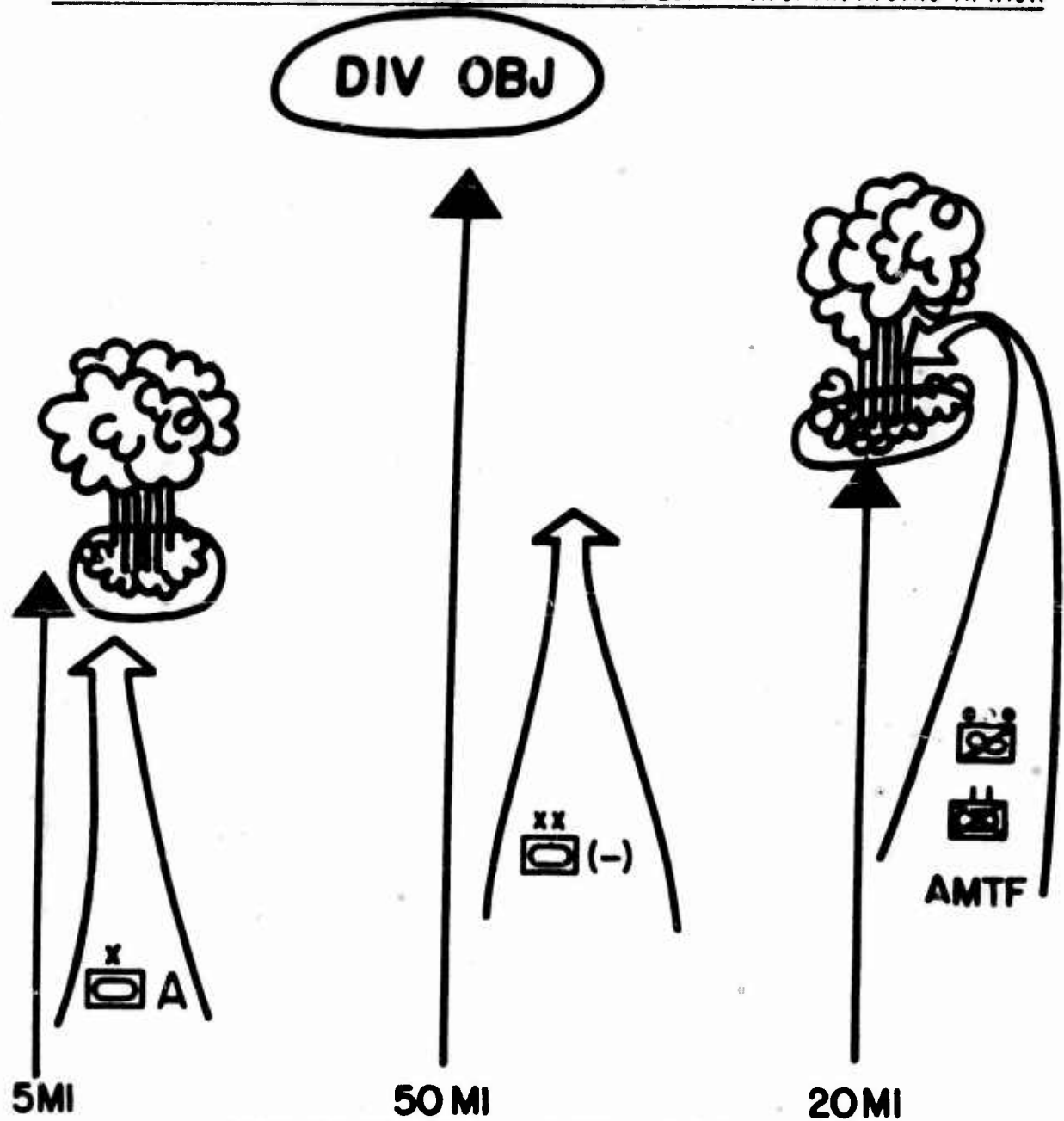
FIG.1

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AIRMOBILE TASK FORCE OF ARMORED DIVISION IN EXPLOITATION OF AN ATOMIC ATTACK



TASK ORGANIZATION FOR AIRMOBILE FORCE

AERIAL COMBAT RECONNAISSANCE PLATOON
3-CO'S ARMED INFANTRY
4.2 MORTAR PLATOON
BATTALION HEADQUARTERS, COMMAND ELEMENT

3-CO'S AVN TACTICAL TRANS (LT)
1-CO AVN TACTICAL TRANS (MED)

FIG. 2

APPENDIX 5

D-5-2

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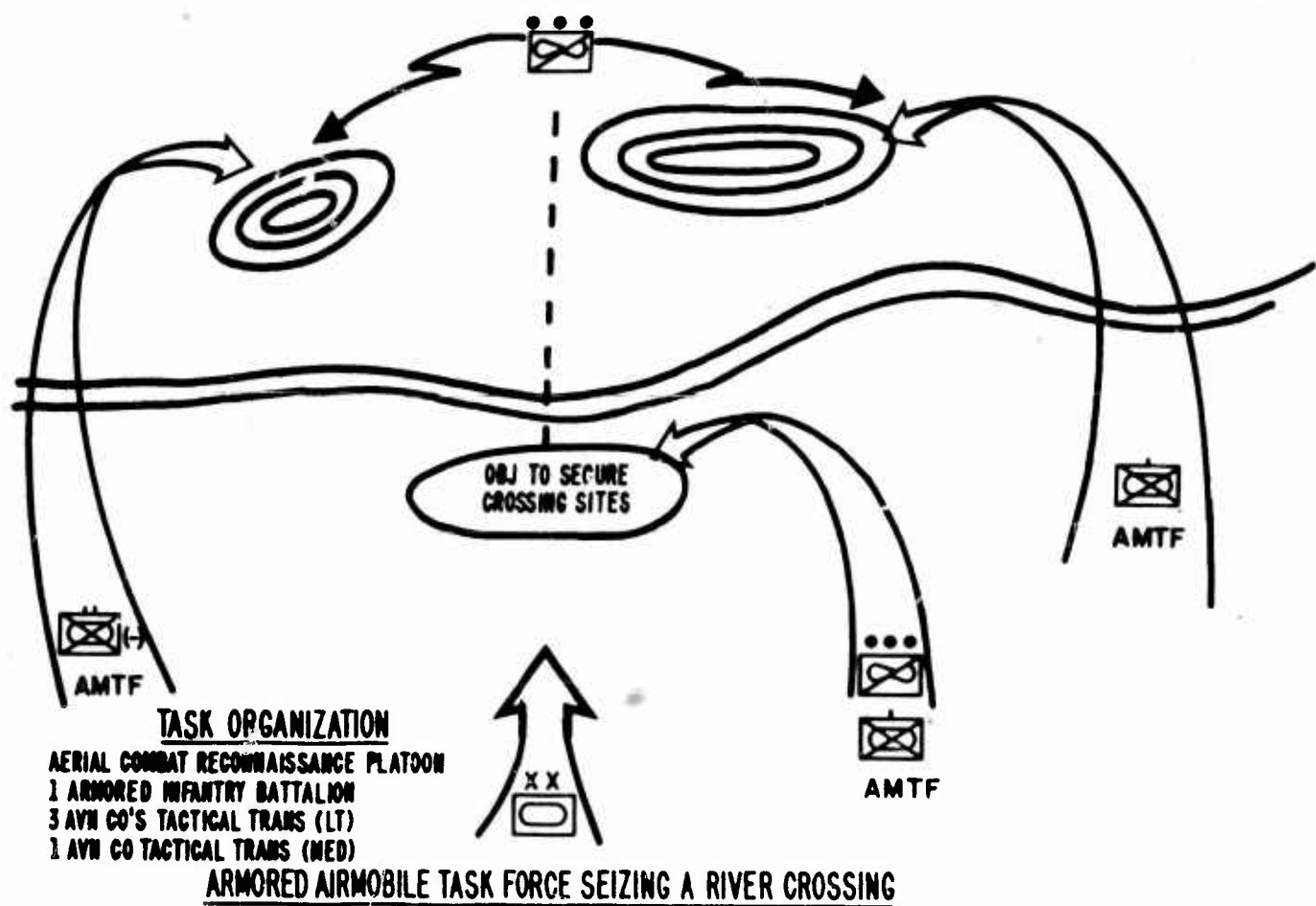


FIG. 3

APPENDIX 5

D-5-3

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APPENDIX 6 (AIRMOBILE OPERATIONS WITHOUT THE AERIAL COMBAT RECONNAISSANCE PLATOON)

Following are examples of airmobile operations without the use of the aerial combat reconnaissance element. It is considered that the operations portrayed would be greatly enhanced by the availability of the aerial combat reconnaissance platoons of the divisions. These examples of operations are equally applicable to ROCID and ROTAD.

a. Armored infantry battalion (REINF) in an attack to seize a bridgehead over an unfordable river.

(1) Organization. Figure 1.

(2) Situation. Figure 2.

A combat command, advancing rapidly in the exploitation as part of an armored division, receives air reconnaissance reports that all bridges over the unfordable river on its axis of advance have been blown. As yet, the far bank is only lightly held. During this exploitation phase the combat command commander has had an Army light cargo helicopter company attached. At this time it is placed in support of an armored infantry battalion. The battalion commander is ordered to establish a bridgehead without delay. The armored infantry battalion commander employs the helicopter company to airlift the armored infantry company (-) to the objective A (fig. 2), and rapidly closes on the river with the balance of his force. The other two infantry companies cross the river in M59s and link up with the helicopter-borne force. The engineers ferry the tank company across and proceed with the building of a bridge.

b. Task company team in the exploitation reducing a road block.

(1) Organization. Figure 3.

(2) Situation. Figure 4.

An armor battalion task force in the exploitation is advancing rapidly along multiple routes to seize crossings over a major water obstacle. One of the armor company teams organized with two tank platoons and an armored infantry platoon is proceeding along an important axis when it is held up by a well-defended enemy road block. Reconnaissance aircraft in support of the task force report that there is no possibility of bypassing or outflanking the roadblock. The task force commander

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requests that four light cargo helicopters be placed in support to assist in the reduction of the roadblock. The mission is accomplished (sketch, fig. 4) by airlifting an armored infantry platoon, less APC drivers and one vehicle commander per vehicle, to a location on the flank and rear of the enemy position from which it can make a dismounted assault. It will be supported by the fires of the two tank platoons of the task force. The APC are used for flank security of the task force until they are again linked up with their respective squads.

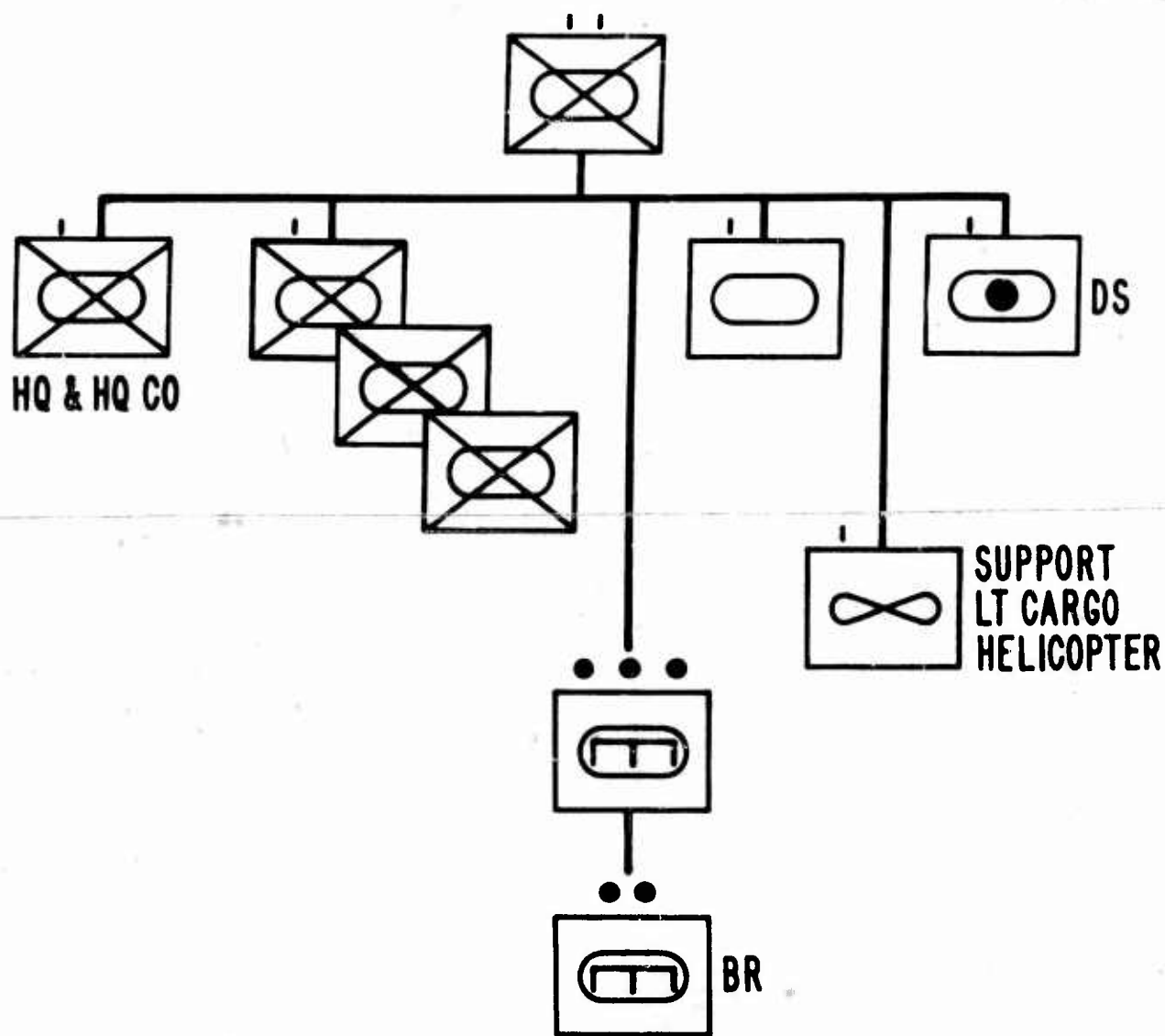
c. Combat command air/armor mobile task force in pursuit.

(1) Organization. Figure 5.

(2) Situation. Figure 6.

A disorganized enemy force is fighting a delaying action while attempting to withdraw to more defensible terrain. The combat command has been ordered to pursue and destroy this force. A battalion of Army light cargo helicopters has been placed in support of the combat command. The armored infantry battalion (-) airlifted, is used as the encircling force and the reinforced tank battalion as the direct pressure force. The armored infantry battalion seizes the defile, and organizes the position to destroy retreating hostile forces. The battalion of light cargo helicopters is placed in direct support of the armored infantry battalion for the movement. The reinforced tank battalion attacks along its axis and destroys the enemy. The armored infantry battalion (-) is airlifted to the objective area. The combat command by attacking with the reinforced tank battalion and cutting off the enemy's retreat is able to destroy this force.

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APPENDIX 6

FIG. 1

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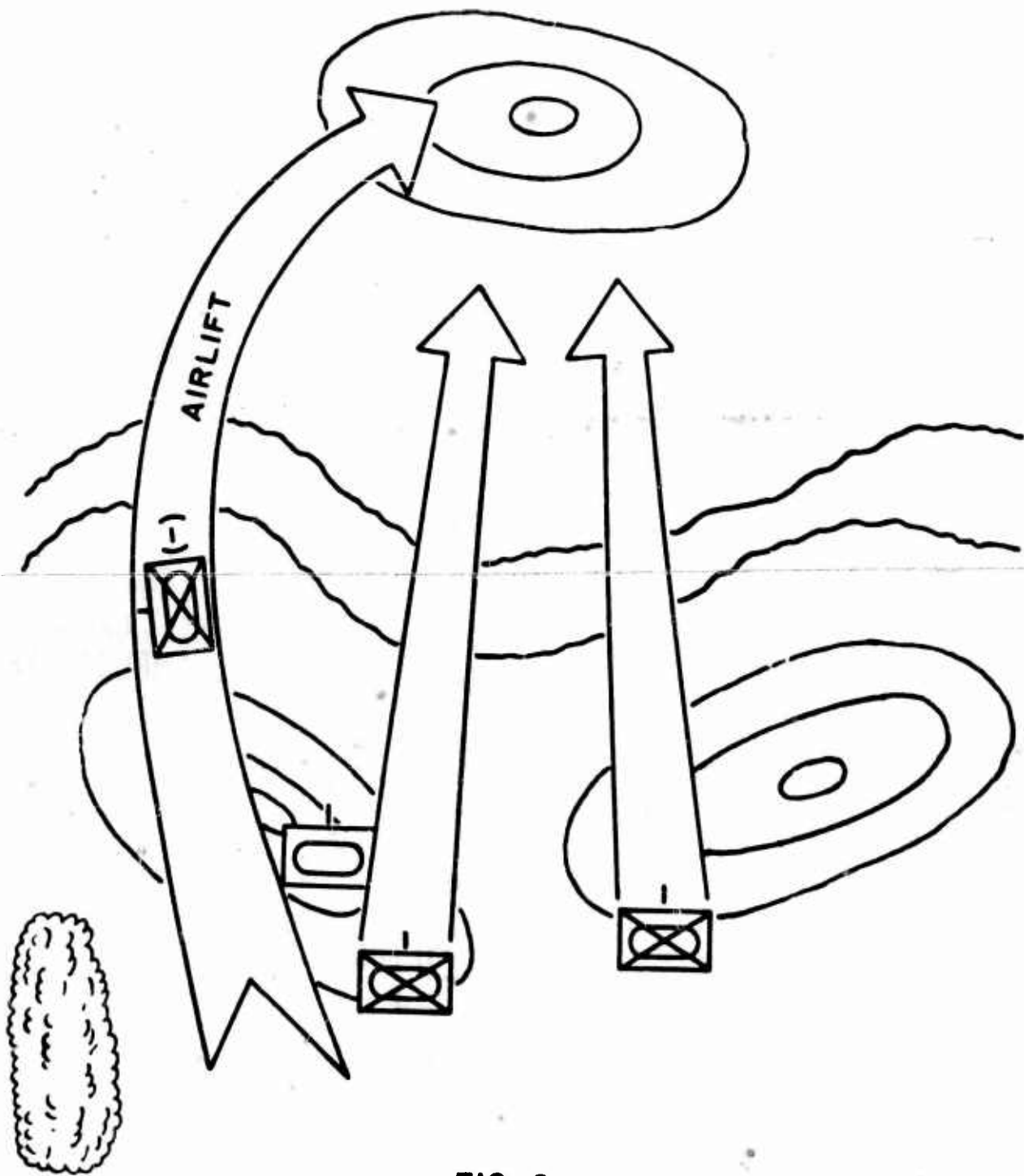


FIG. 2

APPENDIX 6

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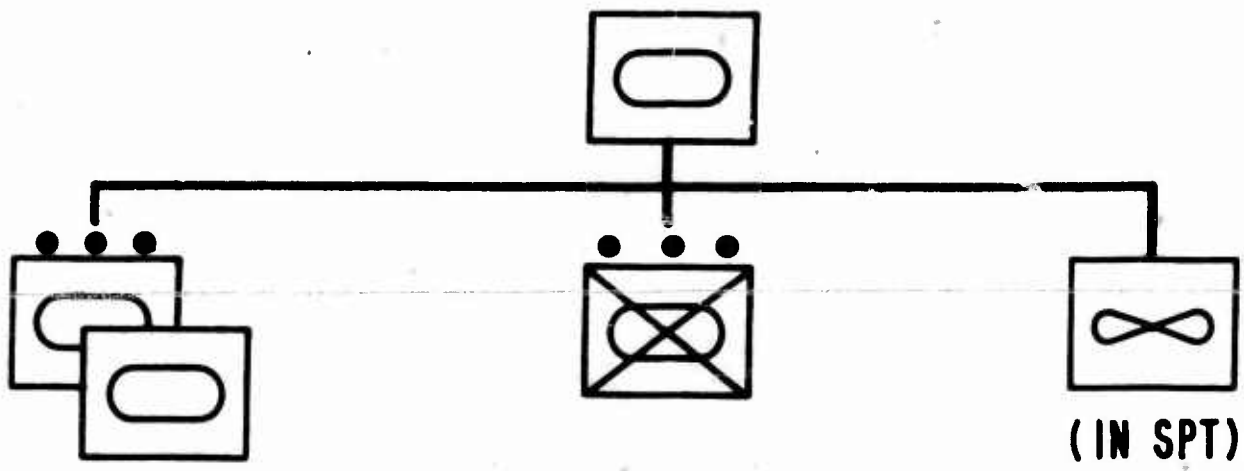


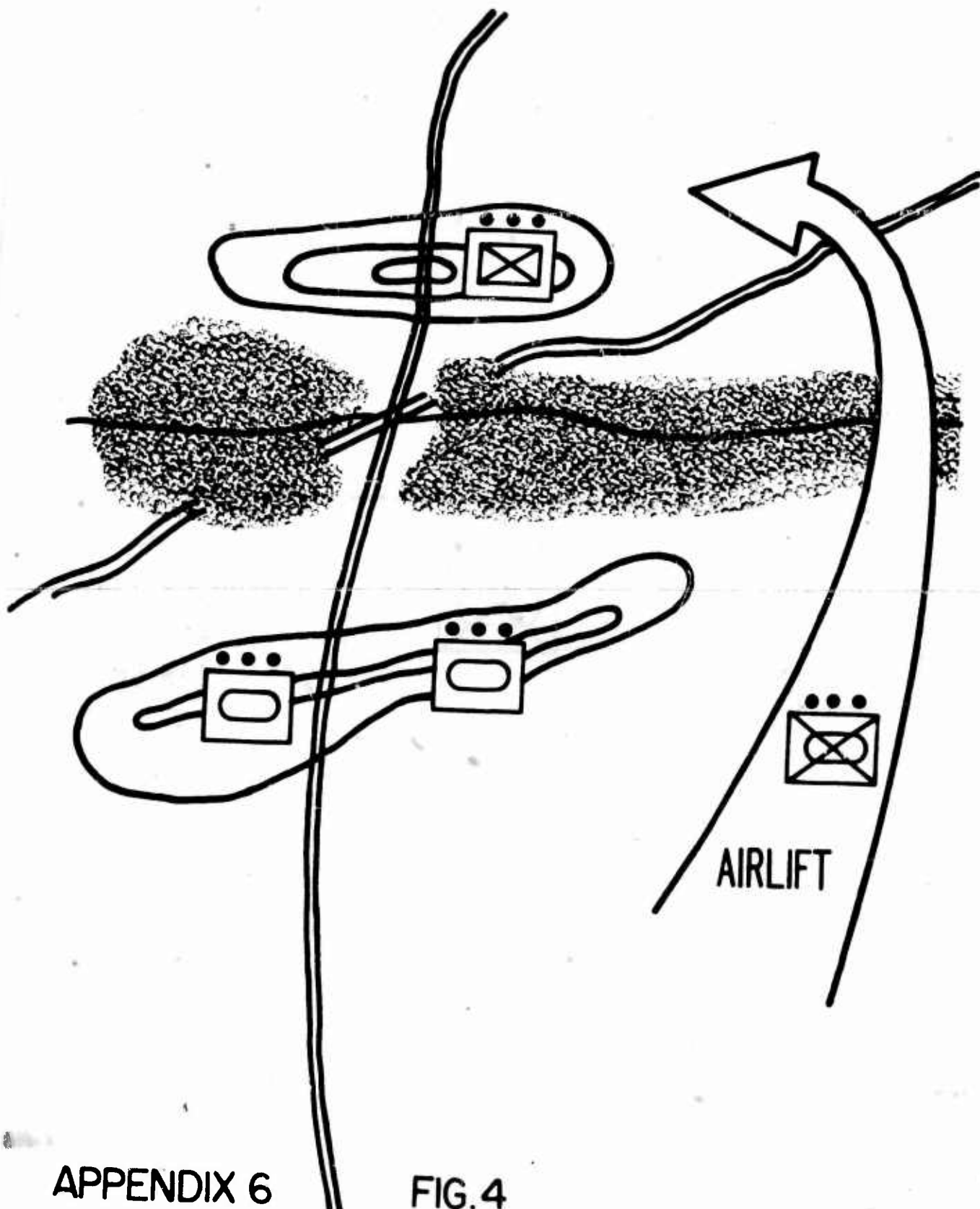
FIG. 3

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APPENDIX 6

FIG. 4

D-6-6

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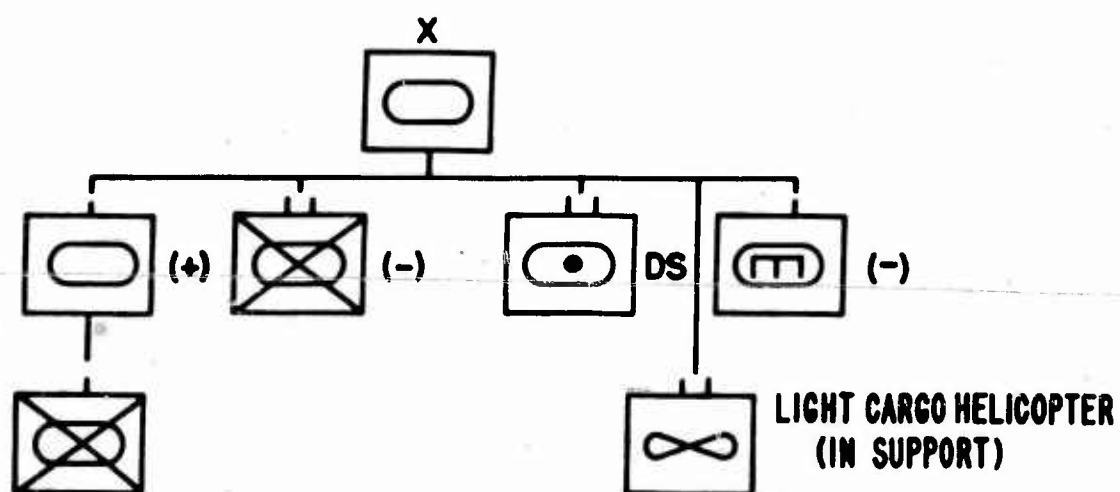


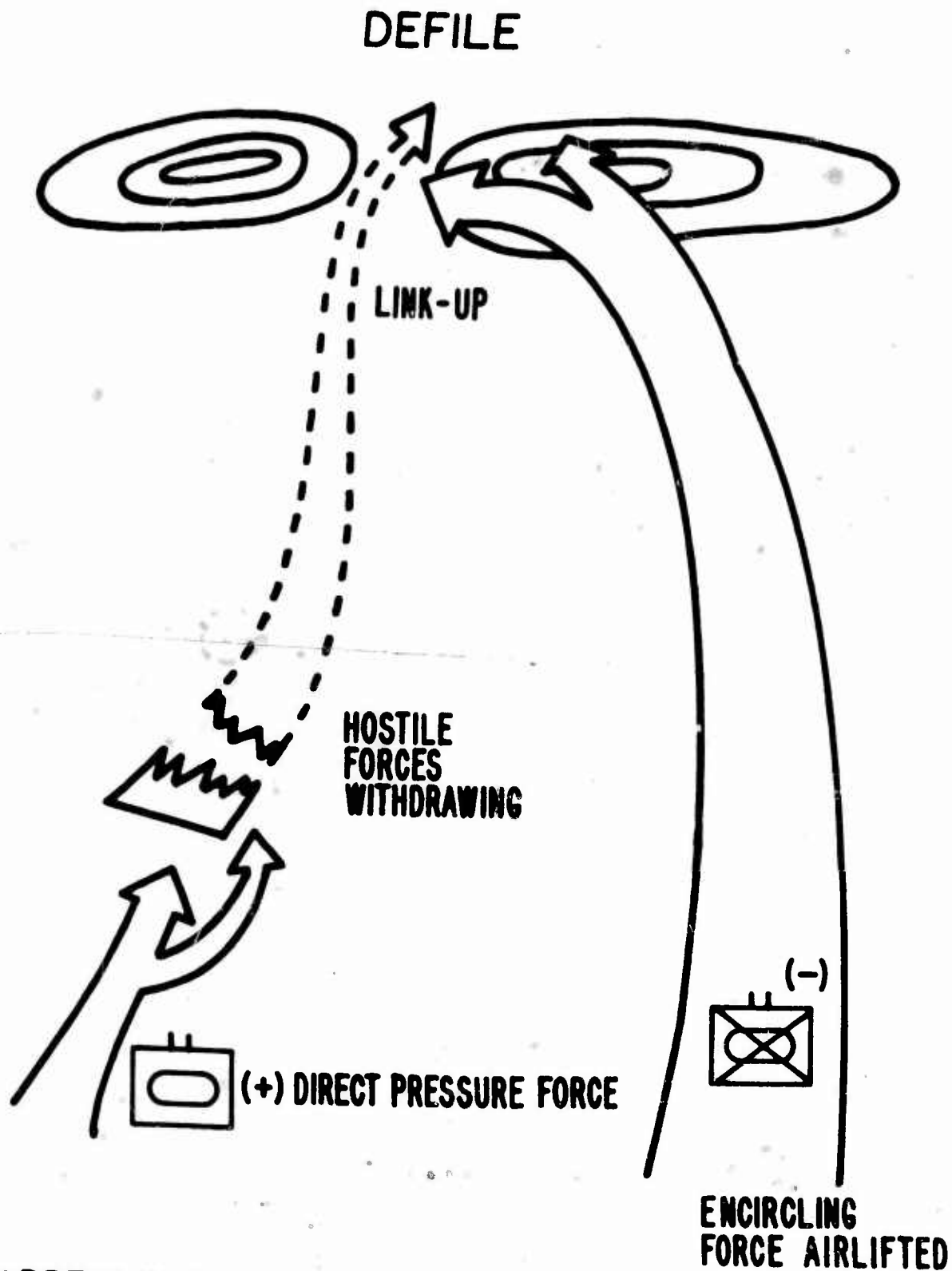
FIG.5

APPENDIX C

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APPENDIX 6

FIG. 6

D-6-8

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ANNEX E (OPERATIONAL CONCEPTS AND ORGANIZATION OF AERIAL COMBAT RECONNAISSANCE ELEMENTS)

CONTENTS

	<u>Paragraph</u>	<u>Page</u>
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2 Aerial Combat Reconnaissance Platoon (Organization Chart)	E-2-1	
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7 Personnel Spaces for Organization of Aerial Combat Reconnaissance Troop, Armored Cavalry Regiment	E-7-1	
8 Schematic Presentation of Methods of Employment	E-8-1 - E-8-2	

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1. GENERAL.

a. Aerial combat reconnaissance units are combined arms forces completely air mounted in organic Army air vehicles. They differ from airmobile forces in that their aerial vehicles are organic to each individual unit. They bring into balance the characteristics of tactical mobility and highly flexible destructive fire power. These units operate largely in the ground environment (nap of the earth) which is the air space extending from the ground to a few feet above, but generally below the level of the surrounding terrain formations. They thereby achieve protection from enemy ground and air fire by using ground forms and vegetation.

b. Aerial combat reconnaissance units have aerial combat and transport vehicles as their primary means of applying combat power to accomplish tactical missions. These aerial vehicles are armed with a wide range of weapons capable of delivering air-to-ground, air-to-air, ground-to-air fires.

c. These units are capable of performing a variety of functions to include covering force action; reconnaissance and counterreconnaissance; flank security; rear area defense to include antiguerrilla, anti-airborne, and anti-infiltration operations; economy of force roles, and surveillance of gaps between major units on the dispersed battlefield; maintaining combat liaison with flank units; seizing and holding critical terrain features or objectives until relieved; securing large lightly held areas, complementing and assisting guerrilla activities.

2. REQUIREMENT.

a. An evaluation of the modern battlefield and the conditions imposed by improved conventional, nuclear, and CW-BW weapons require that the Army be organized, trained, and equipped to best carry out its mission within the means available and that it be capable of accepting new equipment as it becomes available and of developing and adopting the tactics and techniques best suited.

b. It is clear that there is an immediate requirement for small aerial combat reconnaissance elements at the division and the corps level. It is considered that in light of manpower and budgetary limitations and the high cost and complexity of available aerial vehicles, that for the immediate future these units be small and organic to existing units as opposed to a number of special units. There will be a continuing and habitual requirement for the tactical functions of these

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elements and they will enhance the capability of commanders to accomplish assigned tasks on the modern battlefield.

3. **DIVISION.** - The functions performed by the aerial combat reconnaissance element at the division level are normally associated with reconnaissance, surveillance, and counterreconnaissance. These are continuing requirements. Therefore, the element should be a part of the unit assigned these functions as a primary mission. The armor cavalry squadron in the ROCID and ROCAD and the reconnaissance battalion in ROTAD are the logical units to command these elements at the division level. A platoon-size element is considered appropriate for the immediate future.

a. Organization.

(1) The platoon of the ROCID, ROTAD and ROCAD should be an organic element of the cavalry squadron (TOE 7-85T ROCID) and directly under the squadron headquarters. (See Appendix 1, Cavalry Squadron Organization Chart.)

(2) It consists of a reconnaissance section and a scout squad and has fire support means. It is entirely mounted in aerial vehicles all of which are appropriately armed and provide the essential fire support. (See Appendix 2, Aerial Combat Reconnaissance Platoon Organization Chart.)

(3) Ground vehicles required for administrative and logistic support when the platoon is not actually engaged in performing assigned missions will be provided by the squadron headquarters.

(4) The necessary aviation organizational maintenance personnel are a part of the maintenance elements of the squadron. Maintenance and repairs beyond the capability of the battalion and maintenance personnel will be performed by higher echelon.

(5) Logistic support will be provided by the squadron.

(6) The aerial combat reconnaissance platoon of divisions will be organized without an additional allocation of personnel space to the divisions. Personnel spaces for the platoon will be obtained as indicated in appendix 3.

b. Operational concepts. Missions - The aerial combat reconnaissance platoon accomplishes its missions by employing its mobility, infantry element, and aerial vehicle mounted fire support means.

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(1) Extends the reconnaissance capability of the battalion by operating in conjunction with ground reconnaissance elements of the battalion or with other elements of the division. The platoon accomplishes this mission by moving rapidly throughout its assigned area, landing when required and conducting ground reconnaissance while supported by the aerial vehicle mounted weapons, then moving rapidly to other locations. It has a capability of fighting for information when used in those areas where a cavalry squadron or reconnaissance battalion are committed. It performs reconnaissance of areas otherwise denied to normal ground elements because of terrain barriers, lack of roads or trails, or other terrain limitations. It can carry out its missions with less regard to mine fields, contaminated areas or other barriers than similar units operating on the ground. When it encounters enemy action which it cannot overcome, it uses its high mobility to avoid such enemy even if required to move a considerable distance. (See app. 4, fig. 1.)

(2) Surveillance and armed reconnaissance between battle groups. On a widely dispersed battlefield the problem of surveillance and security between battle groups is of major importance. In those cases where the requirement is beyond the capability of the battle groups, the aerial combat reconnaissance platoon can be employed to seek out and destroy small infiltration forces and to provide needed information to the battle groups to insure their security. It accomplishes this mission in much the same manner as its basic reconnaissance mission. (See app. 4, fig. 2.)

(3) To provide reconnaissance and security for airmobile forces. The aerial combat reconnaissance platoon is ideally suited to operate in conjunction or as a part of a task force, with airmobile elements of the division. It accomplishes reconnaissance and security missions by exploiting its mobility to patrol to the flanks and front of the airmobile force, and covers its landing by occupying critical terrain and by employment of its fire support means. The platoon can provide the necessary security during the critical period of air landing and of reorganization of the airmobile forces. (See app. 4, fig. 3.)

(4) Acting alone or in conjunction with ground elements of the cavalry squadron as a covering force for advance, flank or rear guard actions. It executes covering force missions normally associated with ground elements performing a similar mission. It has the added capability of high mobility, not being confined to fixed routes of advance or withdrawal. It can occupy critical areas otherwise inaccessible to more conventional elements and, although small, it can perform tasks

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of this nature usually associated with larger elements due to its mobility and weapons systems. It can be augmented by airmobile assault elements and perform larger tasks. (See app. 4, fig. 4.)

(5) Rear area security against small enemy infiltrated forces or guerrilla forces. The aerial combat reconnaissance platoon is ideally suited to search out and destroy small infiltrated enemy or guerrilla forces and enhances the division's capability to perform this function. The platoon will accomplish this mission under division control by moving through assigned portions of the rear area, investigating reports, landing and destroying those enemy forces located or to maintain surveillance of enemy forces until arrival of appropriate sized airmobile or ground elements.

4. CORPS.

a. General. The functions and requirements for combat reconnaissance elements at the corps level are similar to those of the division platoon. However, because of the magnitude of corps operations, and the extent of the area occasioned by characteristically dispersed operations in which it operates, the corps requires a larger unit. It is considered that the appropriate unit at the corps level should be of company size and that it should be a part of a unit that has a similar mission as a primary responsibility. Therefore, the armored cavalry regiment is the logical unit to command the corps aerial combat reconnaissance unit which is designated a troop.

b. Organization.

(1) The aerial combat reconnaissance troop is organic to the armored cavalry regiment and normally operates directly under the regimental headquarters. (See Appendix 5, Armored Cavalry Regiment Organizational Chart.)

(2) The troop consists of a troop headquarters, reconnaissance platoon, troop platoon, weapons platoon, and a service platoon. (See Appendix 6, Aerial Combat Reconnaissance Troop.)

(3) The troop headquarters will contain minimum ground vehicles to meet minimum administrative requirements of the troop.

(4) The minimum necessary aviation organizational maintenance personnel will be in the service platoon of the troop. Maintenance and repairs beyond the capability of the regiment will be performed by the Transportation Army Maintenance Company at the corps.

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(5) Logistic support will be provided through the regiment.

(6) The personnel spaces required for the organization of the aerial combat reconnaissance troop will be obtained from within the current strengths of the armored cavalry regiment, as indicated in appendix 7.

c. Operational concepts. The aerial combat reconnaissance troop of the armored cavalry regiment has missions similar to, and executes them in generally the same manner as, the aerial combat reconnaissance platoon of the division. While the troop's missions are similar, its increased size makes it possible for it to operate over larger areas, engage in more independent missions, and provide support for larger airmobile forces.

d. Missions.

(1) Extension of the reconnaissance capability of the armored cavalry regiment by operations in conjunction with ground reconnaissance units of the regiment or with other units of the corps.

(2) Surveillance and armed reconnaissance between divisions.

(3) Reconnaissance and security for airmobile and airborne forces.

(4) Covering force for advance, flank, or rear guard actions.

(5) Rear area security against enemy infiltrated and guerrilla forces. (See app. 8, fig. 1.)

(6) Armed reconnaissance and security for bridgeheads in river crossing operations and for amphibious operations. (See app. 8, fig. 2.)

(7) Augmentation of the capabilities of the division aerial combat reconnaissance platoon by attachment to divisions of the corps by troop or by task group.

8 App
(See next page)

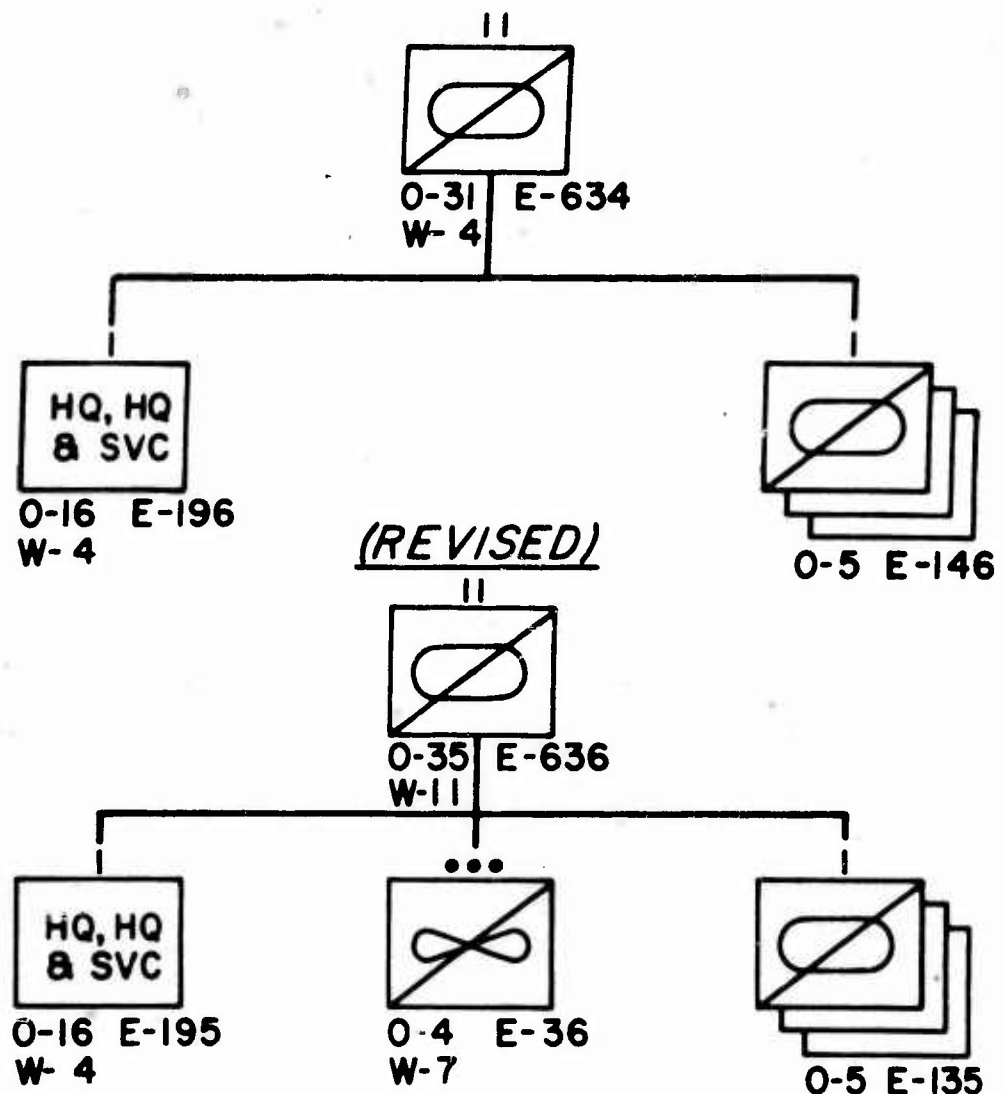
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8 App

1. Inf Div Cavalry Sq (Org Chart)
2. Aerial Cmbt Reconnaissance
Plat (Org Chart)
3. Pers Spaces for Org of Aerial
Cmbt Reconnaissance Plat,
ROCID
4. Schematic Presentation of
Methods of Empl
5. Armored Cavalry Regt (Org
Chart)
6. Aerial Cmbt Reconnaissance
Trp
7. Pers Spaces for Org of Aerial
Cmbt Reconnaissance Trp,
Armd Cavalry Regt
8. Schematic Presentation of
Methods of Empl

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INFANTRY DIVISION CAVALRY SQUADRON (CURRENT)



(5)

(NOTE)- 5 ADDITIONAL SPACES FOR AERIAL COMBAT RECONNAISSANCE PLATOON FROM RECONNAISSANCE PLATOON, HQ, HQ & SV CO, INFANTRY BATTLE GROUP TOE 7-12T, ROCID, PARA 17, LINE 04 - DELETE AMMO BEARER, SUPPORT SQUAD FROM EACH PLATOON.

APPENDIX 1

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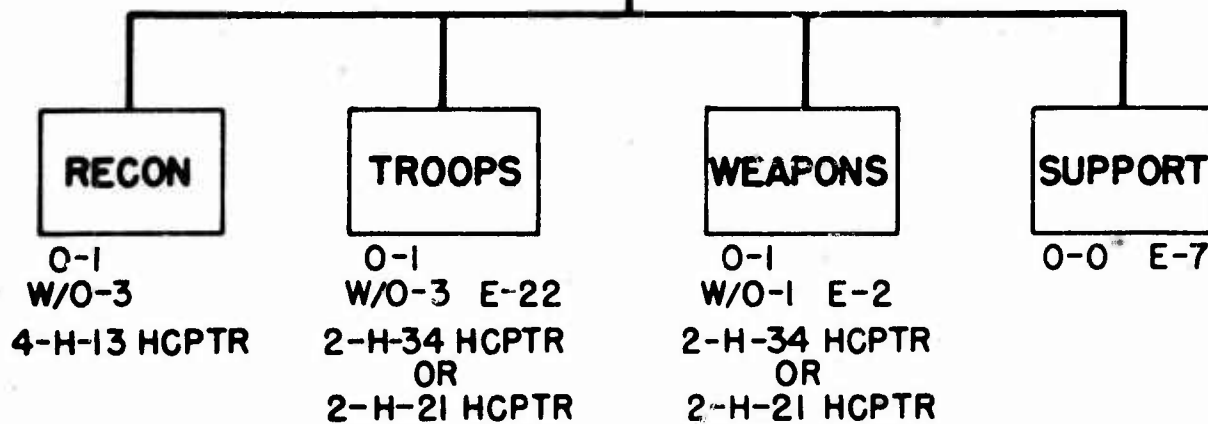
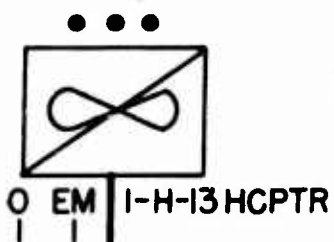
AERIAL COMBAT RECONNAISSANCE PLATOON

TOTAL STRENGTH

4 - OFFICERS
7 - W/O'S
36 - ENLISTED

TOTAL AIRCRAFT

5 - H-13 RECONNAISSANCE
4 - H-34 OR H-21
LIGHT TRANSPORT



APPENDIX 2

E-2-1

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APPENDIX 3 (PERSONNEL SPACES FOR ORGANIZATION OF AERIAL COMBAT RECONNAISSANCE PLATOON, ROCID)

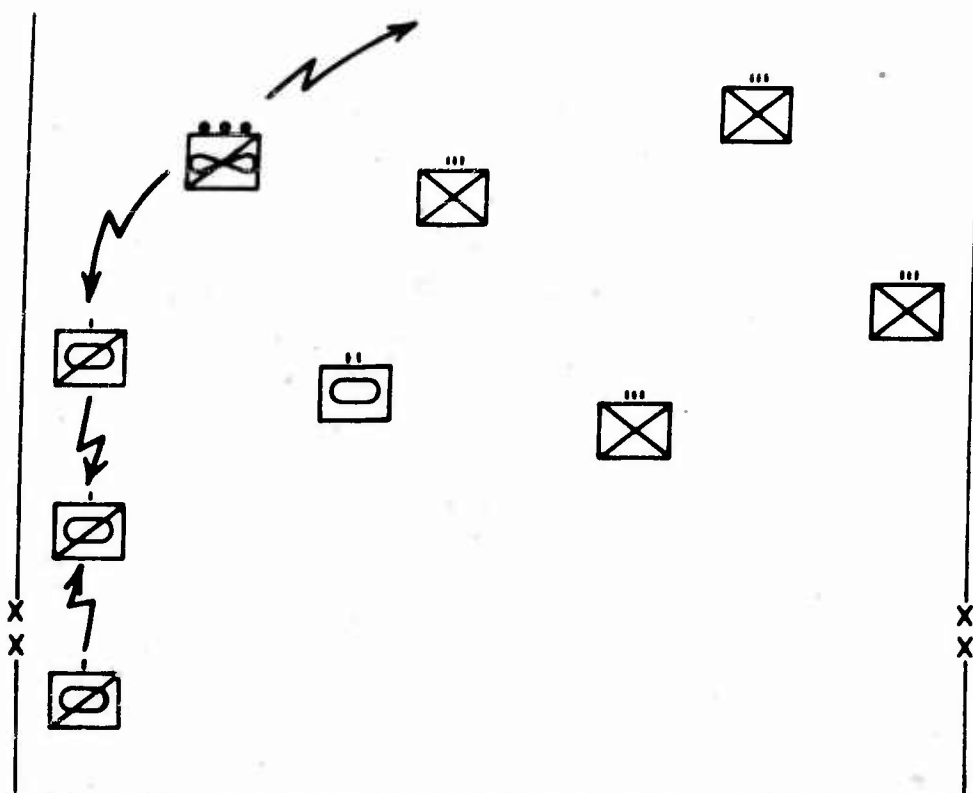
1. Spaces to organize the Aerial Combat Reconnaissance Platoon were obtained by deletion of spaces in the following reconnaissance organizations of the ROCID:
 - a. Headquarters, Headquarters and Service Company, Cavalry Squadron Battalion, Infantry Division TOE 17-86T ROCID, paragraph 03, Administration, Mess and Supply, line 06 - delete cook's helper..... 1
 - b. Reconnaissance Troop TOE 17-87T ROCID, paragraph 03, line 06, delete cook's helper each company..... 3
 - c. Reconnaissance Troop Company TOE 17-87T, paragraph 01, line 10, delete liaison agents each company..... 3
 - d. Reconnaissance Troop, TOE 17-87T, paragraph 08, line 04, delete Ammunition Bearers of support squad each company 9
 - e. Reconnaissance Platoon, Headquarters, Headquarters and Service Company, Infantry Battle Group, TOE 7-12T ROCID, paragraph 17, line 04, delete Ammunition Bearer, support squad 5
 - f. Reconnaissance Troop, TOE 17-87T, paragraph 07, line 06, delete two riflemen from each rifle squad 18
 - g. Reconnaissance Platoon, Headquarters, Headquarters and Service Company, Infantry Battle Group TOE 7-12T, paragraph 16, line 06, delete two riflemen from each rifle squad..... 10
2. Total spaces generated by and across the board cut in personnel spaces in armor reconnaissance units of the infantry division is... 49
3. This reduction of spaces in reconnaissance elements of the ROCID will adversely affect the combat capability of these units, however, the capabilities of the Aerial Cavalry Combat Reconnaissance Platoon, which will be organized from these spaces, will give the division an overall increase in efficiency, mobility, and combat capabilities

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in the reconnaissance and security missions visualized for the current and future atomic battle areas.

4. Spaces to organize the aerial combat reconnaissance platoon in the armored cavalry squadron of the armored division (ROCAD) will be obtained from other armored spaces in the division. The TOE of the armored division (ROCAD) is currently being revised by USCONARC. The spaces for the proposed armored division platoon can be obtained during this revision.

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AERIAL COMBAT RECONNAISSANCE PLATOON OF ROCID OPERATING IN CONJUNCTION WITH GROUND ELEMENTS OF THE CAVALRY SQUADRON IN A FLANK SCREENING MISSION OVER A LARGE AREA.

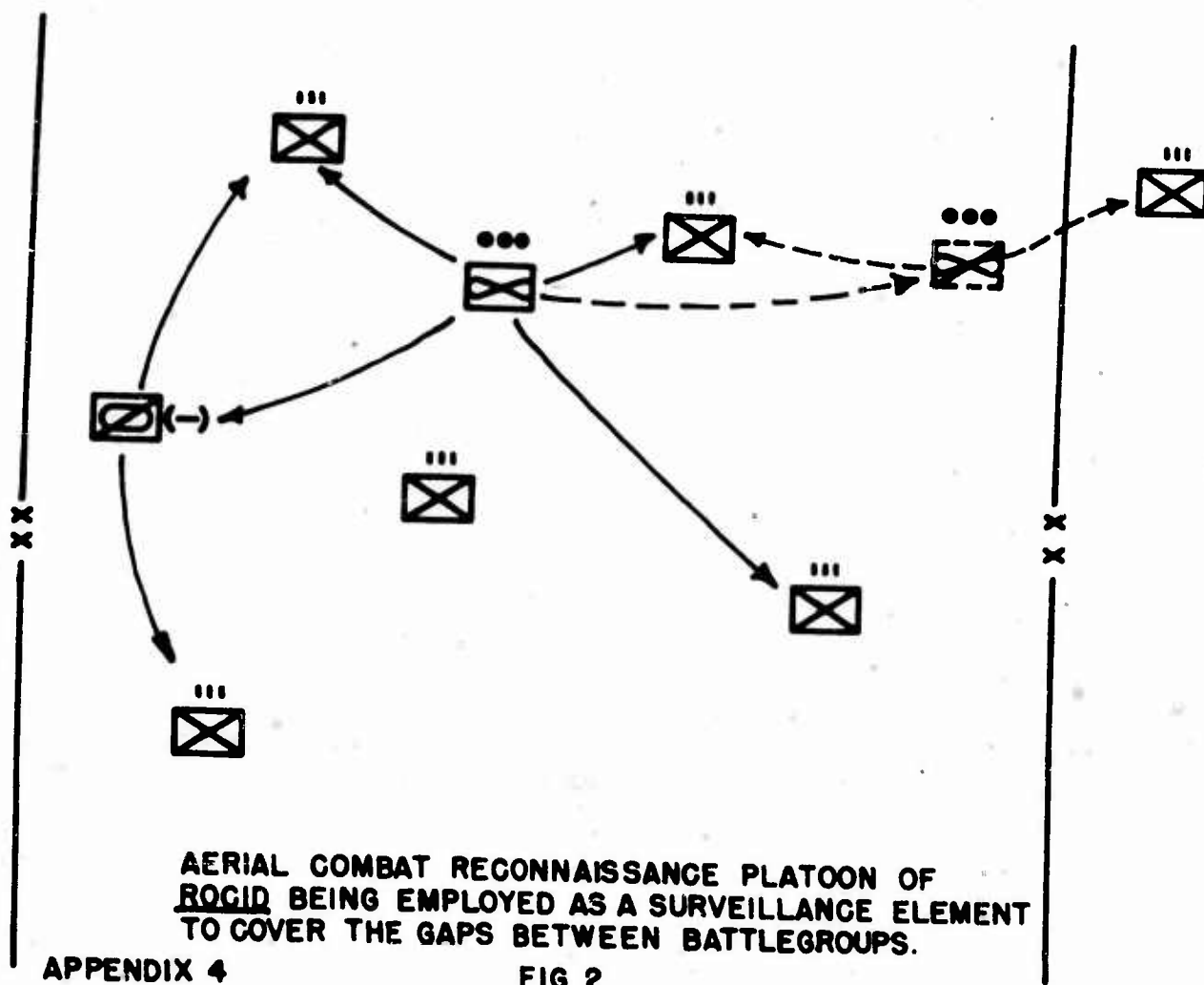
FIG 1

APPENDIX 4

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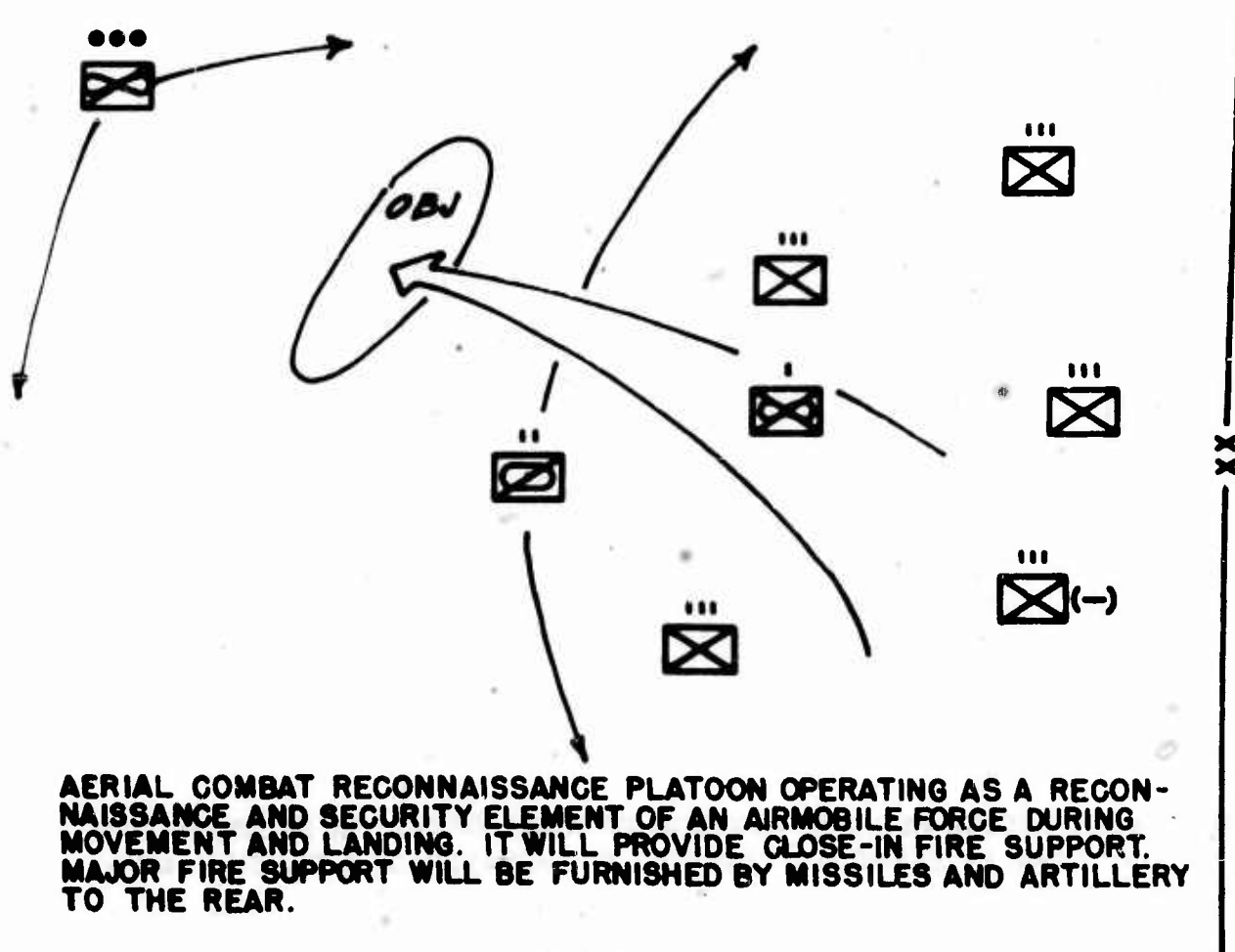


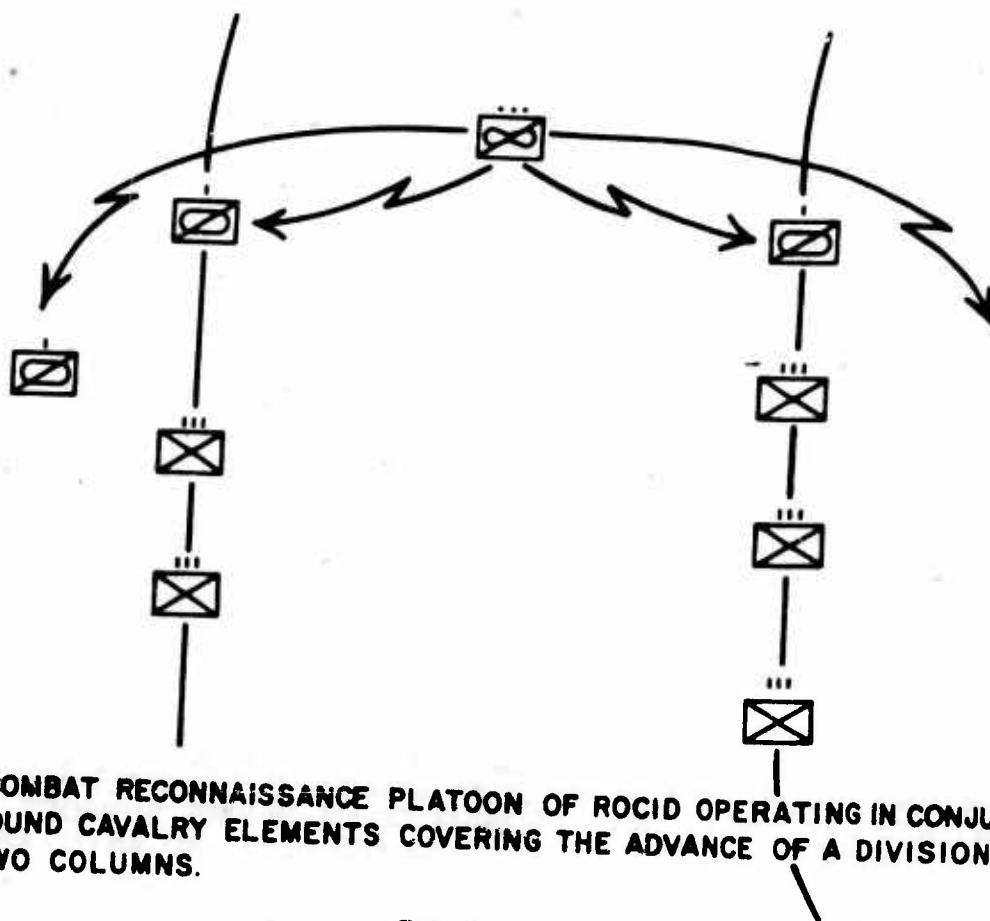
FIG 3

APPENDIX 4

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AERIAL COMBAT RECONNAISSANCE PLATOON OF ROCID OPERATING IN CONJUNCTION WITH GROUND CAVALRY ELEMENTS COVERING THE ADVANCE OF A DIVISION MOVING IN TWO COLUMNS.

FIG 4

APPENDIX 4

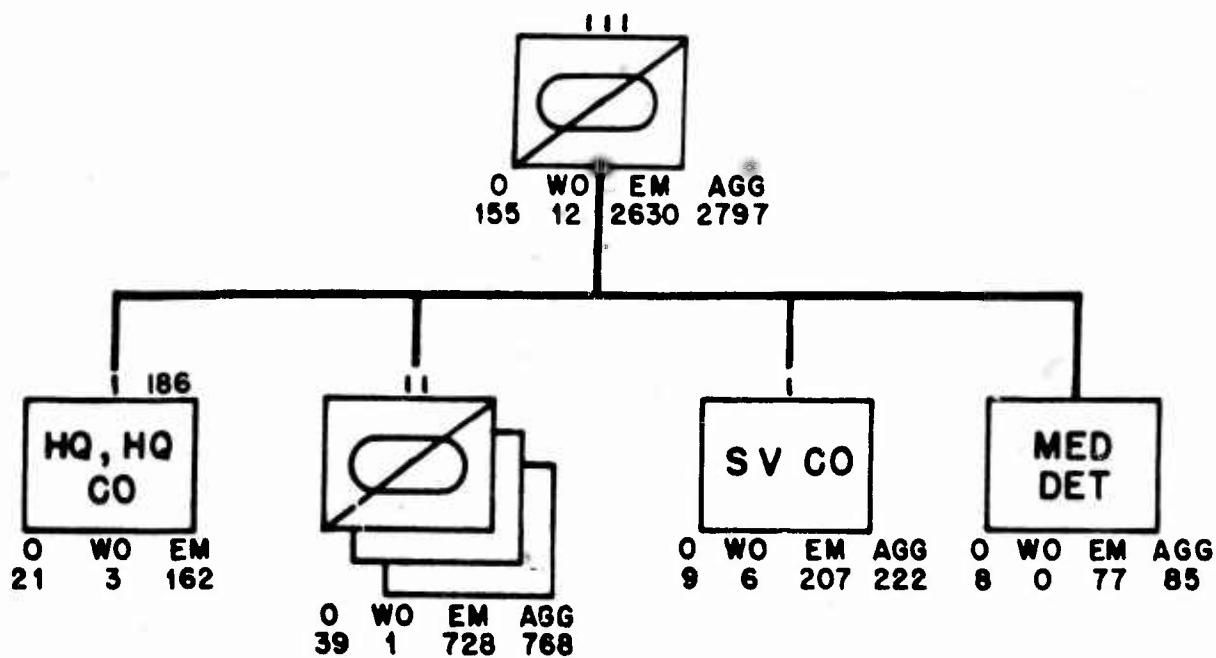
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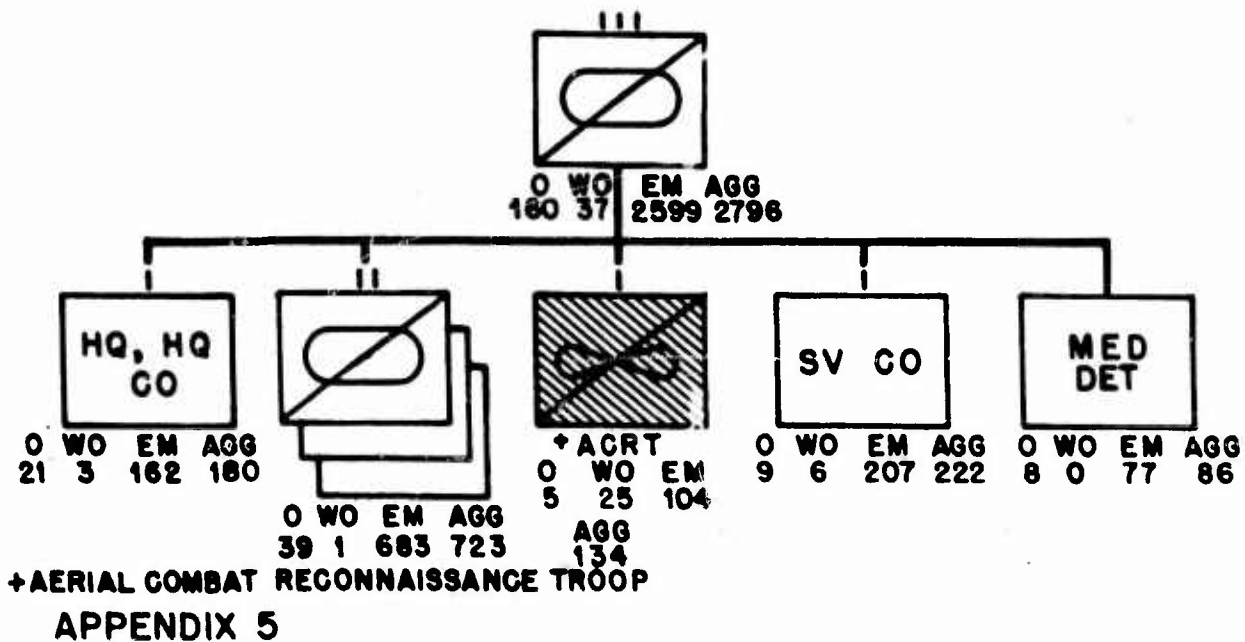
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ARMORED CAVALRY REGIMENT

CURRENT



REVISED

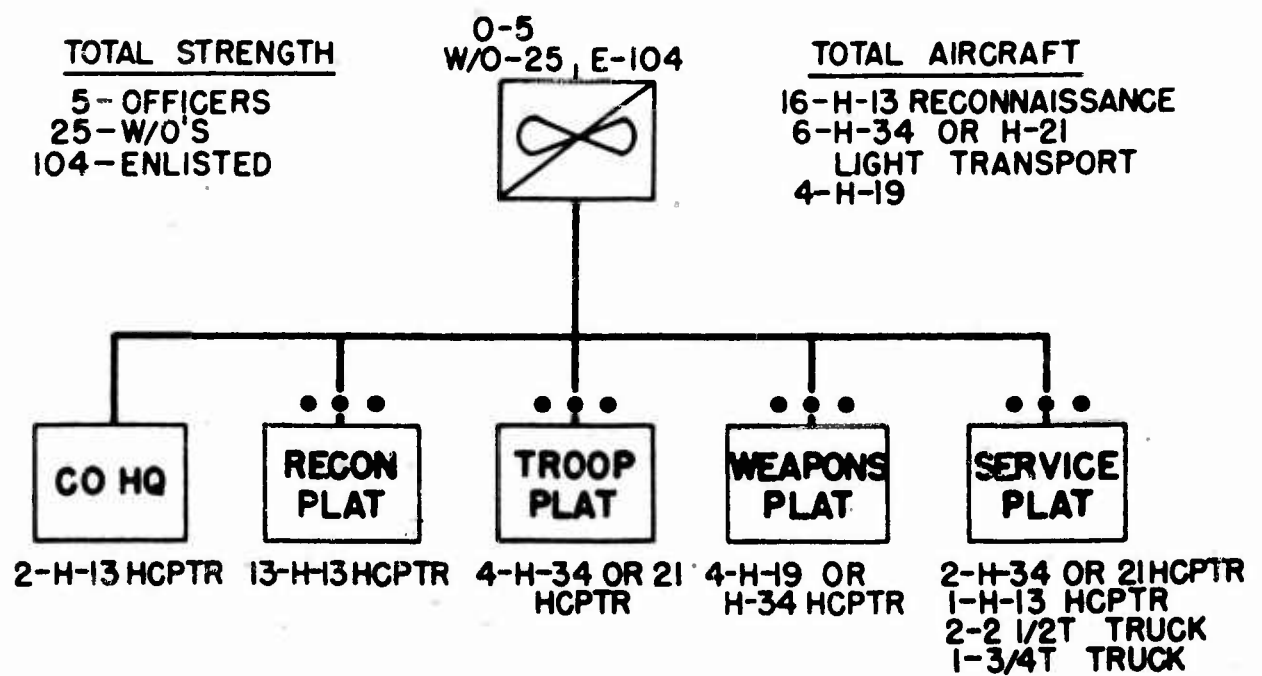


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AERIAL COMBAT RECONNAISSANCE TROOP



APPENDIX 6

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APPENDIX 7 (PERSONNEL SPACES FOR ORGANIZATION OF AERIAL COMBAT RECONNAISSANCE TROOP, ARMORED CAVALRY REGIMENT)

1. Spaces to organize the aerial combat reconnaissance troop were obtained by deletion of spaces in the TOE 17-51R in the following armored cavalry organizations organic to the regiment.

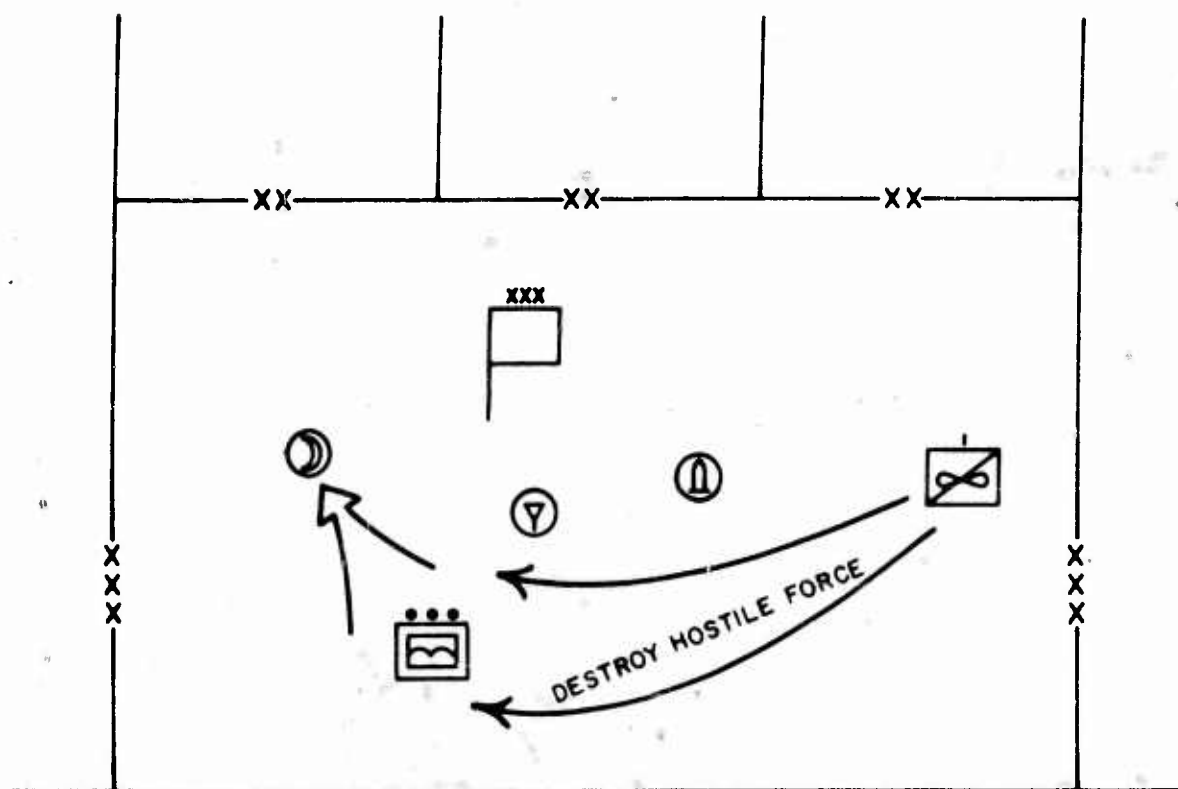
a. The regiment as currently organized is equipped with 71 M-41 light tanks and 51 M-48 medium tanks, the current TOE of the regiment, include bow gunners for each of these tanks. The M-41 and M-48 tanks do not have a bow gunners position. These 123 positions can be utilized in the organization of the aerial combat reconnaissance troops.

b. Reconnaissance company armored cavalry regiment, TOE 17-57C, paragraph 03, Administration, Mess and Supply, line 08, delete cook's helper one per company..... total 9

c. Headquarters, Headquarters Company, Armored Cavalry Reconnaissance Battalions, TOE 17-56R, paragraph 06, Communications Section, line 12 - delete one wireman..total 3

2. Total spaces necessary to organize aerial combat reconnaissance troop is 134. Reduction of spaces as shown in the above paragraphs total is 135, which may be utilized to organize the aerial combat reconnaissance troop.

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**AERIAL COMBAT RECONNAISSANCE TROOP OF THE ARMORED CAVALRY REGIMENT
OPERATING AS A REAR AREA SECURITY FORCE.**

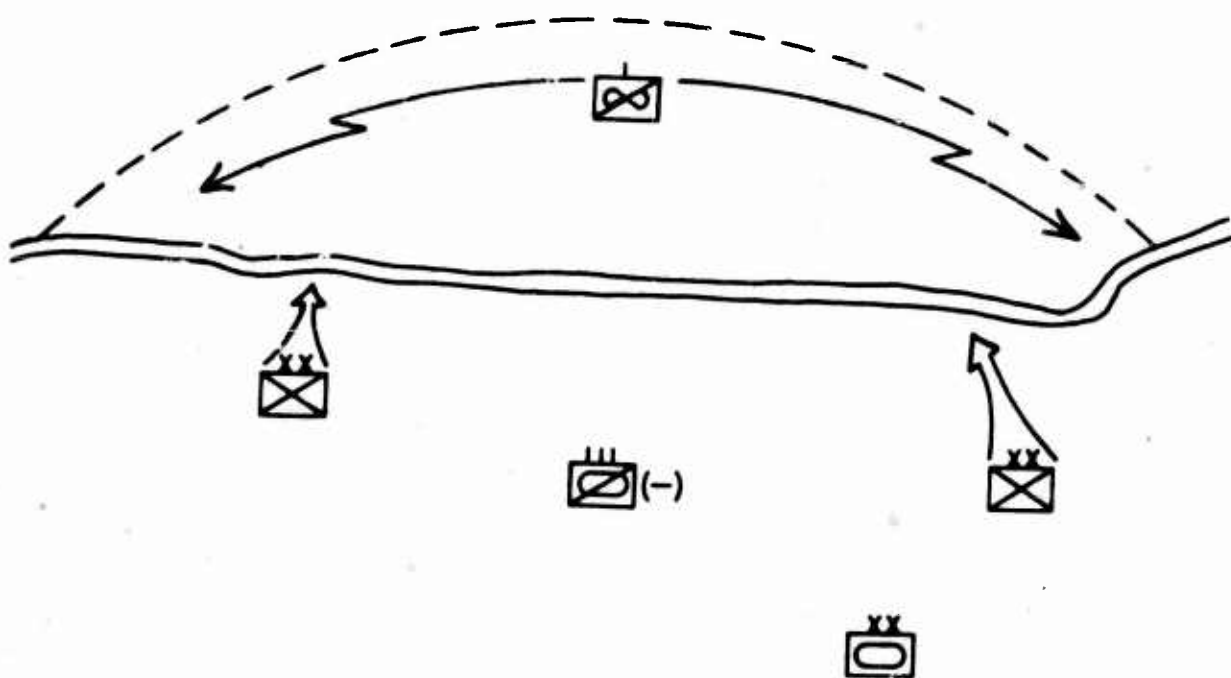
FIG 1

APPENDIX 8

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AERIAL COMBAT RECONNAISSANCE TROOP OF THE ARMORED CAVALRY
REGIMENT OPERATING AS A RECONNAISSANCE AND SECURITY FORCE FOR
RIVER CROSSING OPERATIONS. SAME OPERATION APPLYS TO
AMPHIBIOUS OPERATIONS.

FIG. 2

APPENDIX 8

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ANNEX F (STATEMENT FOR ORGANIZATION, TRAINING, AND EVALUATION OF AERIAL COMBAT RECONNAISSANCE ELEMENT AND AIRMOBILE FORCES)

CONTENTS

	<u>Paragraph</u>	<u>Page</u>
Aerial Combat Reconnaissance Elements	1	F-2
Airmobile Operations	2	F-3

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1. AERIAL COMBAT RECONNAISSANCE ELEMENTS.

a. To evaluate objectively the necessity and value of aerial combat reconnaissance elements organic to all divisions and armored cavalry regiments as developed in annex E, the following procedures are considered necessary:

(1) Selection of those major units most capable of modifying existing units to include appropriate aerial combat reconnaissance elements. The following considerations are essential to making this determination:

(a) The units selected should have tactical missions and be engaged in operational training as opposed to replacement-type training in order that proper operational techniques may be developed.

(b) The training area of the unit selected should be such as to permit dispersed operations.

(c) To insure complete and varied experience it will be necessary to select one infantry (ROCID) and one armored division (ROCAD) to revise their cavalry squadrons to include the aerial combat reconnaissance platoon as indicated in annex E. This will permit an exchange of information during the development of techniques and doctrine and will develop techniques of employment for infantry and armored operations.

(d) At the time the selection in (c) above is made, one armored cavalry regiment should be directed to organize an aerial combat reconnaissance troop in order that the experience, techniques, and necessary doctrine for the employment of this type of troop can be acquired simultaneously with the smaller element.

(2) The units selected will organize, equip, and train the aerial combat reconnaissance element as a working team. It is considered essential that throughout this period the elements have their organic aircraft to facilitate the development of techniques as concerns organizational and higher level maintenances as well as other logistic support. During this period the aerial combat reconnaissance elements will develop techniques for the conduct of unit operations. It will be necessary that the individuals selected to command the element and other commanders associated with the elements be orientated as to the concepts set forth in annex E.

(3) Aerial combat reconnaissance elements should start unit training and operational training with other units at the earliest possible

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time. Commanders of all units with whom these elements will operate must be informed as to the concept of their use. It is likely that considerable "living" with these elements will be required for complete development of their potential and use on the dispersed battlefield. During this phase the elements should operate with as many varied units as possible and under as many conditions as can be evolved. They should participate in field maneuvers whenever possible, although it is not visualized maneuvers will be conducted for this express purpose. Exercises by these elements, as well as airmobile forces, in conjunction with atomic tests are highly desirable.

(4) During the organization and training phases, suitable troop tests for these elements should be developed. In addition to troop tests, it is considered that valuable knowledge concerning their worth and necessity will come from self-evaluation by the elements, by the commanders of the units of which they are a part, and by the commander of the armored cavalry regiment, and by division commanders.

b. Throughout the period of organization, training, test, and evaluation of the aerial combat reconnaissance elements, there must be a free and frequent exchange of information between the units and the US Army Aviation School, the US Army Infantry School, the US Army Armor School, and the Combat Development Experimentation Center in order that the latest and best information may be available.

2. AIRMOBILE OPERATIONS.

a. There is a requirement for the immediate development of an airmobile capability in the field army.

b. Airmobile operations as developed by annex D are suitable for all types of divisions, ROCID, ROTAD, and ROCAD. Small airmobile operations should be conducted by divisions using their organic airlift. Larger airmobile operations should be conducted by augmentation of divisional airlift by airlift made available by the corps or field army through the corps.

c. Once the concepts for employment of airmobile forces are developed, operations are largely a matter of training. Such operations require the movement by air of small forces. The lift requirement can be met by use of resources available to divisions, and for larger operations, by aircraft augmentation from corps.

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d. The following measures are considered necessary:

- (1) The revision and publication of Training Memorandum Nr 13, Hq CONARC, 4 June 1956, subject: "Organization and Training for Mobile Task Force-Type Operations (Reports Control Symbol ATTNG-288)," to include the concepts of airmobile operations as developed by annex D, or the preparation of other appropriate training literature by USCONARC.
- (2) A directive to all divisions, zone of interior and overseas, directing the initiation of airmobile training using training literature to be published by USCONARC as a guide or by other guidance based on the concepts of annex D.
- (3) The inclusion of airmobile operations in all maneuvers.
- (4) When possible, the use of airmobile forces and aerial combat reconnaissance elements for exercise in connection with atomic tests.
- (5) The introduction of airmobile concepts and techniques in courses at appropriate service schools.
- (6) When possible, augmentation of divisional organic airlift to permit airmobile training in larger units to include company and battle groups.
- (7) A directive to the two divisions with aerial combat reconnaissance platoons to develop techniques for the employment of the platoon in conjunction with small airmobile operations.
- (8) The development of techniques for the employment of airmobile forces in conjunction with operations of armored cavalry regiments, including the one with the organic aerial combat reconnaissance troop.

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ANNEX G (CONCEPTS OF EXPERIMENTS AT CDEC FOR THE LONG-RANGE FUTURE)

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1. GENERAL.

a. US Army ground tactical mobility is restricted by terrain conditions. To overcome these restrictions requires large tonnages of class IV materials, such as road and bridge maintenance and construction items. Not only do ground combat vehicles require support of this nature but also ground lines of communications providing all classes of supply to the combat forces require similar support.

b. The mobility of tracked and wheeled combat vehicles is dependent upon roads or terrain which, by its nature, permit movement of such vehicles. Therefore, the ability of combat forces to disperse and concentrate, which is necessary, on future battlefields is restricted by the road net available and the terrain in the area of operations. To overcome such restrictions, the ultimate objective is for all combat elements to be equipped with zero ground pressure combat vehicles. These vehicles should be capable of being employed in assault operations, as weapons platforms for antipersonnel and antimateriel weapons systems, and in a logistics support role.

c. CG, USCONARC, is preparing qualitative materiel requirements for submission to the Department of the Army for a family of zero ground pressure vehicles which will meet the above requirements. The availability of such a family of vehicles will provide a new concept of mobility to future combat organizations by replacing certain or all of the ground vehicles now being used by the combat elements. These vehicles will be suitable for use by all arms.

2. REQUIREMENT. The use of zero ground pressure vehicles as a primary means of mobility for combat elements is so startling that it requires considerable experimentation. CG, US Army Combat Development Experimentation Center (CDEC), will initiate and conduct a series of experiments with a Tactical Atomic Plenty Field Army (TAPFA) light and heavy assault unit sized organization equipped primarily with rotary-wing aircraft to simulate ultimate zero ground pressure combat vehicles.

3. OBJECTIVES.

a. To develop the tactics, techniques, organization, and equipment requirements for a TAPFA assault unit equipped with zero ground pressure combat vehicles.

b. To compare the effectiveness of combat assault elements mounted in zero ground pressure vehicles with those equipped with

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tanks, armored personnel carriers, or infantry fighting vehicles in the conduct of mobile assault operations under atomic and nonatomic conditions.

4. CONCEPT OF EXPERIMENTATION.

a. The concept of experimentation will be guided to a large degree by the assumed characteristics of the zero ground pressure vehicles:

(1) The vehicles are operated by enlisted personnel with operator training not in excess of that required for tanks.

(2) They are armed with a variety of weapons including a DAVY CROCKETT type weapon, a direct fire antimateriel weapon, and antipersonnel weapons.

(3) A maximum degree of protection is provided to passengers consistent with the vehicle's characteristics and operational requirements.

(4) Assault forces fight from the vehicle by utilizing its primary weapons. Additionally, they may dismount and fight on foot.

(5) The vehicles will move a few feet above the terrain and have the capability of moving over water and land obstacles at will.

(6) Zero ground pressure vehicles will be of 2 types, 1 with a payload of one-fourth ton and another with a payload of 2-1/2 tons.

b. Experimentation units will be assigned those missions currently associated with infantry and armored operations. They will be required to conduct assault operations, execute mobile defense, participate in exploitation of nuclear fires, and control areas not otherwise occupied by combat forces.

c. Experimentation will include the development of logistical methods for resupply, maintenance, and evacuation of disabled materiel.

d. Each experimental run will be scientifically compared with similar combat units equipped with more conventional ground mobile equipment, such as armored fighting vehicles and tanks. Since helicopters will be utilized in the simulation, the characteristic complexity of helicopters and their vulnerability will be appropriately degraded by scientific factors.


5. **JUSTIFICATION.** The basic dilemma facing all military forces arises out of the fact that our ability to deliver nuclear fire power has outstripped our efforts to reduce our own vulnerability to those same nuclear fires. It will be difficult to reduce ground force vulnerability to atomic fires to a satisfactory extent without a decisive increase in mobility. Little other than product improvement can be expected in current ground vehicles. Therefore, great progress in overall Army mobility cannot be expected without research into unconventional means of locomotion. The Army requires a vehicle which can move across the terrain up to 70 miles per hour whether that terrain consists of mountains, jungles, swamps, rivers, plains, or water. A high degree of tactical mobility is essential in the field army to offset the dispersion required by the use, or threat of use by mass destruction weapons, to permit rapid concentration when required, and to allow rapid exploitation and maximum flexibility in force employment. There are indications that advancing technology can provide the Army with this truly mobile capability. Early CDEC experimentation will insure that the Army will be ready to integrate these vehicles into tactical assault forces when they become available. It is not the intent to create a separate or special type unit of aerial vehicles which is used only for special purpose missions, but to provide a new type of mobility by replacing existing or future ground vehicles within future ground combat organizations.

6. **MEANS.** The necessary experimentation will be carried out by CDEC with means available - no augmentation required.

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