HEADQUARTERS
101ST AIRBORNE DIVISION (AIRMOBILE) AND FORT CAMPBELL
OFFICE OF THE COMMANDER
FORT CAMPBELL, KENTUCKY 42223

AFZBCG

5 November 1973

SUBJECT: Airmobile Operations in Mid-Intensity Antiaircraft Environment

SEE DISTRIBUTION

1. Here for your information and professional consideration is an account of "Airmobile Operations in Support of Operation LAM SON 719". As we move ahead in building our airmobile team, some of the division's experiences during LAM SON 719 may be helpful today.

2. Operation LAM SON 719 was an armor-airmobile operation conducted in Laos during February-April 1971 to destroy major North Vietnamese supply and logistical bases and to block and disrupt operations of the communist transportation and communications network popularly called the Ho Chi Minh Trail. All ground soldiers were Vietnamese. All air support was American. The 101st Airborne Division (Airmobile) provided the command and control for all rotary wing aircraft and most of the 600 plus helicopters which supported LAM SON 719 during the average day.

3. As you review this account, I suggest that you note especially the following:

a. The enemy used no missiles against our helicopters.

b. While weather was a major factor, only rarely did bad weather preclude airmobile operations all day long.

c. Paragraphs 7-10 contain the meat of the account.

4. This account is in no way offered as what should be in future airmobile operations. Rather, this is what was in a past airmobile operation in which the Screaming Eagles played a key role. Our mission is to develop airmobile techniques for now and the future.

SIDNEY B. BERRY
Major General, USA
Commanding

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A-Less Staff (Division Units Only)

DEPARTMENT OF THE ARMY
Headquarters, 101st Airborne Division (Airmobile)
APO 96383

AVDG-AC

20 March 1971

MEMORANDUM FOR RECORD

SUBJECT: Airmobile Operations in Support of Operation Lam Son 719

1. PURPOSE. This memorandum records my personal observations, evaluation, and views concerning airmobile operations conducted 8 February - 15 March 1971 in support of Operation Lam Son 719 against NVA forces in Laos.

2. OPERATIONAL FOCUS. The memorandum focuses on combat operational aspects of airmobility in support of Lam Son 719. In selecting the operational focus, I have neglected the magnificant performance and significant accomplishments achieved in administrative, logistical, supply, and maintenance support areas which have made possible these airmobile operations. But that is the subject for a separate memorandum.

3. BASIS. I base my evaluation and remarks on personal participation in and observation of the experience of aviation units of the 101st Airborne Division (Airmobile) and additional aviation units under division operational control conducting airmobile operations in support of RVN ground forces in Laos during Operation Lam Son 719. Lam Son 719 began on 8 February 1971 when RVN ground forces supported by US aviation assets launched multiple airmobile combat assaults against NVA forces in Laos. The operation reached its high water mark on 6 March 1971 with a two infantry battalion, one hundred-twenty troop-lift helicopter airmobile combat assault into the Tchepone area.

4. OPERATIONAL ENVIRONMENT. The operational environment of Lam Son 719 has most or all of the characteristics ascribed to "mid-intensity conflict." The area is home territory for the NVA, being a long-occupied, extensively-developed, heavily-defended base area, staging area, and communications and transportation center.

Resident NVA forces include administrative, logistical, quartermaster, and transportation units with organic security and air defense forces. Additionally, the NVA has moved large numbers of major units into the area to oppose RVN ground and US aviation forces. Our best count of NVA forces in the operational area includes elements of five divisions, twelve infantry regiments, at least two battalions of armor regiment, elements of an artillery regiment, and at least nineteen AA battalions.

During Lam Son 719, divisions, regiments, and battalions have opposed each other. Both sides have employed tanks, artillery, rockets, mortars, and a complete family of infantry weapons. NVA forces have opposed Allied air and airmobile operations with heavy antiaircraft fire from an extensive, sophisticated air defense system equipped with a wide variety of modern AA weapons ably supported by fires from infantry weapons. Our helicopters have been engaged by fire from small arms, 12.7mm and 14.5mm machine guns, and 23mm, 37mm, and 57mm AA weapons. The enemy has fired several SAM's at fixed-wing aircraft in and near the operational area.

One can accurately describe this as a hostile air defense environment.

5. INFLUENCING FACTORS. Several factors influence airmobile operations in support of Lam Son 719. They include:

a. Terrain. The operational area is generally mountainous and heavily vegetated. Through the center of the area runs the Xe Pon River valley in an east-west direction with Highway 9 generally paralleling the north bank of the river from the RVN-Laotian border to Tchepone. South of the Xe Pon River, an escarpment rises abruptly from the river valley and stretches east-west from just west of the RVN-Laotian border to Tchepone. The escarpment overlooks the Tchepone area and provides a high ground approach to Tchepone as opposed to the low ground approach of the Xe Pon valley and Highway 9.

b. Landing zones. Few natural landing zones are found in the operational area, and these are usually one-ship or two-ship landing zones. A few potential LZ's exist in the Xe Pon River valley, a few LZ's exist on or near the tops of some mountains and hills, and a few LZ's exist on cleared areas on slopes. Usually it is both desirable and necessary to construct new LZ's with USAF-delivered weapons at places selected by the ground and air mission commanders. Most of the landing zones used in Lam Son 719 have been one-ship or two-ship LZ's requiring hovering approaches and departures.

c. Weather. Weather has had a major effect on the timing of airmobile operations in support of Lam Son 719. Early morning fog, rain, and cloud cover has frequently delayed airmobile and tactical air operations until late morning or early afternoon. Only rarely has bad weather precluded airmobile and tactical air operations all day long. Occasionally airmobile operations have been conducted under ceilings and weather conditions that precluded employment of close

tactical air support. On some days sharply reduced visibility caused by a combination of natural haze, smoke and dust raised by artillery and air strikes, and flying directly westward into the afternoon sun has complicated command and control and created flying safety hazards for airmobile and tactical air operations.

d. Enemy air defense. The NVA has skillfully deployed throughout the operational area an extensive, sophisticated, well-integrated, highly mobile air defense system. Large numbers of antiaircraft weapons of several calibers are well-positioned, well-camouflaged, well-dug-in, and well-employed. There is evidence that some antiaircraft weapons are radar-controlled. Whenever the opportunity occurs, the NVA employs its entire family of antiaircraft, artillery, and infantry weapons against aircraft in the air and on the ground. The NVA quickly masses its antiaircraft weapons around friendly troop positions and areas he expects us to use as landing or pick up zones.

An effective technique used by the NVA is employment throughout the operational area of ten-twelve man combat teams armed with small arms, at least one 12.7mm machine gun, at least one 82mm mortar, and one or two RPG rocket launchers. Positioned on or near critical terrain, located in bunkers and trenches, well-supplied with ammunition, these combat teams attack by fire aircraft and infantry operating within their weapons range. The teams are capable of placing 12.7mm machine gun and 82mm mortar fire on virtually every friendly position, landing zone, and pick up zone in the Lam Son 719 operational area.

The NVA infantry and AA gunners frequently use a "hugging" tactic, moving in as close as possible to friendly forces occupying positions and securing landing and pick up zones. NVA forces sometimes close to within 20 or 30 meters of friendly units manning perimeters and positions. This "hugging" tactic affords the NVA protection from friendly artillery, air, and armed helicopter strikes which friendly forces are reluctant to bring in too close to themselves and permits the NVA to direct a heavy volume of short-range small arms, AA, and RPG rocket fire against helicopters flying in and out of the friendly position.

NVA forces have registered mortar, artillery, and rocket fires on most potential landing or pick up zones in the area, particularly those on high ground. Consequently, we expect every landing and pick up zone to come under indirect fire attack soon after any airmobile operation begins.

Enemy action is such that every airmobile operation, even single-ship resupply or medical evacuation operations, must be planned and conducted as a combat operation, complete with fire plan, escorting gunships, and plans for securing and recovering downed crews and aircraft.

In brief, the NVA is usually quick to engage aggressively with fire from all weapons any aircraft passing within range. The NVA air defense system is built around the fire of numerous 12.7mm machine guns scattered throughout the battle area supplemented by the fires of larger caliber antiaircraft weapons for high-flying aircraft and the fires of small arms, mortars, artillery, and rocket launchers for aircraft flying in and out of landing zones, pick up zones and friendly troop positions surrounded by NVA forces employing the "hugging" tactic.

b. SPECIAL FACTORS. Two special factors are worthy of note in any evaluation of airmobile operations in support of Lam Son 719: combined nature of the operation and task organization of the airmobile aviation assets.

a. Combined operation. Lam Son 719 is a combined operation conducted under a unique set of circumstances. The operation is being conducted across an international boundary which sharply and significantly defines roles of the two participating parties and delimits the role of the US forces. US personnel are specifically enjoined from going on the ground in Laos, and RVN units operate in Laos without US advisors and liaison parties. RVN provides and commands the ground forces which operate against NVA forces and bases in Laos. US provides and commands the aviation and airmobility assets and the bulk of the supporting firepower. CG, I Corps, ARVN plans and commands the ground campaign in Laos. CG, XXIV Corps, USA commands all supporting US Army forces and plans and coordinates airmobile operations in support of the ground campaign planned and commanded by CG, I Corps, ARVN. This command arrangement has worked with remarkable effectiveness and brought about the significant success achieved by operation Lam Son 719 to date. However, this unique combined operation lacks the unity of command which characterizes unilateral US Army airmobile operations in which a single commander commands both the ground and supporting aviation units and operations. Therefore, some of the unique command arrangements and coordination and cooperation which have worked well during Lam Son 719 are atypical of command arrangements found in normal US Army airmobile operations. In particular, the necessarily close working relationship between the Vietnamese and US air mission commanders in planning and conducting airmobile assaults has truly been based on cooperation and coordination. There have been some language problems, but they have been resolved satisfactorily.

b. Task organization. A special airmobile task organization has been created to provide the extensive airmobile support required by Lam Son 719. This task organization is built around the structure of the 101st Airborne Division (Airmobile) by supplementing the division's organic assets with aviation and air cavalry units from other divisions and the 1st Aviation Brigade. The division's 101st Aviation Group has operational control of supplemental aviation units, its 2d Squadron, 17th Air Cavalry has operational control of supplemental air cavalry units, its Support Command establishes forward refueling and rearming points and provides appropriate logistical and maintenance support, and the division itself commands and controls airmobile operations in support of Lam Son 719.

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The aviation and air cavalry units comprising the Lam Son 719 airmobile team have diverse backgrounds. Some units are accustomed to operating in the terrain of northern Military Region I, some have been operating in the lowlands of Military Regions III and IV, and some units come from Military Region II. One unit was scheduled to leave the Republic of Vietnam and return to the United States within twenty days, when it was placed in support of Lam Son 719. CH-53s from the US Marine Corps support heavy-lift operations.

That from the beginning this quickly-constituted airmobile team has been operationally effective to such an outstanding degree while meeting unique challenges is testimony to the spirit, dedication, flexibility, mission-orientation, and professional competence of the units and individuals comprising the team.

7. AIRMOBILITY PRINCIPLES SOUND. Our experience in conducting airmobile operations in support of Lam Son 719 confirms the soundness of the concept and principles of airmobility developed by the US Army. We have, of course, modified and adapted specific tactics and techniques to cope with the operational environment. But airmobility principles and concepts have proven sound and valid.

8. THE AIRMOBILE TEAM. The airmobile team includes elements for command and control, reconnaissance, firepower, troop-lift, heavy-lift, and support. Gunships are integral parts of the reconnaissance element (air cavalry gunships), the firepower element (aerial rocket artillery gunships), and the troop-lift element (escort gunships) and are used habitually to escort the heavy-lift and support elements.

Following comments pertain to each element of the airmobile team as it functions in support of Lam Son 719:

a. Command and control element. Consists of the ground and air mission commanders, their deputies, and staffs who plan, coordinate, and direct an airmobile operation. There must be enough C&C aircraft and parties to provide continuous airborne command and control over each critical point of the operation. The ground and air mission commanders ride in the same C&C aircraft. All other C&C aircraft must also have representatives of the ground and air mission commanders who are authorized to make decisions. As many as four C&C aircraft and parties may be required for an airmobile operation involving extraction of troops from one field location and a combat assault into another field location, particularly when both the pick up and landing zones may be attacked by enemy fire simultaneously, a frequent occurrence in Lam Son 719. Under these circumstances, one C&C aircraft and party is required over the PZ, one over the LZ, and two others are required to replace on station the principal C&C aircraft and parties. Before every airmobile operation, ground and air mission commanders clearly designate succession of command down to the lowest level of command.

b. Reconnaissance element. Consists of air cavalry units who perform the classic cavalry mission of reconnaissance and security. The air cavalry troop is the smallest unit normally assigned a reconnaissance and security mission. Prior to combat assaults, large resupply missions, and heavy-lift operations, air cavalry reconnoiters flight routes to and from the objective area, tentatively selects landing and pick up zones, detects enemy activity and locates targets, and directs attacks by supporting firepower on enemy forces, weapons, and installations and suspicious areas in the objective area. The air cavalry commander initiates the preparatory fires on the landing and pick up zones, the approach and departure routes, and appropriate portions of the objective area. When the ground and air mission commanders begin the combat assault, the cavalry commander shifts his reconnaissance and security activities to adjacent and supporting areas and continues his mission until the airmobile operation is completed. The air cavalry commander plays a major role in target acquisition and direction of supporting fires, and he can assume interim command and control of the airmobile operation, if the need arises. When a single airmobile operation involves simultaneous extraction from one field location and combat assault into another field location, one air cavalry troop is employed over the PZ and a second troop over the LZ. The air cavalry commander is accompanied by an artillery liaison officer and works directly with a USAF forward air controller flying overhead and working as an intimate member of the reconnaissance-firepower team. It is impossible to exaggerate the value and importance of the air cavalry reconnaissance element of the airmobile operations team.

c. Firepower element. Consists of all who bring destructive and suppressive firepower to bear on the objective area, particularly on and around the landing and pick up zones. The firepower element includes ground artillerymen, aerial rocket artillerymen, gunship pilots, and USAF liaison officers, forward air controllers, and crews of B-52 bombers and fighter bombers. The employment of the firepower element is planned, coordinated, and directed by the ground and air mission commanders ably assisted by the air cavalry commander. The governing principle is to place maximum firepower in minimum time in and around landing and pick up zones and along approach and departure flight routes. Massive and accurate application of preparatory firepower does more than any other single factor to guarantee success of an airmobile operation, particularly a combat assault.

While all sources of firepower contribute to the success of a combat assault, the mass of destructive firepower is delivered by the USAF. Multiple B-52 strikes prepare the objective area. Commando vaults and daisy-cutter bombs construct landing and pick up zones and alternate touchdown points. Bombs, rockets, CBU, napalm, and 20mm gunfire destroy or neutralize enemy weapons, positions, and troop units on or near the landing zone. Then USAF aircraft lay a smoke-screen to shield troop-lift aircraft from enemy fire and observation as they enter and depart the landing zone.

The role of artillery has been somewhat limited during airmobile combat assaults in Lam Son 719. This is due to language problems and the relatively low density of friendly artillery on the battlefield, particularly as combat assaults have moved westward into Laos. Artillery fire is generally employed in both suppressive and destructive roles on the flanks of landing and pick up zones.

Helicopter gunships employed in the air cavalry, aerial rocket artillery, and escort roles provide a significant, unique capability to the firepower element. The helicopter gunship has a capability for detecting and immediately engaging battlefield targets of opportunity in close proximity to friendly troops that is unmatched by any other weapons system in the US inventory. Armed helicopters operate under low ceilings and weather conditions that restrict or preclude use of tactical air in close support of ground units.

The air cavalry commander plays a key role in acquiring targets and directing fire on those targets.

The air cavalry-armed helicopter-artillery-tactical air team is an unbeatable reconnaissance-target acquisition-firepower combination.

d. Troop-lift element. Consists of the troop-lift helicopters and their escort gunships. The troop-lift is the central element of the combat assault, the most important, demanding, difficult of all airmobile operations. Troop-lift aircraft are the most lucrative, vulnerable targets for enemy fires. Therefore, everything possible is done to secure the flight and landing of the troop-lift aircraft with their priceless human cargo. Flight routes, flight altitudes, approach and departure routes, landing zones and pick up zones, are all selected and prepared appropriately with firepower to insure maximum security for the troop-lift. Spacing of aircraft is determined primarily by the size of landing and pick up zones. The crucial portion of the combat assault begins with the touchdown in the landing zone of the first troop-lift aircraft and continues until sufficient troop strength is on the ground to sustain itself.

e. Heavy-lift element. Consists of CH-47, CH-54, and CH-53 aircraft used to lift and transport heavy equipment and bulk supplies and their escort gunships. The heavy-lift aircraft bring into a landing zone bulldozers which prepare artillery positions, clear fields of fire, and dig in key installations and ammunition storage areas; artillery pieces and ammunition; CONEX containers equipped as communications centers and tactical command posts; barrier and fortification construction material; fuel, food, water, ammunition, and other bulk supplies or heavy equipment which cannot be hauled by smaller aircraft. Phasing of heavy-lift aircraft into a landing zone depends upon such factors as progress of the combat assault into a landing zone, the clearing and securing of the landing zone and vicinity, fire support plan, relative freedom of the landing zone from enemy fires, and the ground commander's tactical plan. The large size of heavy-lift aircraft and the necessity for slow hovering flight when approaching or departing a landing zone make heavy-lift aircraft especially

vulnerable to enemy fire near and on the landing zone. Frequently, it is appropriate to intersperse heavy-lift aircraft in the stream of troop-lift aircraft going into a landing zone. When this is done, the heavy-lift aircraft is given the right of way. Heavy-lift operations require continuous airborne command and control aircraft and parties just as any other phase of the airmobile operation.

f. Support element. Consists of aircraft and parties who play a supporting role to the other elements involved in an airmobile operation. The support element includes aerial rifle platoons prepared to land and secure down aircraft and crews; chase ships whose mission is promptly to extract crews of downed aircraft; maintenance aircraft prepared to land riggers to rig downed aircraft for extraction and recovery; medical evacuation aircraft which orbit in the objective area alert for quick evacuation of casualties; and escort gunships. These aircraft and personnel have responsibility for missions ancillary to the combat assault itself but of crucial importance to those participating in the operation. Most of the support element responsibilities and activities pertain to security and recovery of downed crews and aircraft. A separate air mission commander and C&C aircraft and party is required for the support element in a large airmobile operation. During Lam Son 719 support operations are planned and coordinated as carefully and thoroughly as the combat assault itself.

NOTE: In operations in RVN, aerial rifle platoons of the air cavalry squadron secure and recover downed crews and aircraft. During Lam Son 719 in Laos, aerial rifle platoons have been formed from the Black Panther Company, the elite Ranger company of the 1st Infantry Division, ARVN, which operates under the operational control of the 2d Squadron, 17th Air Cavalry.

9. TECHNIQUES. Specific techniques employed to cope with the operational environment of Lam Son 719:

a. Command and control. Provide enough C&C aircraft and parties for continuous airborne command and control over each critical point in the airmobile operation. Provide separate air mission commanders and C&C aircraft and parties for each element of the airmobile team freeing the senior air mission and ground commanders to concentrate on the combat assault itself with full confidence that responsible commanders are handling effectively all other aspects of the operation.

b. Reconnaissance. Thorough, early reconnaissance of flight routes, landing and pick up zones, and entire objective area by air cavalry. Continuous reconnaissance during conduct of the airmobile operation, particularly the combat assault. Air cavalry selects within an area designated by the ground commander recommended landing zones, pick up zones, flight routes, approach and departure routes prior to arrival of air mission and ground commanders. In conjunction

with artillery and forward air controller, air cavalry commander commences preparatory fires on landing zone and approach and departure routes. After the ground and air mission commander arrive at the objective area and assume direction of preparatory fires, air cavalry continues reconnaissance activities around the objective area and assists in target acquisition and direction of supporting fires. When the ground and air mission commanders judge the landing zone and approaches to be adequately prepared for the combat assault, they shift supporting fires and direct the air cavalry commander to conduct low-level reconnaissance of the landing zone to determine if it is ready for the combat assault to begin. This final reconnaissance just before the launching of the combat assault is the most crucial reconnaissance of all. The air mission and ground commanders usually approve the air cavalry commander's recommendation either to begin the combat assault or to employ additional preparatory firepower.

c. Selection of landing zone. Vary practices and patterns in selecting landing zones. Use constructed LZ's in preference to natural LZ's. Use slope and lower ground LZ's in preference to highest ground LZ's. High ground landing zones are vulnerable to pre-registered enemy mortar and artillery fires and permit enemy weapons on surrounding low ground 360 degree coverage of approach and departure routes. Landing zones on slopes and on relatively low ground are less likely to be anticipated by the enemy, less likely to receive pre-registered indirect fire attack, and offer some defilade from enemy fires. Constructed LZ's have obvious advantages over natural LZ's, the principal one being that their location is unexpected and require the enemy to make new calculations. Whenever possible, a minimum of three relatively widely separated touchdown points are constructed in the same general LZ area to permit aircraft to shift from one touchdown point to another when enemy fire zeroes in on the touchdown point being used.

d. Determination of LZ time. LZ time and the commencement of a combat assault are keyed to adequate firepower preparation of the landing zone and approach and departure routes rather than to an arbitrarily predetermined time. The ground and air mission commanders have the authority to establish LZ time whenever they decide that the LZ has been adequately prepared by supporting firepower for safe insertion of the troop-lift aircraft.

e. Firepower. Concentrated, massive volumes of firepower are placed on landing zones, adjacent areas, and along approach and departure routes prior to all combat assaults. Air strikes, artillery, and armed helicopter fires are employed in the preparatory fires. Of these fires, air strikes are most destructive and decisive. At a time the ground and air mission commanders consider the landing zone and approaches to have been adequately prepared with firepower, they shift the fires to adjacent areas and send the air cavalry to conduct low-level reconnaissance. If the air cavalry draws enemy fire or sees enemy activity or installations or suspicious areas which he judges to require additional preparatory firepower, he recommends resumption of preparatory fires.

The fires are resumed until once again the ground and air mission commanders decide that the time has come to shift the fires and have the air cavalry conduct another low-level reconnaissance. Only when the air cavalry recommends and the ground and air commanders decide that the landing zone and approach route firepower preparation is adequate does the air mission commander launch the combat assault. When the combat assault begins, supporting fires shift to adjacent targets and areas. The supporting fires continue until the combat assault is complete.

All commanders are alert to the possibility of the NVA concealing themselves and withholding fire during the air cavalry's low-level reconnaissance in order to deliver surprise fire against the troop-lift aircraft when they enter the landing zone.

f. Air strikes. The massive firepower provided by air strikes is especially useful in support of airmobile operations, particularly combat assaults. Multiple B-52 strikes frequently begin preparatory fires on objective areas for combat assaults. Tactical air strikes are employed to assist in preparing landing zones and approach and departure routes for combat assaults. Ideally, a forward air controller is continuously overhead and air strikes are scheduled on station every ten or fifteen minutes from beginning of preparatory fires until completion of the combat assault. In Lam Son 719 both Vietnamese and US commanders normally give first priority of air strikes to support of combat assaults or extractions, and it requires a senior commander's decision to change this priority of air.

g. CBU Smoke. Prior to initial touchdown of the first aircraft in the combat assault, and ideally lasting for the duration of landing of troop-lift aircraft, USAF aircraft lay down a smoke screen larded with casualty-producing CBU munitions to screen the downwind flank of the landing zone from enemy fires and observation. A minimum of four sets of air is required to provide a reasonably effective smoke screen. Considerable care is taken to insure that the smoke does not drift over and obscure the landing zone itself.

h. Armed helicopters. The armed helicopter is an essential weapon in the operational environment of Lam Son 719. It provides a capability to locate and engage immediately targets of opportunity possessed by no other weapons system and it provides close fire support under weather conditions that preclude fixed-wing aircraft close support. The AH1G (Cobra) is quite effective. The UH1C is beyond its capability in this environment and tends to be more of a liability than advantage. Yet, we fly every gunship available including the UH1C because the gunship is so essential to all phases of the airmobile operation.

In the hostile air defense environment of Lam Son 719, it is necessary to provide gunship escort for virtually every aircraft or group of aircraft that fly missions over Laos. Thus, the number of gunships available for escort becomes a limiting factor in how many separate missions can be flown simultaneously.

Armed helicopters effectively perform the helicopter escort role. Escort armed helicopters are normally employed on the rear flanks of the lift helicopter formation, in position to provide immediate en route suppressive fire. Prior clearance to fire along the flight route facilitates maximum effectiveness of escort armed helicopter fires. Escort armed helicopters immediately engage enemy targets they observe. Lift helicopters receiving enemy fire mark the targets with smoke, and the lift flight leader directs armed helicopters to engage the target.

One technique for employment of aerial rocket artillery in support of combat assaults is particularly effective. During the combat assault when the artillery and air strikes have shifted to adjacent targets and the troop-lift aircraft are landing the troops, aerial rocket artillery gunships orbit high over the landing zone. When a target appears, aerial rocket artillery gunships are directed from overhead orbit to engage immediately the target. They do so with promptness, accuracy, and capability for placing fires close to the friendly troops on the ground.

i. Flight routes. Flight routes are planned to avoid known enemy AA weapons and to pass over friendly positions when possible, thus providing safe havens for aircraft and crews that may be forced to land. Flight routes are varied and changed from day to day and mission to mission depending upon location of friendly units and enemy AA weapons.

j. Altitude selection. Whereas in most areas of RVN, aircraft flying 1500 feet above ground level are considered relatively safe from ground fire, heavy small arms and AA weapons fire over Laos have driven aircraft to fly at considerably higher altitudes. In Lam Son 719 altitudes between 4,000 and 6,000 feet above ground level are optimum for preventing losses to small arms and 12.7mm machine gun fire and for remaining below effective engagement altitude of larger caliber AA weapons.

k. Aircraft dispersion. One-ship and two-ship landing zones preclude use of mass formation flying. Flights of aircraft normally proceed to objective areas in widely dispersed trail formation, thereby reducing possibility of loss of more than one aircraft to a single enemy weapons engagement.

l. Approaches to and departures from landing zones. Steep, rapid descents to and ascents from landing zones while maintaining varying velocities in three directions reduce the accuracy and effectiveness of fire against aircraft from enemy weapons located near the landing zone and along approach and departure routes. Approaches and departures normally follow the same route in order to take maximum advantage of the pre-landing reconnaissance and preparatory firepower.

m. Low-level, nap of the earth flight. Under certain circumstances combat assaults, resupply missions, and medical evacuation are better conducted by low-level, nap of the earth flight rather than by high altitude flight. Aircraft flying the nap of the earth present fleeting targets to enemy gunners and gain surprise by their sudden and unexpected appearance in the landing zone and quick departure. When this tactic is used, a guide aircraft must fly at a higher altitude above the low-flying aircraft to vector them to their objective. Nap of the earth flight is often appropriate and effective when aircraft fly into a firebase or friendly position surrounded by enemy who use "hugging" tactics and place accurate fire on the landing zone.

n. "Secure" landing and pick up zones. Secure landing and pick up zones do not exist in Lam Son 719. Friendly firebases and positions are so small and widely dispersed and enemy forces and weapons so numerous and pressed in so close to friendly forces and positions that every landing zone and pick up zone in Laos is always potentially and usually actually subject to enemy fire. Consequently, every mission including resupply and medical evacuation is planned and executed as a combat operation, complete with reconnaissance and fire support. Proximity of friendly forces inhibits use of defensive fires during missions into "secure" LZ's and PZ's. Commanders and aviators prefer going into new LZ's by combat assault supported by unrestricted firepower rather than into the so-called "secure" LZ's and PZ's where friendly troop locations inhibit employment of supporting and defensive fires.

o. Breaking off a combat assault. The most difficult decision one must make during an airmobile operation is to break off or interrupt a combat assault once it has begun. When the landing of troops has begun, the pressures are great to continue the combat assault until all troops are on the ground. But when enemy fire against troop-lift aircraft entering and departing the landing zone becomes so heavy and accurate and aircraft and human losses and damage so great that the success of the combat assault is jeopardized, then the commander must break off the combat assault and create conditions that permit resumption of the combat assault. There are several actions the commander can take to resume an interrupted combat assault. He can use additional firepower, change approach and departure routes and altitudes, aircraft touchdown points, or the landing zone itself. Troops already in the landing zone can assist by attacking and destroying enemy forces and weapons and by securing the original or an alternate landing zone. At such times, there is a premium on the imaginativeness, resourcefulness, determination, and professional competence of the ground, air mission, and air cavalry commanders, as well as on the courage and will of the aircraft crews and ground troops.

p. Senior commander aloft. A senior airmobile commander is aloft over the operational area during the crucial phases of airmobile operations, particularly during combat assaults and extractions. This senior commander is separate from

and senior to the ground and air mission commanders. His presence expedites decision-making and coordination and facilitates acquiring additional resources needed to support the operation. The senior airmobile commander monitors appropriate radio nets, follows the action closely, provides guidance to the air mission commander, keeps higher headquarters informed, and calls for additional resources or support as needed. He is a decision-maker and expediter. Most importantly, the senior airmobile commander aloft receives the recommendations of the air mission and ground commanders and personally makes the crucial "go" or "no-go" decisions for crucial combat assaults and extractions. This command arrangement is essential for a combined operation such as Lam Son 719. The principle may be equally valid for unilateral US Army airmobile operations.

10. PERSONAL VIEWS. Here are some of my personal views on airmobility and airmobile operations. These views are influenced by what I have experienced and observed during airmobile operations in support of Lam Son 719.

a. Airmobility. Airmobility is the key to the success achieved thus far by Lam Son 719. Airmobile operations have proved effective in the hostile air defense, mid-intensity conflict environment of Lam Son 719. I believe that airmobile operations will be effective on a European-type battlefield.

b. Helicopter survivability. The helicopter and its crew have proven remarkably hardy and survivable in the mid-intensity conflict and hostile air defense environment of Lam Son 719. We have lost remarkably few helicopters and crew members in view of the heavy small arms, antiaircraft, and mortar and artillery fires our aircraft and crews have experienced while conducting extensive airmobile operations on NVA home ground. This is even more remarkable in view of the numerous airmobile operations conducted in support of Vietnamese ground units located in small perimeters, surrounded by NVA units and weapons, and often in heavy contact with the enemy.

To assess and evaluate properly our aircraft and crew losses, one must measure these losses against the campaign plan, mission, total sorties, and number of exposures to enemy fire, and accomplishments. When viewed in this perspective, we have fared better than the most optimistic prophet would have dared predict.

One thing is certain. A helicopter protected against .30 caliber small arms fire from a distance of 300-400 feet will have an appreciably greater chance of survival under conditions of conflict experienced in Lam Son 719. So will its crew.

c. Ground units securing LZ's and PZ's. Friendly ground units can reduce danger and damage to supporting aircraft by pushing out from their perimeter and enlarging the ring of security around landing and pick up zones. Many aircraft

are damaged or lost flying in and out of friendly field locations in which the perimeter is wrapped tightly around the landing zone and the enemy is, in turn, wrapped tightly around the friendly perimeter with his small arms, machine gun, and mortar fire covering the landing zone and its approaches.

d. Reconnaissance and firepower. Timely, thorough reconnaissance and responsive, massive firepower are twin keys to successful airmobile operations, particularly the combat assault and extraction. Air cavalry is the key to adequate reconnaissance. The combination of artillery, armed helicopters, and tactical air strikes is the key to adequate firepower.

e. Air cavalry. Air cavalry is one of the most versatile, most valuable assets on the battlefield today and has virtually unlimited, untapped potential for the future. I believe that every US Army division should have two air cavalry squadrons assigned. This would give the division commander the capability for employing one air cavalry squadron in the division reconnaissance zone and the air cavalry troops of a second squadron in direct support of the division's brigades. Whenever appropriate, the division commander could employ both of his air cavalry squadrons in mass or on separate independent missions. I would be willing to trade one or two infantry battalions for an additional air cavalry squadron. (We are employing four air cavalry troops in support of Lam Son 719 operations in Laos. We could use more.)

f. Tactical air. If tactical airpower is to make its full contribution to airmobile operations and to the battle, USAF must liberally provide Tactical Air Control Parties to air cavalry and selected Army aviation units as well as to participating ground units and keep continuously airborne over the operational area sufficient Forward Air Controllers to handle both planned and immediate air strikes in large number and without delay. The TACP's presence at all major tactical headquarters participating in airmobile operations is essential to insure that tactical airpower factors are fully included in the planning stages. It is only through the TACP and FAC that the full effect and potential of tactical airpower in support of airmobile operations can be realized. Also, USAF tactical aircraft must be capable of a longer on-station time over the battle area. USAF tactical aircraft frequently arrive over the battle area with a fifteen minute on-station endurance capability. This limitation provides little or no flexibility to the ground, air mission, or air cavalry commander who need air strikes in support of their operation.

g. Armed helicopters. We need more armed helicopters with improved capabilities. The armed helicopter provides a capability for responsive, continuous, accurate, close fire support offered by no other weapons system within the US inventory.

Airmobile operations in mid-intensity conflict require more armed helicopters than in low-intensity conflict. Increased numbers of enemy antiaircraft weapons and high effectiveness of enemy air defense systems combined with close combat

of ground units require more armed helicopters for reconnaissance missions, for suppressive and destructive fires, and for helicopter escort. The number of armed helicopters available for support has sometimes been a limiting factor in the airmobile operations during Lam Son 719. We have on occasion been capable of flying more missions simultaneously that available armed helicopters could support.

We need now tank-defeating armed helicopters. Had we entered Lam Son 719 with a helicopter armed with an accurate, lethal, relatively long-range anti-tank weapon, we would have destroyed many more NVA tanks and would have rendered more effective close support to Vietnamese ground forces. As I consider our experience against NVA tanks in Lam Son 719 and ponder what would face us on a European-type battlefield, I am absolutely convinced that the US Army must field immediately an armed helicopter with an effective tank-killing capability. If the AH1G "Cobra" mounting the TOW gives us that required capability the soonest, fine. I hold no brief for any particular weapons system, but I do hold the firm conviction that we need now the armed helicopter tank-killer.

h. Armed helicopter-tactical air team. The armed helicopter and fixed-wing fighter-bomber form a natural, effective fighting team. Each weapons system has unique, complementary characteristics essential in support of the ground soldier and his operations.

Living and operating in the ground soldier's environment, the armed helicopter escorts troop-lift helicopters flying the soldier to and from his operations, escorts helicopters delivering ammunition, food, water, supplies, and mail to the soldier, and escorts the medical evacuation helicopter rescuing the wounded soldier from battle. The armed helicopter flies underneath ceilings measured in hundreds of feet to locate targets threatening or attacking the soldier to deliver timely, responsive, accurate fire within tens of feet of the soldier's position.

The fighter-bomber has a unique capability to place heavy firepower and a variety of ordnance in close support of the ground soldier. The fighter-bomber's most distinctive characteristic is its ability to deliver heavy bombs in support of the ground soldier. The fighter-bomber flies underneath ceilings measured in thousands of feet, to deliver heavy bombs within hundreds of feet of the ground soldier's position and lighter ordnance even closer.

The armed helicopter and fighter-bomber team works effectively in Lam Son 719. Armed helicopters of the air cavalry reconnoiter objective areas, landing and pick up zones, and their approach and departure routes; acquire and mark targets on which the forward air controller directs air strikes; conduct low-level bomb damage assessments; and work with the forward air controller in developing additional targets for air strikes. Armed helicopters and tactical air work

together to prepare the objective area, landing and pick up zones and approach and departure routes for safe passage and landing of the troop-lift helicopters. The armed helicopters then escort troop-lift and heavy-lift helicopters in and out of the landing zone while the forward air controller directs air strikes into adjacent target and dangsr areas.

i. Smoke capability. The helicopter should be provided a smoke munition similar to that employed by USAF fixed-wing aircraft, the CBU-smoke capability which simultaneously provides concealment and inflicts casualties. The smoke helicopter could be effectively employed in support of airmobile operations conducted in weather below USAF flight minimums or when USAF smoke aircraft are not responsive enough.

j. Instrument pilots. All aviators should be qualified as instrument pilots and proficient in instrument flight, and all helicopters should be equipped with the latest and best equipment for instrument flight. This would ensure a higher mission completion rate with a lower accident rate. As things now stand, our dedicated, determined, mission-oriented aviators fly missions before first light, after last light, and in marginal weather conditions at considerable risk to themselves, their crews, and their aircraft.

k. The combat soldier-aviator. A final point. I have come to regard the combat aviator with the same respect, admiration, and affection I feel for the combat infantryman.

Our combat aviators are dedicated, courageous, selfless, skillful soldiers who daily in Lam Son 719 accomplish the most demanding, difficult missions with superb style, effectiveness, and professionalism.

Sidney B. Berry

SIDNEY B. BERRY
Brigadier General, US Army
Assistant Division Commander (Operations)

ANNEX A
INTELLIGENCE

1. (U) INTRODUCTION

This section contains a summary of weather conditions, terrain data, and the general enemy situation during Operation LAMSON 719. Information on the enemy situation is somewhat limited by the classification of this report; however, every effort has been made to insure all available information of the proper classification is included so as to present as accurate a picture as possible.

2. (U) Weather

a. General

During most of February and the first half of March the Siberia High normally present over the mainland of Vietnam, begins a slow retreat northward. The flow around the high is still sufficient however to maintain a strong northeast monsoon over Southeast Asia. As the cold dry air from the high pressure area moves southward, it is gradually heated by contact with the warmer China coast and waters of the South China Sea. This polar air merges over the water with moist tropical air from the western Pacific and arrives over Southeast Asia much warmer and more moist than when it left the continent. The northeast monsoon over northern South Vietnam is a wet monsoon with considerable low level cloudiness, light rain, and drizzle. The Annamite Mountain Range along the border of Laos and South Vietnam weakens the effects of the northeast monsoon in Laos; however, considerable low level cloudiness is present along the border regions of Laos and South Vietnam during the northeast monsoon. The amount of cloudiness in this border area on any given day depends primarily on the strength and depth of the northeast monsoon. The northeast monsoon is relatively cool and dry over much of the interior of Laos.

b. Northeast Monsoon

If a moderate northeasterly flow of 15 to 25 knots is present through the first eight to ten thousand feet above the ground, (Figure A-1) "spill over" into Laos will occur. This "spill over" will produce

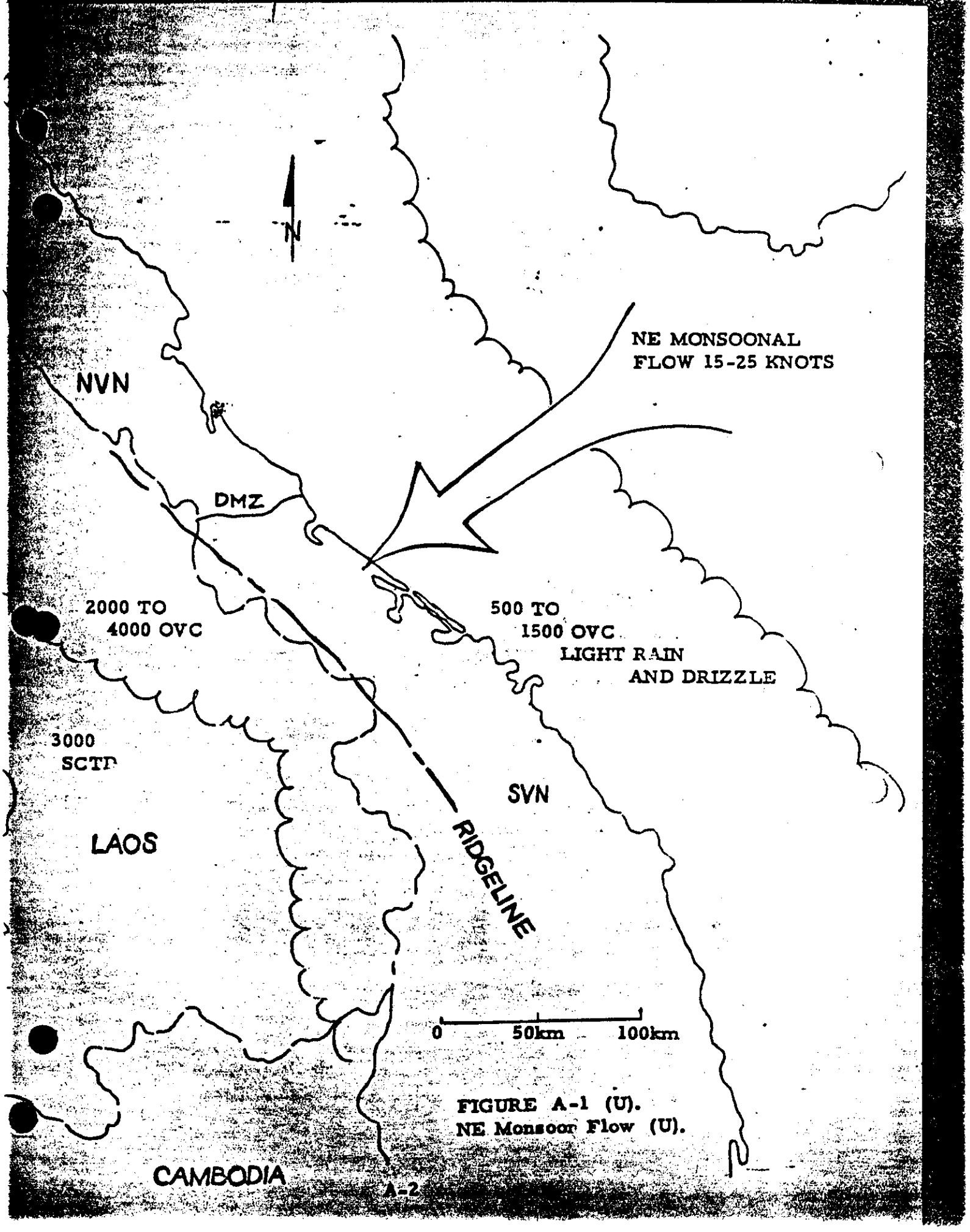


FIGURE A-1 (U).
NE Monsoon Flow (U).

ceilings from 2,000 to 4,000 feet above mean sea level extending 50 to 70 miles into eastern Laos, becoming mostly scattered in western Laos. This same flow pattern will cause ceilings to average between 500 and 1,500 feet with light rain and drizzle along the coastal areas of South Vietnam. All higher elevations will be obscured in clouds.

c. Transition (Figure A-2)

During the latter half of March, the northeast monsoon weakens causing an improvement in the weather over most of the Laos-South Vietnam border area. Considerable cloudiness will still occur over the Annamite Mountain Range, however, with ceilings averaging between 2,500 and 4,000 feet. The border areas of Eastern Laos will experience mostly scattered clouds during the afternoon. Low stratus and poor visibility in valley fog will dominate the weather during the early morning hours.

d. Southwest Monsoon

The initial stage of the Southwest monsoon, experienced in surges during late March, consists of a light southwesterly wind pattern (Figure A-3). During this flow configuration showers and thunderstorms develop over and along the Annamite Mountain Range, causing mostly cloudy weather. Scattered thundershowers with bases of 3,000-4,000 feet will develop over the area by mid afternoon. The plains of Vietnam by late afternoon provided the upper level wind flow is greater than 15 knots from the southwest.

e. Aviation Weather

1. Aviation support was affected by weather in three separate regions. The majority of aircraft were based in the Vietnamese coastal plains, crossed the Annamite chain, staged at Khe Sanh and then operated in eastern Laos. Under most conditions, the weather was marginal in one of the three areas during most of the period. Ceilings of 1,000 feet above ground level (AGL) were used as a minimum standard for effective operation of Army aircraft, whereas ceilings of 3,000 feet AGL were used for employment of normal USAF TAC air support. Data in Figure A-4 is derived from USAF observation stations in the Coastal Plains. No weather stations were established

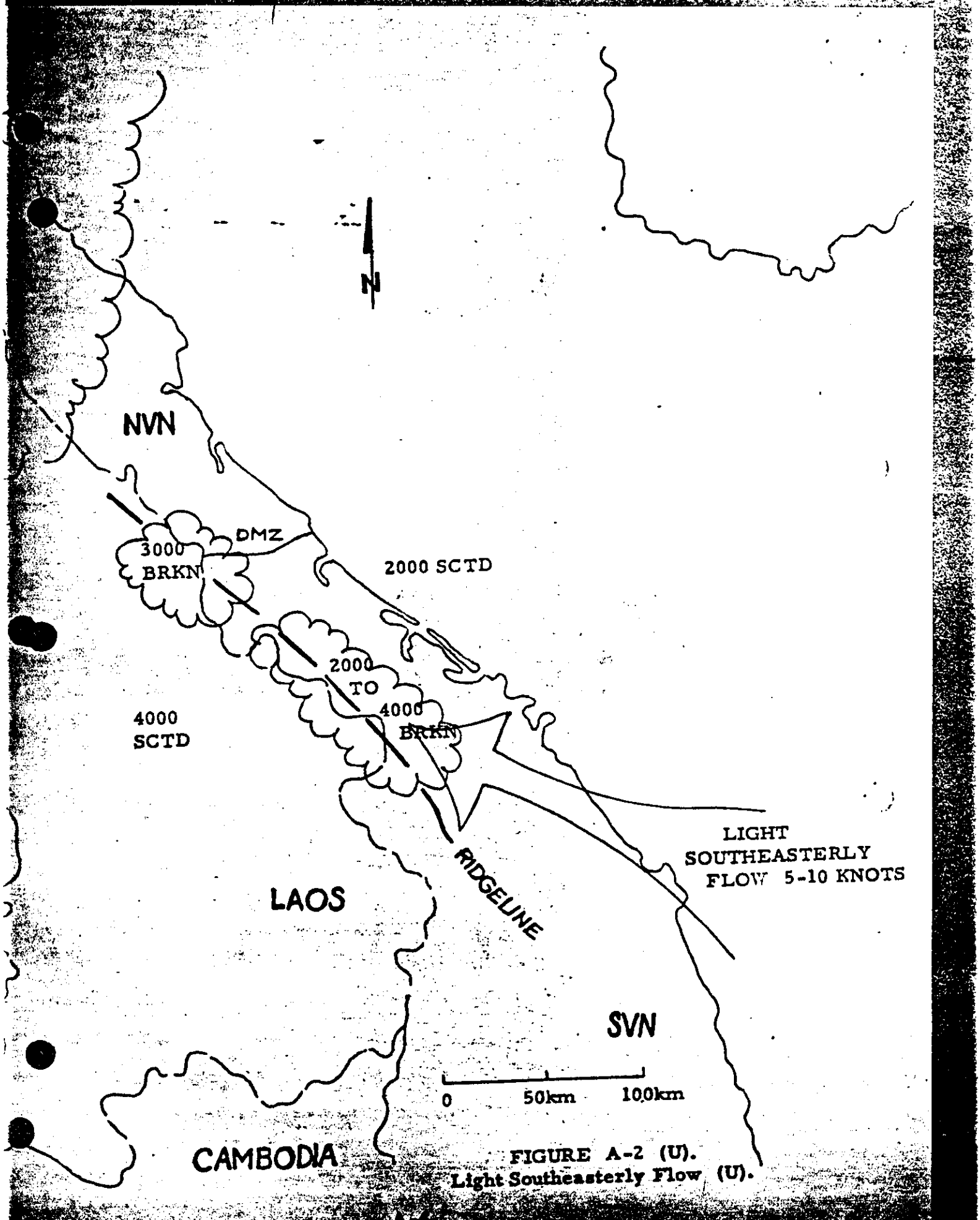


FIGURE A-2 (U).
Light Southeasterly Flow (U).

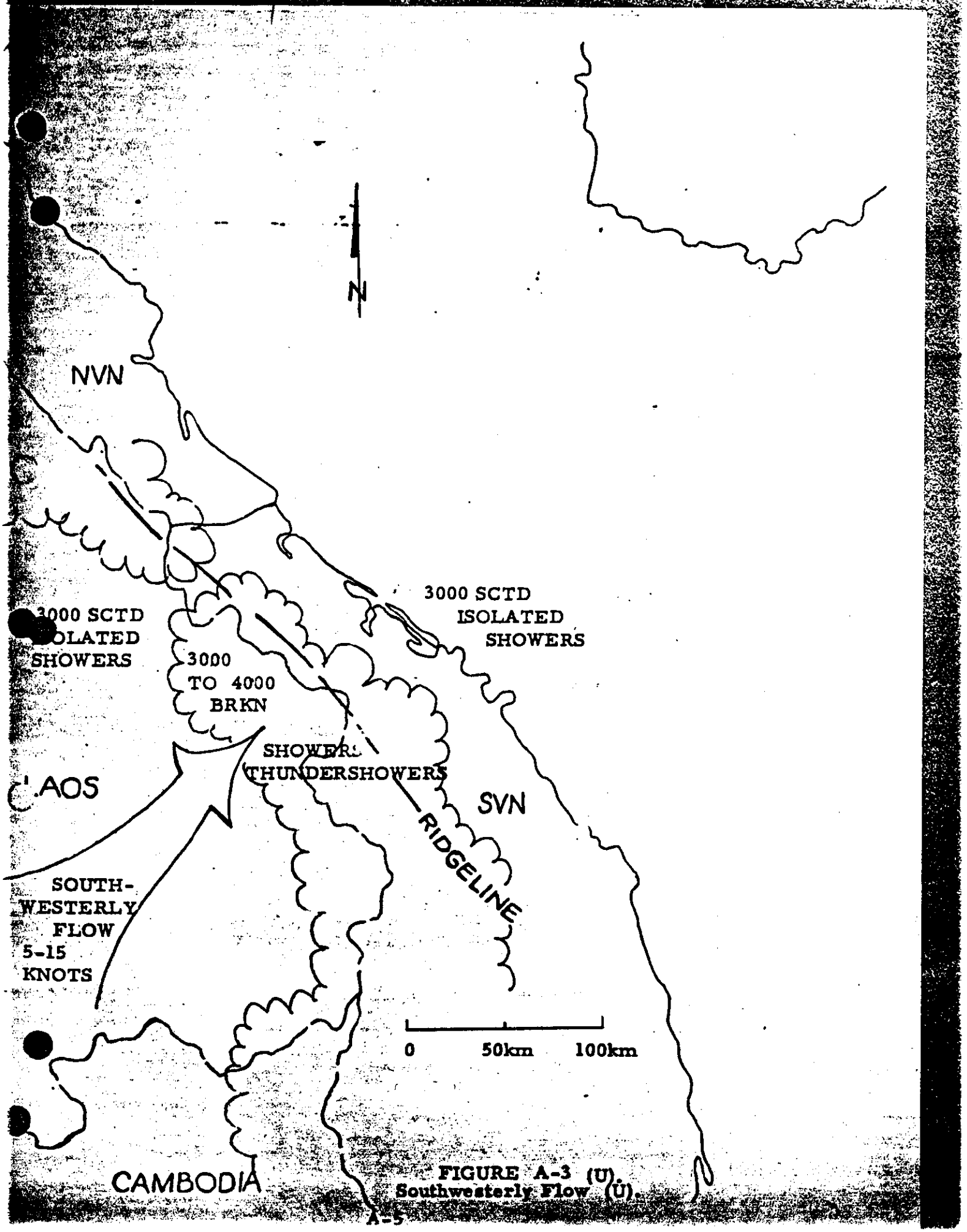
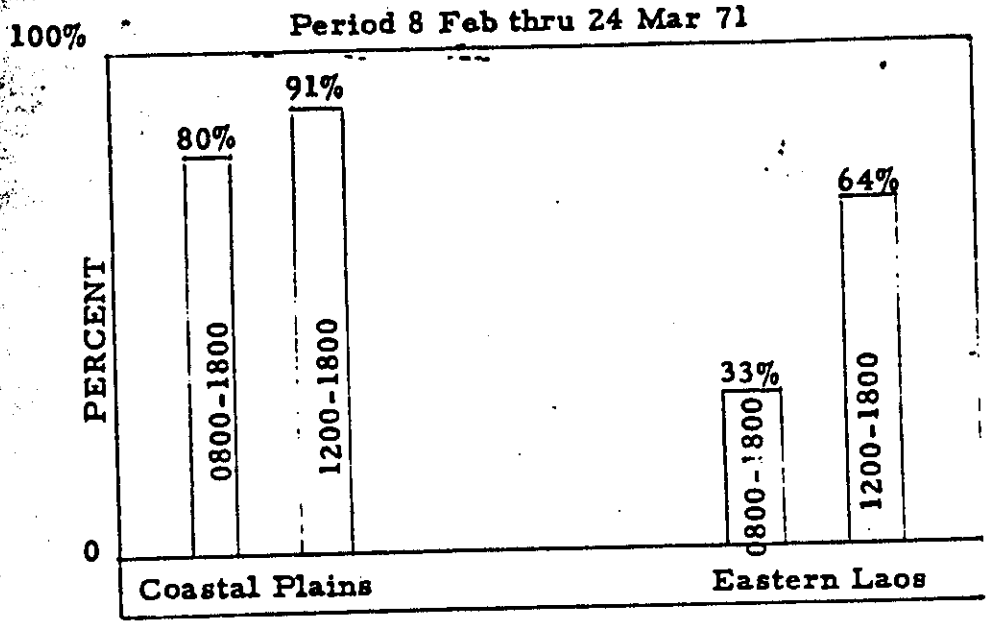
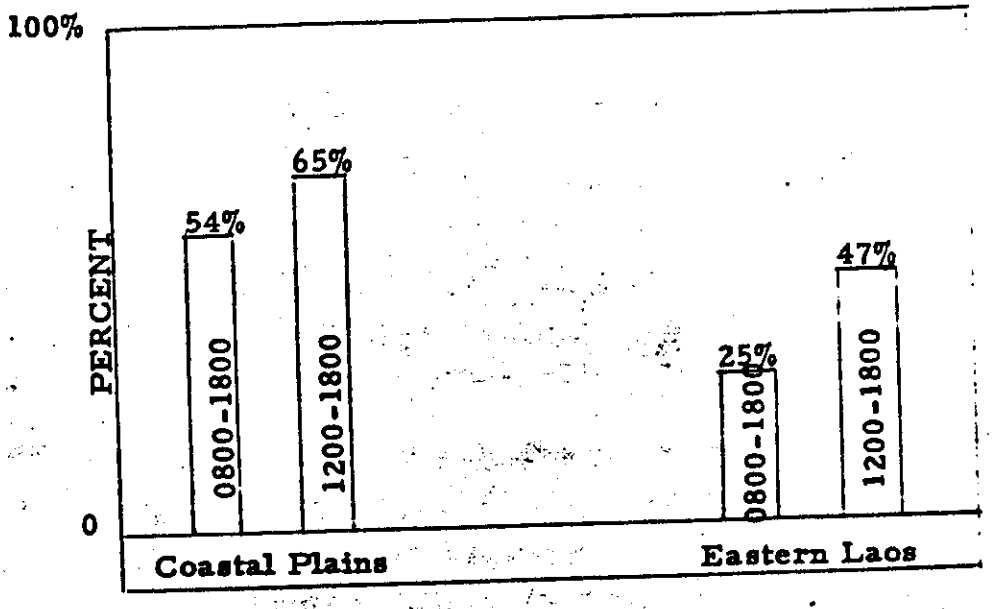


FIGURE A-3 (U).
Southwesterly Flow (U).



Ceilings of 1000 feet (AGL) or better



Ceilings of 3000 feet (AGL) or better

FIGURE A-4 (U). Aviation Weather Minimums (U).

in Laos, and percentages were obtained for eastern Laos from extrapolation of weather data reported from Khe Sanh. In general, a ceiling above 2,500 feet along the coastal lowlands resulted in ceilings above 1,000 feet in the operational area.

2. Ceilings in the eastern Laos operational area were above 3,000 feet AGL from 0800H daily for approximately 25 per cent of the days being considered. Ceilings along the coastal area of MR-1 above 3,000 feet AGL from 0800 to 1800 daily averaged 54 per cent of the period. The same requirement was met for approximately 47 per cent of the period from 1200 to 1800H daily over the Laos operational area and 69 per cent over coastal areas of Military Region 1. A ceiling above 1,000 feet AGL was reported in the Laos operational area from 0800H to 1800H daily for approximately 33 per cent of the period of operation, while the same requirement was met in approximately 64 per cent of operational period from 1200H to 1800H. Ceilings were above 1,000 feet from 0800H to 1800H daily over the coastal plains of Military Region 1 approximately 80 per cent of the period of operation. The same requirement was met for approximately 91 per cent of the operational period from 1200 to 1800H daily over the coastal plains. In general a ceiling of 2,500 feet or better along the coastal areas of Military Region 1 during light to moderate northeasterly flow will result in ceilings above 1,000 feet over the operational area in Laos.

3. (U) DESCRIPTION OF THE OPERATIONAL AREA

a. Geography

Operation LAMSON 719 was conducted in Tchepone District of Savannakhet Province, in southeastern Laos (Figure A-5). The area is bounded on the east by Quang Tri Province, SVN, with the Demilitarized Zone and Quang Binh Province, NVN, to the immediate northeast. The area is largely uninhabited, with the exception of Laos tribesmen and refugees from the Khe Sanh area of SVN. All major villages and towns in the area have either been destroyed or abandoned. The operational area is traversed from southeast to northwest by the Xe Pon River, and from northeast to southwest by the Xe Bang Hiang River. These rivers join in the vicinity of the abandoned district capital of Tchepone. The Xe Namko River enters the operational area from the west and also joins the Xe Bang Hiang at Tchepone.

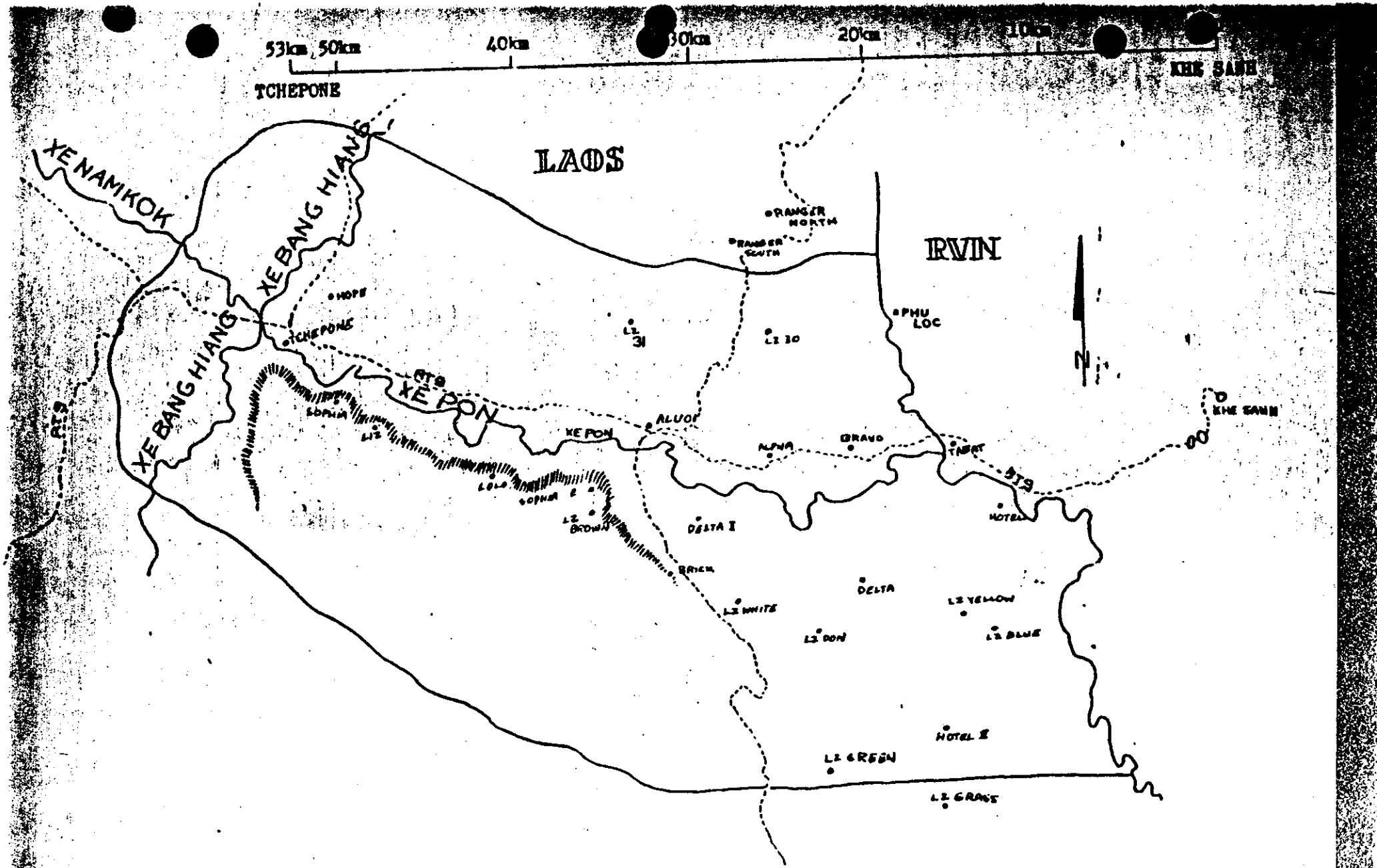


FIGURE A-5 (U). Geography LAMSON 719 (U).

b. Landforms (Figure A-6).

The area may be generally described as the western slopes and foothills of a portion of the Annamite Mountain Chain. The predominant land feature is the escarpment, or bluff (elevation 600-700 meters) running south of, and generally parallel to the Xe Pon River.

(1) Mountains

Elevations of the mountains in the area generally decrease from east to west. The highest elevation in the LAMSON 719 area is 1104 meters, located in the northeast sector along the Laos-South Vietnam border. To the west, hills north and south of Tchepone have an elevation of approximately 300 meters. The escarpment rises sharply 400-500 meters above the Xe Pon River valley.

(2) Plains

Vegetation in the lowlands is composed primarily of brushwood and single canopy light undergrowth forest. The brushwood areas consist of grass, bushes, secondary scrubs, and elephant grass. They are discontinuous and vary in density from extremely heavy to moderately open. The single canopy forest averages 20 meters in height with scattered individual trees with heights to 30 meters.

c. Lines of Communication

(1) General

The roads and trails that extend through the LAMSON 719 area of operations form a major access route for the enemy's logistic system into the Republic of Vietnam (RVN). These routes are a part of an intricate network over which the North Vietnamese (NVA) can move supplies during most of the year either by trucking and/or portering. Following the halt of US bombings of North Vietnam in November 1968, the North Vietnamese began an extensive road building program. At that time enemy supplies and infiltrating personnel were exiting North Vietnam primarily through the Ban Karai and Mu Gia Passes, on the Laos/NVN border north of LAMSON 719 area. As

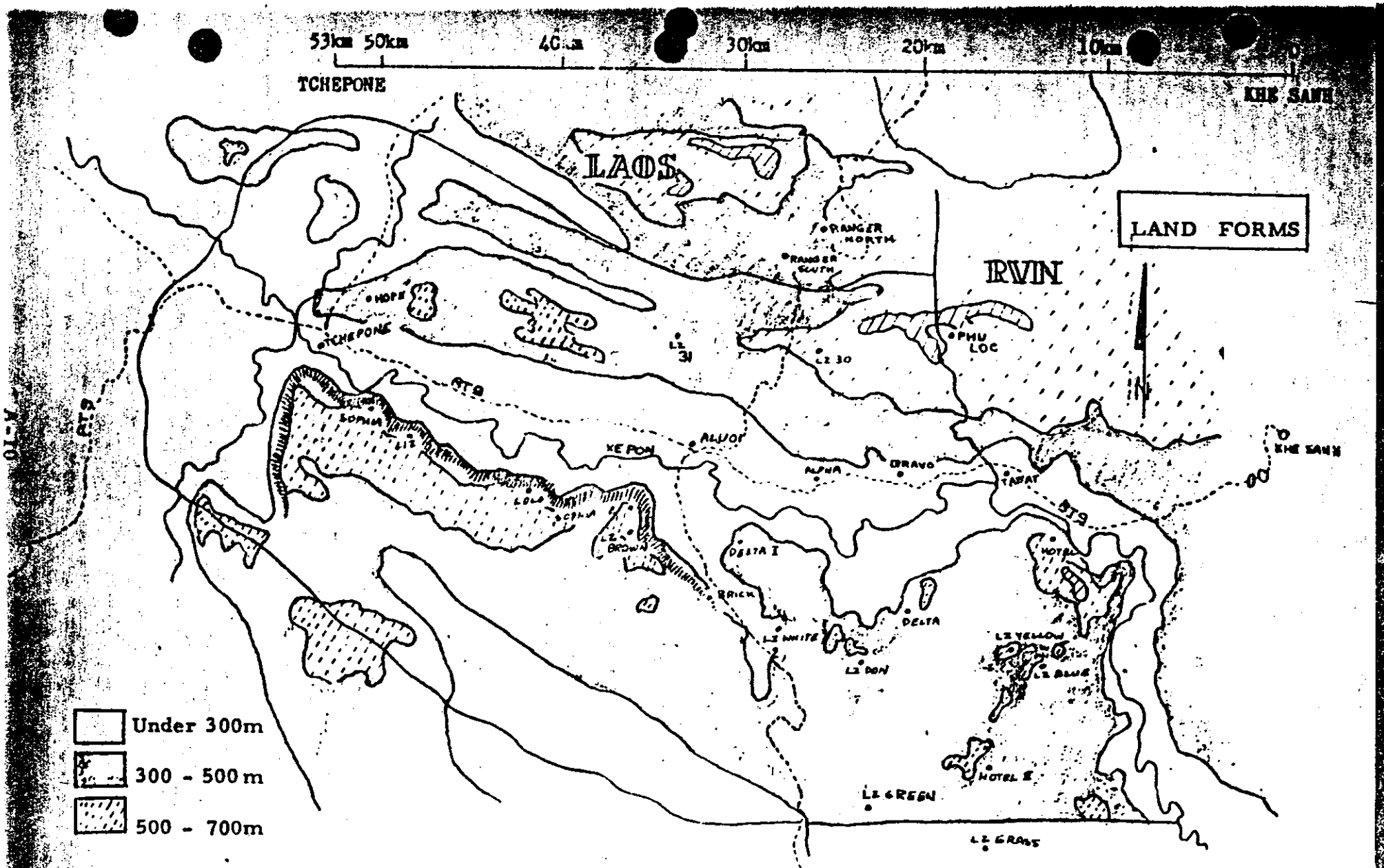


FIGURE A-6 (U). Landforms (U).

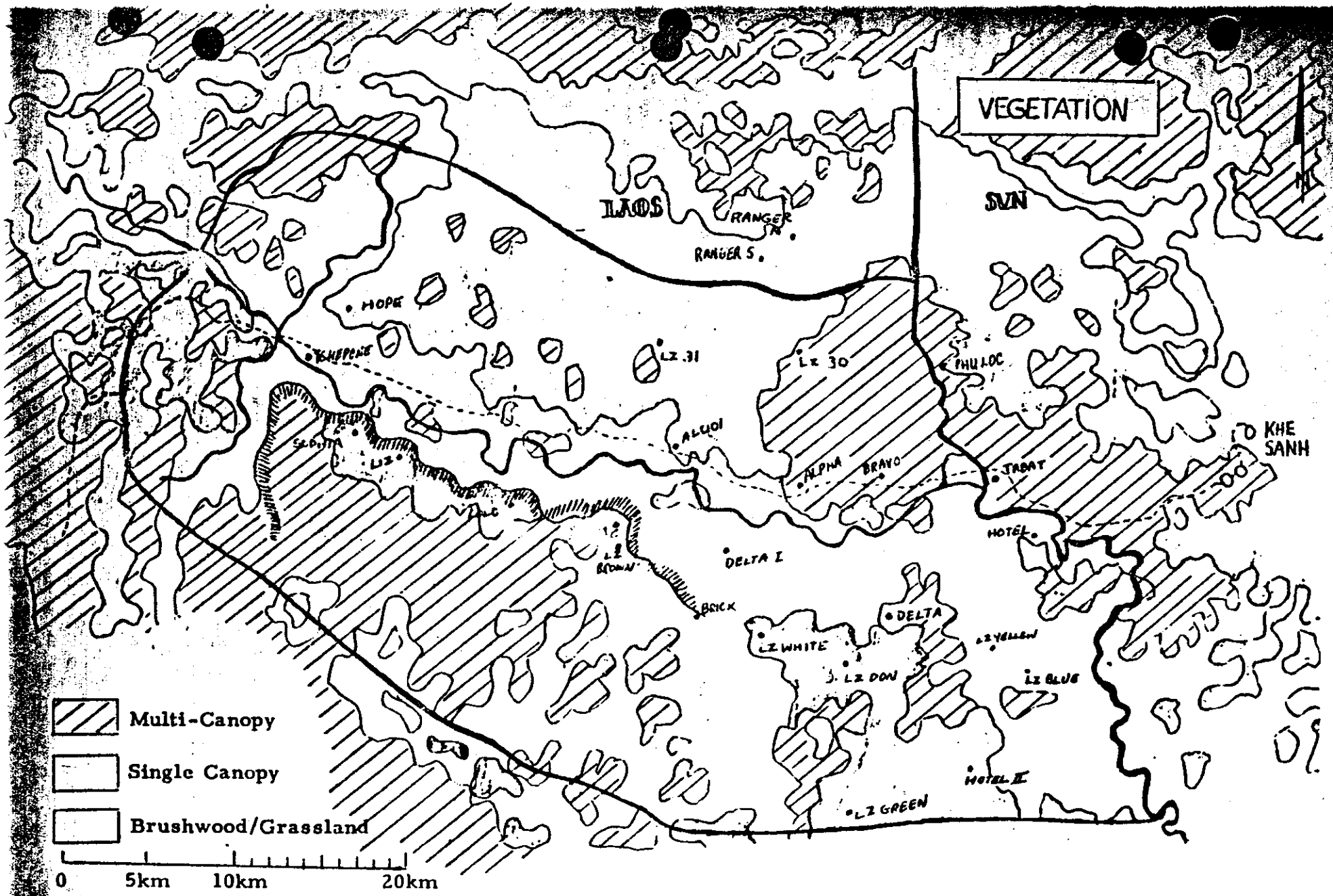


FIGURE A-7 (U). Vegetation LAMSON 719 (U).

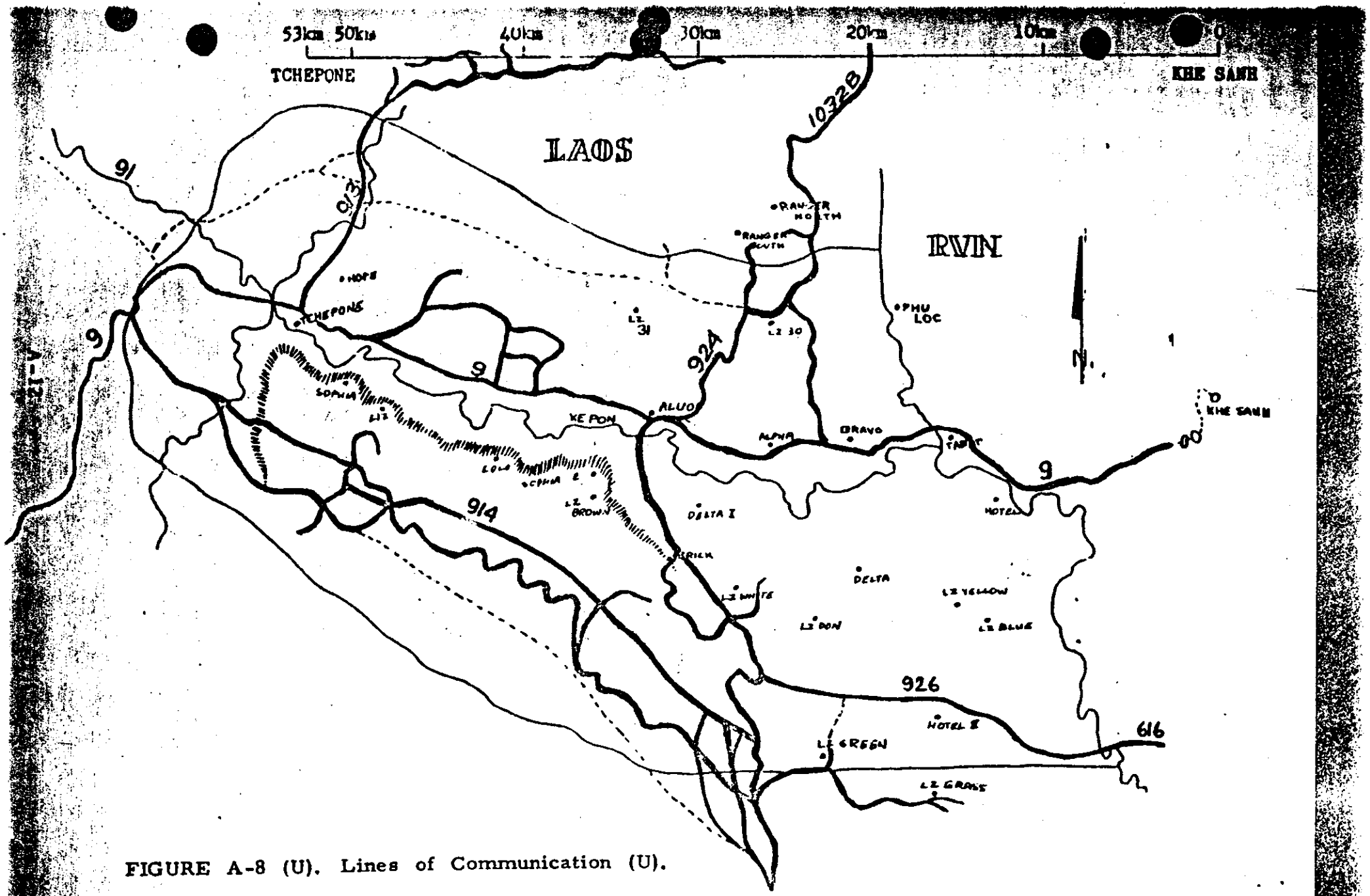


FIGURE A-8 (U). Lines of Communication (U).

a result of the bombing halt, the enemy began improving and extending those roads leading south out of Dong Hoi. These routes were more direct than those to the west and afforded the best potential for wheeled vehicle access to both Laos and South Vietnam. By 1970 the NVA had completed a route through the Ban Raving Pass (immediately north of the DMZ) and connected it with routes running into the Tchepone area of Laos. Following this the NVA completed routes that would sustain vehicular traffic, passing through the western DMZ, south into Laos west of northern Military Region 1, and into the LAMSON 719 area of operations.

(2) Major Routes

(a) 1032B

Enters the LAMSON 719 area of operations in the northeast corner and extends southward from the DMZ to its junction in the Ban Dong area (objective ALUOI) with Routes 92C/9G. This route is a major segment in the enemy's main north-south supply route. Route 1032B is a nearly two-lane wide, well-engineered road that was completed for use by heavy cargo vehicles, but is capable of sustaining light truck traffic. Heavy Air Force interdiction efforts have resulted in several by-passes being built near fords and other choke points.

(b) Route 92C

Laos Route 92C is completely in the LAMSON 719 area of operations. It is in the southeastern portion of the area and extends in a southeast direction from its junction with Routes 1032B/92C enemy supply route through the LAMSON 719 area into enemy Base Area 611. Route 92C varies from 2.5 to 3 meters in width. The drainage along the roadbed is natural. Road corduroying is fairly extensive and enhances the allweather capability of the road. During the Southwest Monsoon season flooding may occur; however, natural drainage is generally sufficient to prevent a major problem. The road is used extensively, and the enemy attempts to keep the road open throughout the year.

(c) Route 9H/9G

Laos Route 9H/9G traverses the LAMSON 719 area in a generally west to east direction from Tchepone to the Vietnam border, where it becomes Route QL-9. Dense undergrowth and thirteen destroyed bridges along this former international highway hinder any fast crosscountry movement. Major construction would be required before this is two lanes wide and is capable of sustaining a heavy volume of vehicular traffic.

(d) Route 926/616

Route 926 extends eastward from a junction with Route 92C in the southwestern portion of the operational area. It enters southwestern Quang Tri Province, RVN, as Route 616. Route 616 eventually intersects Route 548 in the A Shau Valley. Route 926 received extensive road repair work during the early dry season and its condition approaches the status of an all weather road. This road is two lanes wide and will sustain a heavy volume of vehicular traffic. Route 616, the incountry extension of Route 926, received extensive road repair work during November and December 1970. Route 616 is two lanes wide up to the vicinity of FB SPARK, but is interdicted in several areas due to Air Force air strikes. The trafficability of the route is also severly hampered during periods of poor weather.

(e) Route 913

Route 913 enters the LAMSON 719 area of operations to the northeast and forms the second major segment in the NVA's north south supply route. To the north, Route 913 connects with Route 92A and 1039 running through the Ban Raving Pass. The Route is a well-engineered, two-lane, continually maintained road. The road surface approaches the classification of an all weather road; however, near fords and low areas traffic is limited during the wet monsoon period.

4. (C) ENEMY ACTIVITY

a. Strengths, Disposition, and Movement

(1) Prior to Operation LAMSON 719 (Figure A-9)

Enemy forces in and near the operational area prior to the initiation of Operation LAMSON 719 on 8 Feb 71 were estimated to number 22,000. Of this total, 13,000 were in combat units, and 9,000 were supporting and maintaining the extensive infiltration network.

(a) Combat

Units in the area consist of elements of the 24B Regt/304th Div, the division headquarters and 1st VC Regt/2d Div, and the 64th Regt/320th Div. The 24B Regt had remained in the area northeast of Ban Dong when the remainder of the 304th Div (9th and 66th Regt's and the Div HQ) were deployed to NVN after the summer of 1970. The 24B Regt had the mission of guarding the Route 9 approach into the Tchepone area. The HQ 2d Div and the 1st VC Regt/2d Div were in the Tchepone area, refitting after operations in southern MR-1 in the summer of 1970. The 64th Regt/320th Div was north of Base Area (BA) 604, infiltration south along Route 91[illegible].

(b) Logistic

The enemy forces supporting the logistic network were subordinate elements of the 559th Transportation Group, called Binh Tram (military stations). These elements were responsible for the movement of infiltrating personnel and supplies through their assigned areas of responsibility. In order to accom[illegible]ish this mission, each Binh Tram had a mix of attached transportation, engineer, medical, communication, liaison, and antiaircraft battalions. Each Binh Tram had infantry forces up to battalion size for internal security, although all attached units had a secondary mission of fighting as infantry as required. Binh Trams in the operational area consisted of probably two unidentified Binh Trams north of the immediate operational area; one unidentified Binh Tram in the Tchepone area; Binh Tram 33 which had the mission of moving supplies from south of Ban Dong (objective ALUOI) toward southern MR-1 and BA 611; Binh Tram 41, which

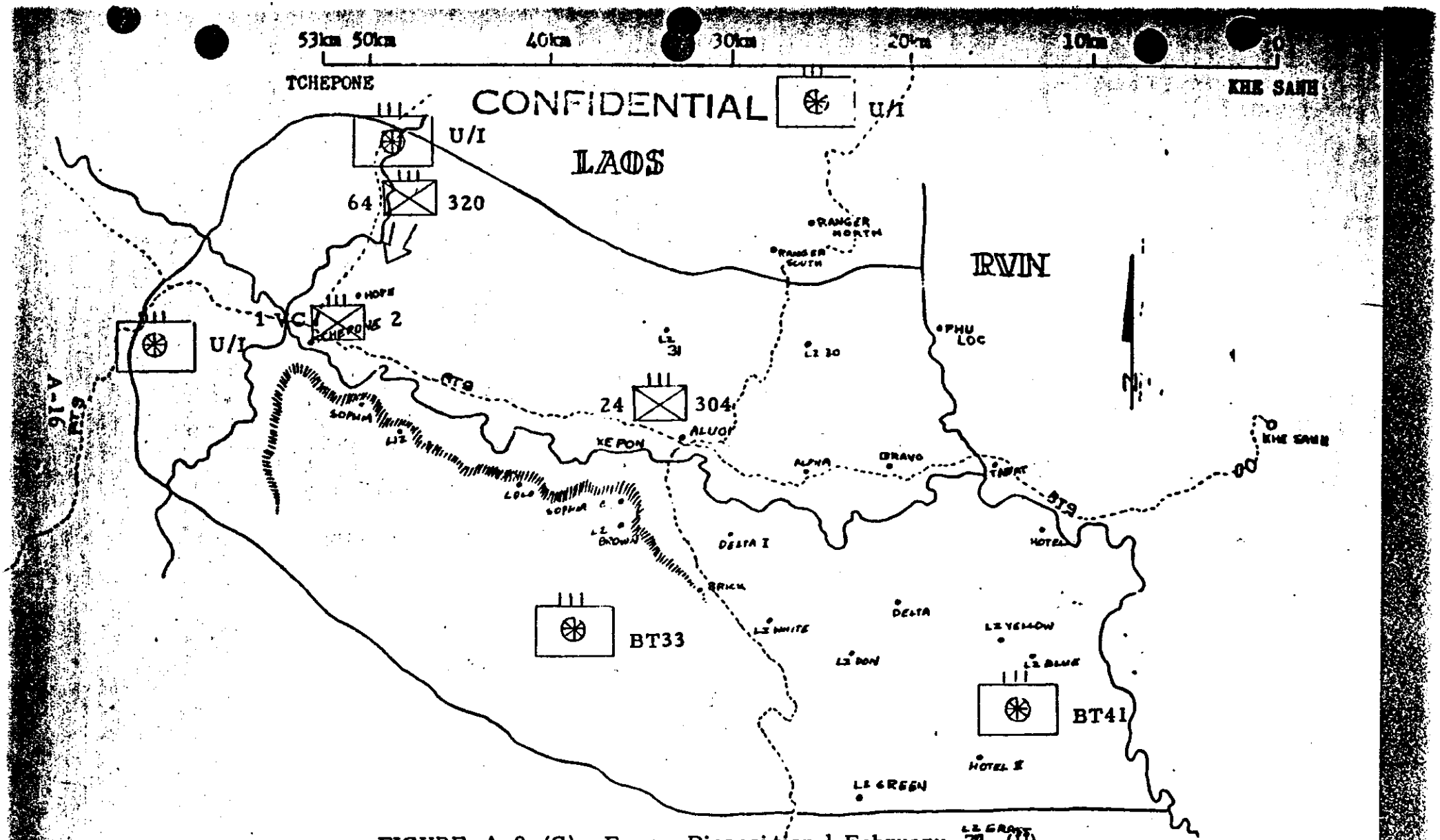


FIGURE A-9 (C). Enemy Disposition 1 February 71 (U).

received supplies from Binh Tram 33 and moved them east along Rte 926/616; and Binh Tram 34, which received supplies from Binh Tram 33 and moved them south toward southern MR-1.

(c) Air Defense (Figure A-10)

Antiaircraft units were normally subordinate to the Binh Trams with a mission of protecting the infiltration network from allied surveillance and interdiction. Each Binh Tram controlled possibly as many as three AA bn's of varying caliber, from 12.7mm through 100mm. The medium caliber (23mm through 100mm) coverage of the LAMSON 719 area posed a formidable threat to allied air support. It was estimated that there were as many as 19 battalions of 150-200 medium caliber weapons deployed along the route structure. No estimate was made of small caliber weapons (12.7mm and 14.5mm). Subsequent experience proved that these type weapons supplemented and protected the larger caliber weapons.

(2) During Operation LAMSON 719 (Figure A-11)

(a) In late January, a new corps level headquarters infiltrated from north of the DMZ to an area north of ARVN Ranger FB's along Route 1032B. This headquarters, designated the 70B Front, was eventually to control elements of five divisions committed against allied operations in LAMSON 719. On 6 Feb 71, the 1st VC Regt/2d Div was moved east from the Tchepone area to an area northwest of Ban Dong, probably as a blocking force to attempt to control the ARVN ground attack. To the south, the 812th Regt/324B Div was redeployed from the Laotian salient to the vicinity of the hill mass known as the Co Roc, southwest of Khe Sanh. The regiment arrived in early February, probably with the original mission of harassing allied units along Route 9 and acting as a blocking force to limit any allied incursion to the south into BA 611. ARVN elements crossed the SVN-Laotian border in the vicinity of Route 9 on 8 Feb 71 and launched a ground penetration to the vicinity of Ban Dong (objective ALUOI) supported by airmobile assault to the north and south. ARVN elements met little or no resistance during this initial penetration. Enemy reaction however, was immediate. On 11 Feb, the 88th Regt was the first element of the 308th NVA Div to be infiltrated through the DMZ from NVN (Figure A-12). Also on 11 Feb, the 64th Regt/320th Div, later

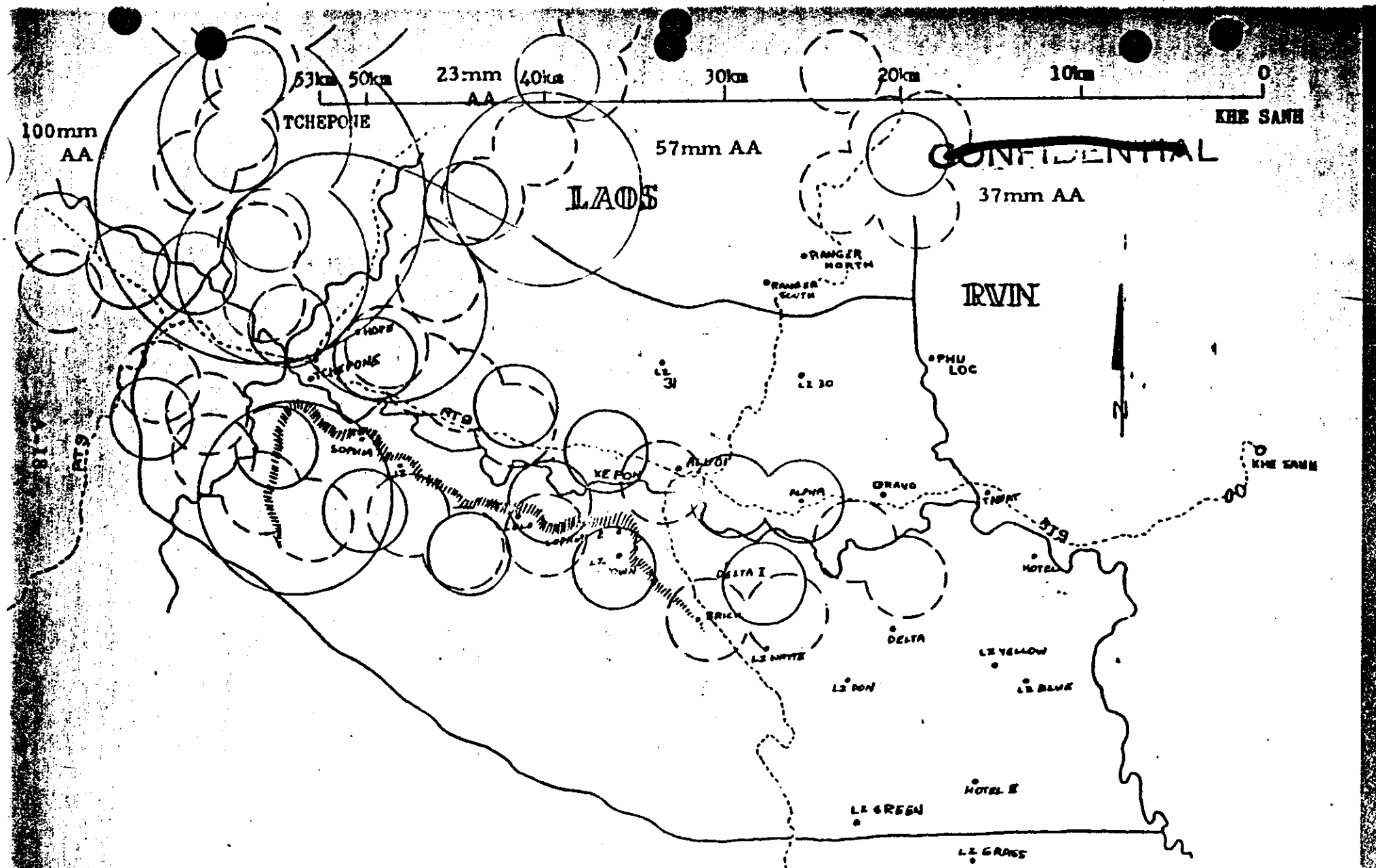


FIGURE A-10 (C). Antiaircraft Defense Deployment (U).

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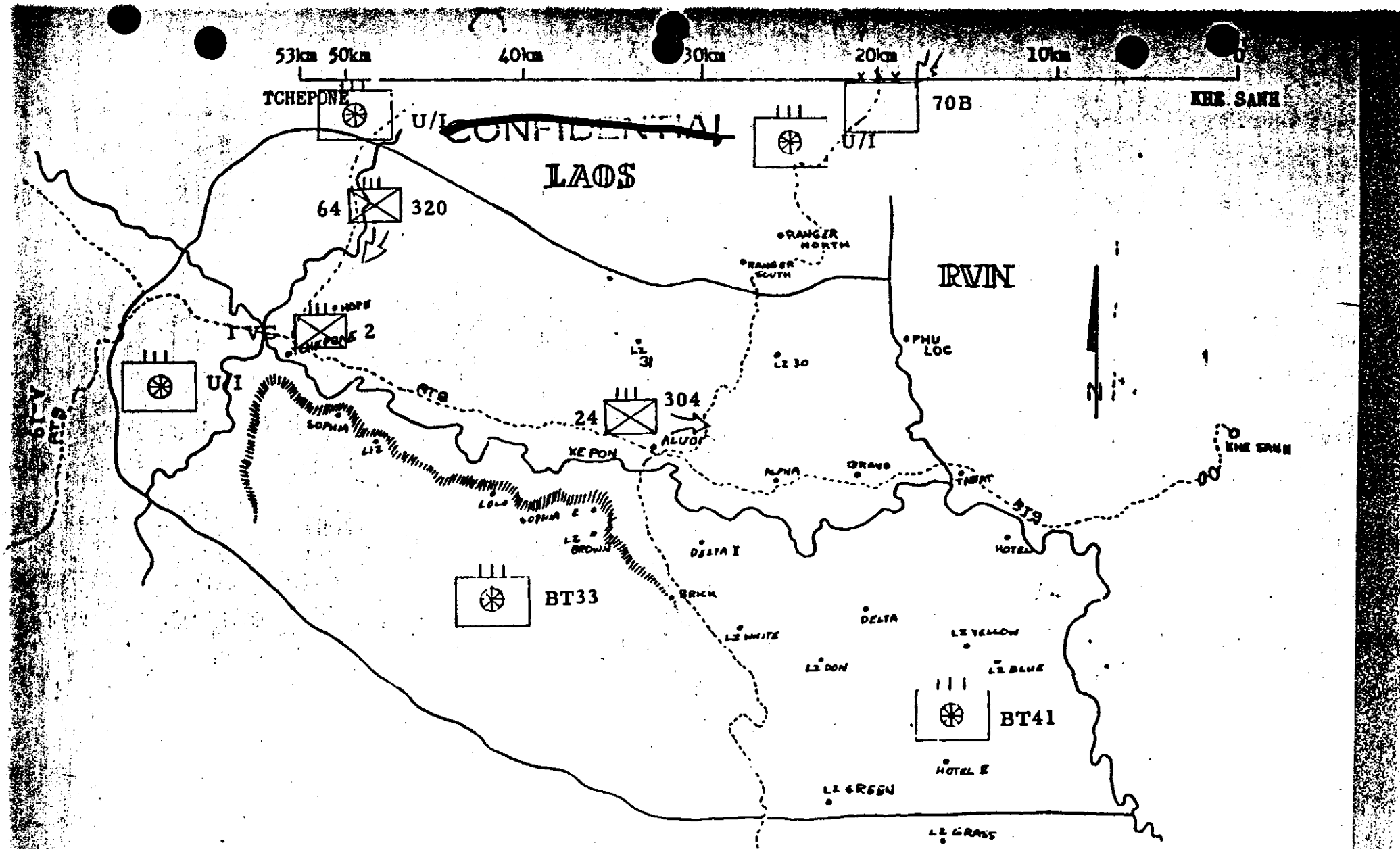

FIGURE A-11 (C). Enemy Disposition, Early February 71 (U).

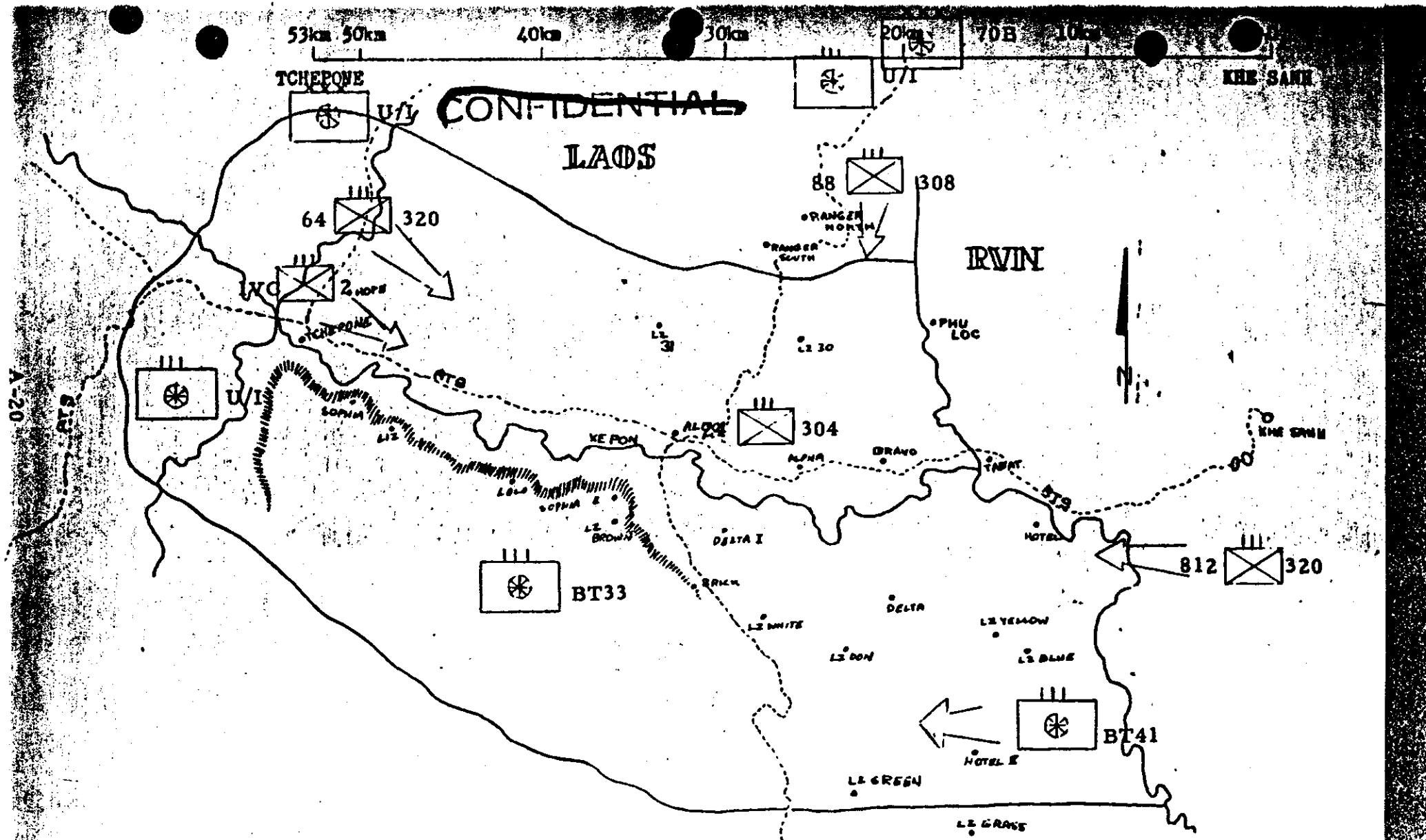

FIGURE A-12 (C). Enemy Disposition Mid-February 71 (U).

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determined to be originally destined for Cambodia or eastern Laos, received a change of orders and was diverted to the LAMSON 719 area. Following the 88th Regt/308th Div, the remainder of the Div (36th Regt, 102d Regt, and 308th Div HQ) infiltrated south from the DMZ along Route 1032B in mid-February. The Division HQ was located in the western end of the DMZ at this time. To the south, the 29th Regt/324B Div became the second major element of that Div to be committed, and was located in the FB DELTA area. Suspected locations of enemy elements were confirmed beginning on 18 Feb 71 (Figure A-13). The 102d Regt/308th Div was identified as the major force which attacked the 39th ARVN Ranger Battalion in the RANGER NORTH/RANGER SOUTH area. On 24 Feb 71, elements of the 24B Regt/304th Div and the 36th Regt/308th Div, supported by tanks, attacked FB 31. This battle confirmed the infiltration of an unidentified tank regiment to the north of FB 31, probably in mid-February. On 27 February, elements of the 308th Div, employing tanks as fire support, attacked FB 30. In the south, the 324B Div became fully committed to a mission of blocking ARVN incursion into BA 611. The 803d Regt arrived in the southern sector of the area of operations in the vicinity of Route 92d. The Division HQ of 424B Div was located south of the area of operations along Route 922. During the peak of enemy activity in the LAMSON 719 area of operations (early March) it is estimated that the enemy committed approximately 36,000 troops to the area. Binh Tram personnel were committed in a combat role, in addition to the commitment of all available combat arms units (Figure A-14).

b. In early March, ARVN elements, with heavy support from allied air, began a series of airmobile assaults along the escarpment west from Ban Dong reaching the Tchepone area on 6 March. Activity immediately increased in the Tchepone area. During the extraction to the east from the Tchepone area, heavy pressure was brought to bear on ARVN fire bases on the escarpment. These attacks can probably be attributed to elements of the 2d Div, Binh Tram 33, and the 141st Regt. As ARVN elements withdrew to the vicinity of Ban Dong, 2d NVA Div elements followed in close proximity and continued their pressure (Figure A-15). In the east, elements from the 324B and 308th Divisions brought heavy pressure to bear on ARVN forces along Route 9. Heavy attacks by fire were experienced by ARVN fire bases throughout the area of operations. The enemy employed extremely heavy antiaircraft fire along routes to or from ARVN fire bases.

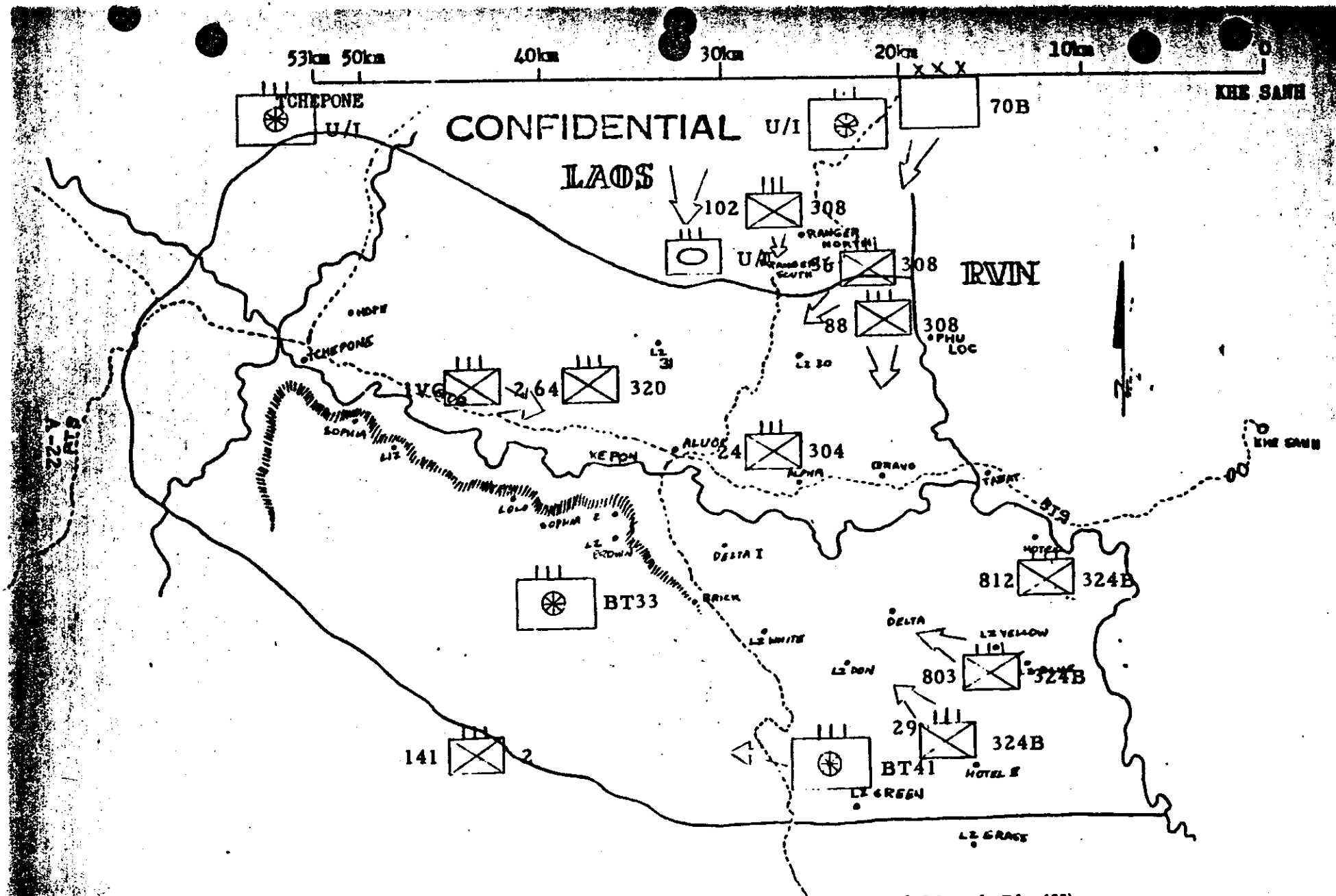

FIGURE A-13 (C). Enemy Disposition, Mid-February-1 March 71 (U).

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UNIT	STRENGTH
70B Front HQ & Support Bns	1500
308th Div HQ & Support Bns	2900
36th Regt	2100
88th Regt	2100
102d Regt	2100
24B Regt/304th Div	1800
64th Regt/320th Div	2000
324B Div HQ & Support	350
803d Regt	1500
29th Regt	1750
812th Regt	1900
2d NVA Div	5000
Pathet Lao	5000
BT 32	2000
BT 33	2000
BT 41	2000
	36,000

FIGURE A-14 (C). Enemy Units Committed Against LAMSON 719, Early March 1971 (U).

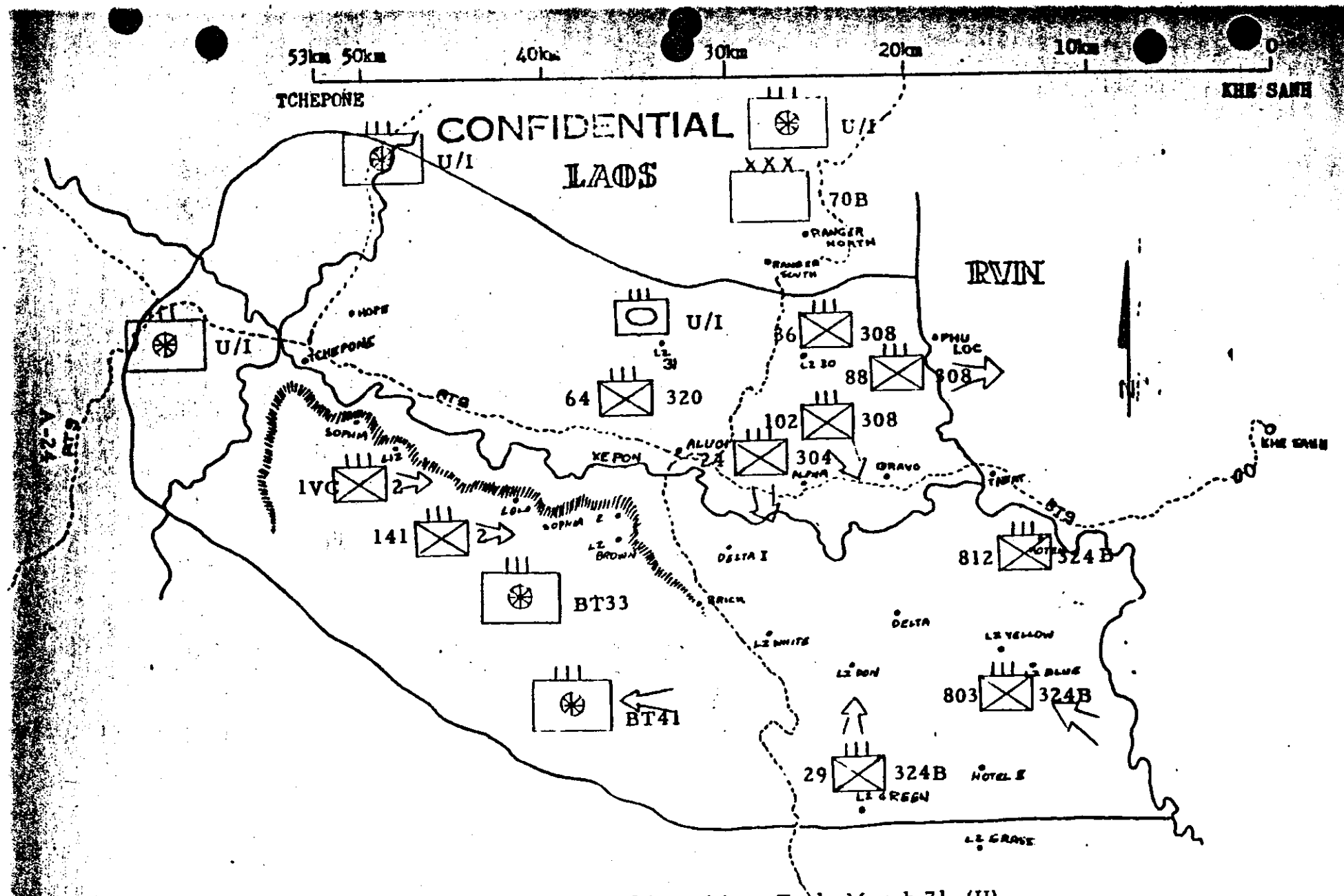

FIGURE A-15 (C). Enemy Disposition, Early March 71 (U).

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Mining incidents, attacks by fire, and ground attacks all were directed at ARVN elements along Route 9. During mid-March, the primary US forward support area at Khe Sanh received heavy attacks by fire and a sapper attack. In short, the enemy attempted during the withdrawal to maintain pressure from the west, while hoping to interdict Route 9 between Ban Dong and the Laotian/SVN border. Intense antiaircraft fire was employed in the east in an attempt to render US air support ineffective, and the same motive was behind the heavy attacks by fire at Khe Sanh.

c. Following the ARVN withdrawal, the NVA forces reorganized and assumed a defensive posture protecting the major route structure (Figure A-16).

d. Tactics

Once the enemy was able to react to the initial assault of LAMSON 719, he displayed tactics previously observed elsewhere in Vietnam. However, there were several tactics employed by the enemy during Operation LAMSON 719 which adversely affected allied operations and warrant further discussion.

(1) Ground Forces

The enemy had available a considerably greater fire support capability than previously experienced. He used his artillery to inflict casualties, harass ARVN firebases, and to effectively isolate (in some cases) ARVN firebases from aerial resupply. Knowing that there are certain restrictions regarding the proximity to friendly troops upon employment of B-52's, enemy forces in contact stayed as close as possible to ARVN forces on the ground. This tactic, known for the sake of convenience as "hugging" was seen often during close contacts. The enemy attempted to prevent the employment of B-52's by creating an unacceptable casualty risk to ARVN forces.

(2) Antiaircraft Artillery (Figure A-17)

(a) Instructions given to NVA elements in Laos concerning the employment of antiaircraft weapons against combat assaults by allied forces on helicopter landing zones (LZ) were as follows:

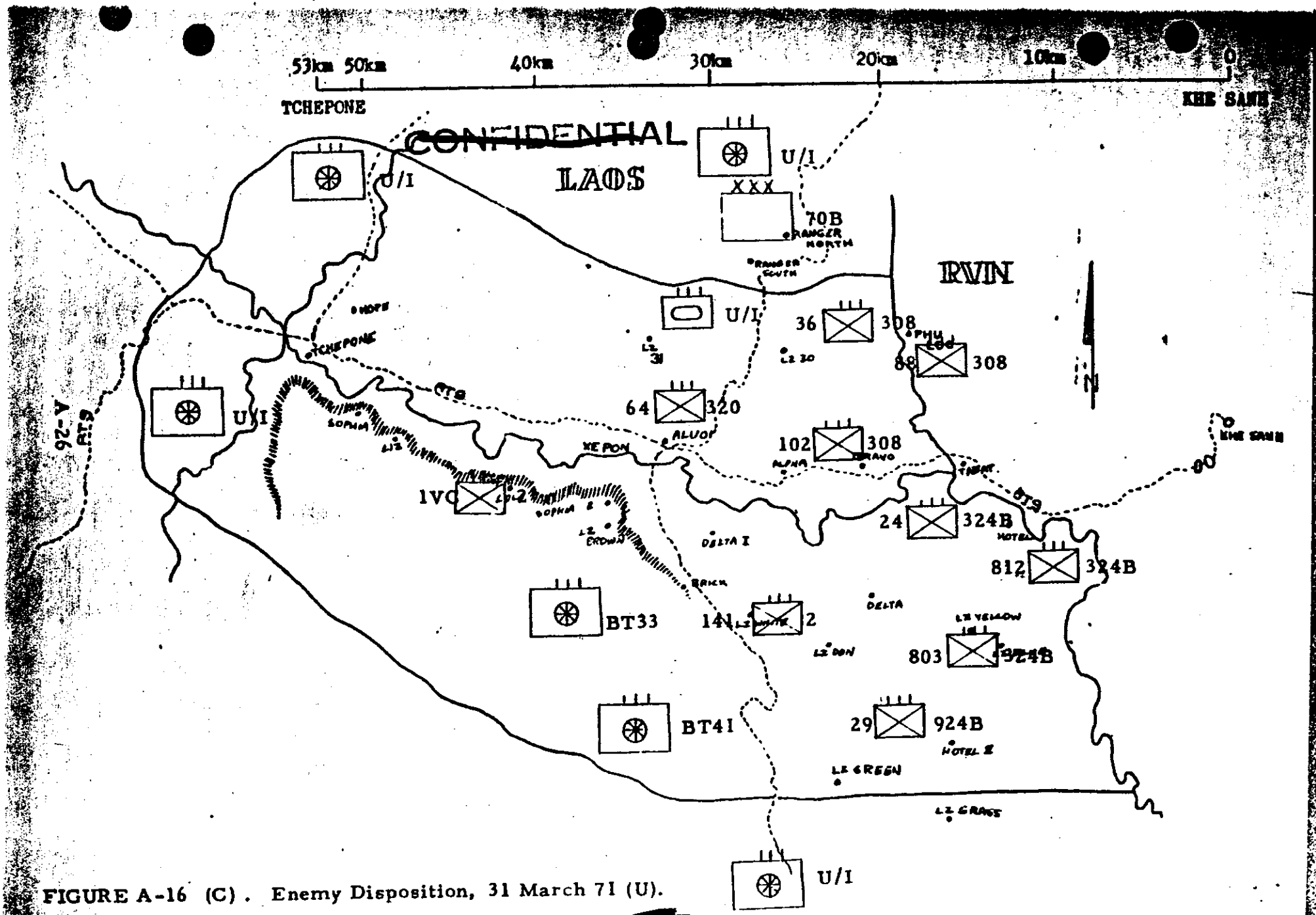

FIGURE A-16 (C). Enemy Disposition, 31 March 71 (U).

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CALIBER	RATE OF FIRE	FIRE CONTROL	MAX EFF AA RNG	WEIGHT
12.7mm	80 rpm	Metal sights	1000m	85 lbs
14.5mm	150 rpm	Optical	1400m	650-4600 lbs (Dep on mount)
23mm	200 rpm	Optical Mechanical Computing	2000m	2100 lbs
37mm	80 rpm	Computing sight	1373m	4620 lbs
57mm	70 rpm	Computing sight Radar	400m/6000m	7000 lbs
100mm	15 rpm	Radar	11890m	21,000 lbs

Figure A-17 (U). Characteristics of NVA Antiaircraft Weapons Systems (U)

1 Make a thorough reconnaissance of areas struck by B-52's and where photo reconnaissance or US aerial surveillance has indicated an interest.

2 Deploy 12.7mm weapons, usually two or three, in the vicinity of a highpoint approximately 1000 meters from a landing zone, engaging helicopters as they land.

3 Reinforce the area around LZ's with 12.7mm weapons, mortars, and artillery during the night after an air assault has been made.

4 Cover air zones extending five to ten kilometers from an LZ with antiaircraft artillery.

(b) Deployment tactics of antiaircraft artillery

1 The 12.7mm weapons were often employed in a triangular or rectangular formation.

2 The 23mm guns were employed in circular, triangular, or rectangular formations. A single gun was, on occasions, utilized to protect storage sites or vital road networks.

3 "Hugging" tactics (ref from IV, B, 1 above) were also employed by antiaircraft units, especially during a heavy contact when confusion and gaps might occur in allied units. Whenever possible, 12.7mm HMG's were employed in the midst of friendly units or very close to friendly lines to engage US helicopter gunships and tactical air supporting the RVNAF in contact. This tactic again exposes allied forces to an unacceptable risk of casualties from gunships or tactical air if the antiaircraft weapon is engaged by either or these means. The enemy made maximum use of this tactic during LAMSON 719.

(c) Redeployment

1 General

Enemy tactical doctrine holds that antiaircraft artillery

weapons will be moved to a new site (predetermined if possible) once their positions have been compromised, either by extensive contact or by friendly surveillance. Captured documents indicate that regardless of compromise of position, AA weapons are redeployed to new sites every six to seven days.

2 Redeployment during LAMSON 719

The extensive enemy threat during the operations was compounded by the fact that AA weapons were continually redeployed. The majority of AA weapons in the operational area were relocated on a daily basis, this making it impossible for allied air support means to maintain accurate deployment data. Redeployment was accomplished while maintaining the same level of coverage, i.e., one position would cover another while redeployment was taking place, redeployment was also accomplished at night.

3 Mobility

Mobility of enemy AA weapons varies from the 85 pound 12.7mm HMG to the medium caliber weapons (23, 37, 57, and 100mm), which weigh from 2,000 to 21,000 pounds. The 12.7mm may be easily moved to new positions by three men. The larger weapons, being mounted on a wheeled carriage, would require a motorized prime mover or a large number of personnel to man-handle them. Roads which would sustain vehicular traffic are necessary for redeployment of the medium caliber weapons. Agent reports from the LAMSON 719 area have described "tanks" with twin-barrelled guns. A quad-barrelled configuration of the 23mm AA automatic weapon is mounted on a light-track chassis which employs many of the components of the PT-76 tank. It is possible that an unknown number of these weapons were employed in the operational area. This weapon would be extremely mobile, and could be resited in a very short period of time, thus maintaining coverage without requirement for a semi-permanent site.

(3) Armor

(a) LAMSON 719 resulted in the third confirmed appearance of NVA armor. The first was the attack against Lang Vei

Special Forces camp in February 1968. The second was against the Ben Het CIDG camp in the spring of 1969. In both cases, tanks were sacrificed to achieve penetration of the perimeter, while infantry assault followed.

(b). An estimate of the enemy's armor organization and capabilities in Laos indicated that one tank regiment consisting of approximately 40 PT-76 tanks, 40 T-34/T-54 tanks, 40 SU-76 assault guns and 40 BTR APC's were deployed to Vinh, NVA, in October 1970. It is probably that this regiment was organized with three tank battalions of 40 tanks each and a mechanized battalion of 40 armored vehicles. The regiment was apparently directly subordinate to the 70B Front and attached to the infantry forces with which it operated.

(c) Unlike his first two armor engagements, the enemy's deployment of armor during LAMSON 719 was more conventional. The attack on FB 31 was probably a classic example of the way the enemy would like to employ his tanks offensively. As supporting fires were shifted onto the firebase, a coordinated tank/infantry assault was launched. This was followed by a second assault until the position was breached. Though the attack was well-executed, the high cost of tanks will likely prevent repeated use of this tactic. The enemy also used his tanks defensively, blocking ARVN advances along channelized routes, and in a fire support role as at the attack on FB 30.

ANNEX B
DOWNED AIRCRAFT RECOVERY

ANNEX D (Downed Aircraft Recovery) to OPORD 1-71. (U)

Reference: Map RVN, 1:100,000, Series L607, Sheets 6342, 6442, 6341, 6441, 6541, and 6641.

1. This annex provides detailed guidance governing the recovery of downed US Army Aircraft assigned or attached to the 101st Avn Gp (AMBL). The ultimate purpose is to provide for the coordinated and timely recovery of any downed aircraft without interfering with the continuation of combat operations. All airmobile operations will include necessary plans for separate recovery operations should the need arise. Aircraft will not be intentionally destroyed unless that is the only means of preventing compromise or capture and then, only with prior approval of a general officer.

2. Recovery of downed aircraft assumes precedence over all non-tactical missions. Tactical missions are defined as combat assaults, artillery moves, missions resulting from enemy contact, or those necessary to assist seriously wounded or injured personnel. The aviation commander in charge of the recovery operation, in coordination with the appropriate ground commander, will determine the urgency of the extraction based on the tactical situation, vulnerability to hostile fire or attack, and the location of the downed aircraft.

3. Aircraft damaged in an accident not attributed to combat action will not be recovered, have parts removed, displaced, or repairs initiated until a written release by the president of the accident investigation board has been obtained. If an accident occurs in a tactically insecure area and expeditious recovery is required, the damaged aircraft may be evacuated to a selected secure area, but no parts will be removed or repairs initiated until a written release has been obtained.

4. Aviation units and direct support detachments will:

a. Recover disabled unit aircraft, within their lift capability.

b. Establish plans and procedures for the recovery of each type aircraft assigned or attached. Unit recovery plans will include, as a minimum, the following information:

(1) Personnel assignments and duties

(2) Requirements for trained maintenance personnel and riggers for all recoveries

(3) Insure the appropriate recovery equipment listed in Appendix I [omitted] is immediately available.

c. A pilot chute will be used for the recovery of AH-1G and CH-47 aircraft. A pilot chute is not required for recovery of UH-1H and OH-6A aircraft if the tail boom is functional.

d. Insure that type four link assemblies with spools are utilized.

e. Insure that all slings are inspected after each recovery by the user.

f. Request recovery assistance when the load exceeds their capability.

5. The following procedures will be followed:

a. The first unit becoming aware of a downed aircraft will report, with priority precedence, through their higher headquarters to the S-3, 101st Avn Gp. This report should include as a minimum:

(1) Type of aircraft.

(2) Location.

(3) Area (secure or non-secure).

(4) Owning unit.

(5) Condition of aircraft, passengers and crew.

(6) Recovery capability of owning unit (riggers, equipment, etc.).

b. Secured aircraft. The owning unit commander will be responsible for the recovery of his aircraft. He will make the determination when the aircraft will be extracted and to what location. When possible, owning units will provide the recovery team and lift aircraft within its capability. Any required assistance will be coordinated through S-3, 101st Avn Gp.

c. Unsecured aircraft will be recovered by the following procedures:

(1) Upon notification of unsecured downed aircraft the G-3 will designate the recovery commander and based on the current situation provide necessary security elements.

(2) The unit having security responsibility will provide an AMTFC to be collocated with the recovery commander for the purpose of coordinating the recovery operation, suppressive fire, and security force operations. The recovery commander will conduct and control the extraction operation. All communications will be conducted on the security force frequency. Any additional requirements for aviation support will be coordinated through S-3, 101st Avn Gp.

d. Recovery of downed aircraft during conduct of airmobile assaults:

(1) The security and recovery of downed aircraft will be an integral part of all airmobile plans. A recovery commander will be designated by the AMC.

(2) Provisions will be made for multiple recoveries. Aircraft and security personnel will be designated prior to the beginning of the operations.

(3) When a downed aircraft is part of an airmobile force, the mission of the supported unit has priority over rescue and recovery operations.

(4) The air mission commander will provide a maintenance aircraft equipped with sling and rigging equipment for each type aircraft involved in the operation to accompany the airmobile force on all combat assaults. A recovery aircraft will be provided, and will remain on alert status throughout the operation. The air mission commander, in close coordination with the AMTFC, will be responsible for the recovery operations. The AMTFC will provide security and fire support or if this becomes impractical, an ARP may be requested by the AMTFC for security. The AMTFC will designate a 2,000 meter AO around the downed aircraft and the ARP will assume responsibilty for the security and extraction operation. All recovery operations will be conducted on the security force net and air to air communications on the recovery force command net.

ANNEX C
AVIATION STATISTICAL SUMMARY

This annex is a statistical summary of required reports maintained during LAMSON 719. The attached data is representative of support rendered by aviation assets as committed to support I CORPS (ARVN) within the LAMSON 719 area of operations. Statistical data herein is representative of the period of 8 FEB 71-24 MAR 71 inclusive.

List of Figures

February

DATE	NO OF ACFT	TONS	PAX	SORTIES	HOURS
8	24	375	315	326	124.1
9	10	56	188	97	31.9
10	16	484	120	323	103.9
11	14	359	82	373	115.5
12	14	405	86	295	109.3
13	18	715	96	454	140.8
14	13	530	110	382	122.3
15	14	487	18	362	115.8
16	15	186	62	194	71.2
17	11	4	-	47	26.6
18	14	457	61	296	103.1
19	10	298	39	243	69.2
20	9	276	41	216	68.1
21	10	215	57	220	61.9
22	10	410	21	261	63.4
23	9	297	10	228	58.3
24	9	324	39	208	58.7
25	10	270	325	208	68.0
26	9	267	89	249	89.0
27	12	286	121	215	79.1
28	12	352	-	274	85.3

FIGURE C-1 (C). CH-47 Performance Data (U).

[redacted]

March

DATE	NO OF ACFT	TONS	PAX	SORTIES	HOURS
1	12	277	93	233	75.0
2	11	324	83	320	87.5
3	15	210	27	206	63.0
4	17	374	233	302	112.0
5	16	321	359	279	130.0
6	15	408	31	284	104.0
7	13	413	60	288	94.0
8	9	291	204	251	106.0
9	14	101	64	118	38.0
10	12	42	8	55	31.0
11	22	600	74	463	142.0
12	20	442	50	329	135.5
13	16	483	26	407	123.3
14	10	324	94	262	60.8
15	16	213	23	191	58.3
16	15	316	15	278	88.7
17	14	590	3	384	105.4
18	10	395	54	309	86.3
19	14	439	343	362	115.0
20	18	560	422	352	133.0
21	18	331	936	385	124.0
22	14	337	77	244	88.0
23	18	462	1982	467	152.5
24	14	383	1150	394	116.6
TOTALS	616	15689	8301	12534	4135.4

Avg No of Acft/Day: 13.7
Avg Tons/Day: 348.5
Avg PAX/Day: 184.4
Avg Sorties/Day: 278.5
Avg Hours/Day: 91.9

FIGURE C-1 (C). (Continued) CH-47 Performance Data (U).

[redacted]

February

DATE	NO OF ACFT	TONS	PAX	SORTIES	HOURS
8	6	517	48	277	598.0
9	-	-	-	-	-
10	8	313	15	173	62.2
11	6	343	23	129	46.7
12	-	-	-	-	-
13	4	313	4	137	40.4
14	6	296	6	156	48.1
15	4	256	-	129	29.6
16	6	179	27	100	32.6
17	4	1	101	12	10.5
18	4	209	68	118	23.3
19	6	266	14	131	39.8
20	4	182	92	100	22.1
21	4	198	21	100	25.2
22	2	150	8	85	17.8
23	5	223	44	136	40.4
24	5	91	324	74	28.3
25	4	148	10	87	25.1
26	4	131	15	92	14.9
27	3	46	55	31	12.3
28	4	187	124	122	23.0

FIGURE C-2 (C). CH-53 Performance Data (U).

[redacted]

March

DATE	NO OF ACFT	TONS	PAX	SORTIES	HOURS
1	3	109	113	67	22.3
2	4	152	62	83	20.0
3	4	86	35	67	21.0
4	6	249	-	156	43.0
5	4	123	40	95	30.0
6	4	170	28	114	32.0
7	4	188	25	134	34.0
8	4	128	11	93	29.0
9	4	7	70	20	10.0
10	4	3	166	20	13.2
11	3	33	70	36	12.4
12	3	12	72	37	18.6
13	3	35	36	39	14.1
14	3	15	25	25	12.2
15	-	-	-	-	-
16	3	23	14	25	14.
17	1	1	12	5	4.0
18	2	15	59	16	8.
19	3	1	9	16	9.8
20	4	12	25	27	18.0
21	3	11	5	24	13.8
22	3	-	68	14	11.0
23	-	-	-	-	-
24	-	-	-	-	-
TOTALS	161	5422	1944	33[illegible]2	982.[illegible]

Avg No of Acft/Day: 3.6
Avg Tons/Day: 120.4
Avg PAX/Day: 43.2
Avg Sorties/Day: 73.4
Avg Hours/Day: 21.8

FIGURE C-2 (C). (Continued) CH-53 Performance Data

[redacted]

February

DATE	NO OF ACFT	TONS	PAX	SORTIES	HOURS
8	5	77	-	34	12.7
9	-	-	-	-	-
10	1	48	-	27	4.4
11	-	-	-	-	-
12	-	-	-	-	-
13	2	-	-	26	9.0
14	2	234	-	96	17.9
15	2	191	-	76	18.7
16	1	52	-	28	4.5
17	1	-	-	2	2.0
18	2	201	-	91	15.0
19	2	167	-	70	14.1
20	2	123	-	57	14.0
21	2	131	-	59	15.0
22	2	68	-	39	10.5
23	2	69	-	34	9.1
24	2	80	-	32	8.5
25	2	42	-	27	7.5
26	2	80	-	39	10.0
27	2	61	-	36	14.0
28	2	104	-	49	17.5

FIGURE C-3 (C). CH-54 Performance Data (U).

[redacted]

March

DATE	NO OF ACFT	TONS	PAX	SORTIES	HOURS
1	2	70	-	37	11.7
2	3	125	-	69	27.4
3	2	68	-	38	10.0
4	2	99	-	48	15.0
5	3	78	-	34	12.0
6	3	133	-	50	18.0
7	2	25	-	28	9.0
8	2	47	-	28	8.0
9	1	-	-	7	2.0
10	1	-	-	5	1.5
11	2	90	-	37	10.0
12	2	62	-	35	10.0
13	2	80	-	45	12.6
14	2	61	-	34	10.4
15	-	-	-	-	-
16	2	116	-	50	15.0
17	2	86	-	48	9.5
18	3	155	-	63	18.0
19	2	23	-	14	7.0
20	3	72	-	35	14.0
21	2	56	-	24	7.7
22	2	75	-	36	13.0
23	2	16	-	10	5.5
24	2	81	-	43	14.0
TOTALS	85	3346		1638	465.7

Avg No of Acft/Day: 1.9
Avg Tons/Day: 74.3
Avg Sorties/Day: 36.4
Avg Hours/Day: 10.3

FIGURE C-3 (C). (Continued) CH-54 Performance Data (U).

[redacted]

February

DATE	NO OF ACFT	PAX	SORTIES	HOURS
8	53	1976	1287	328
9	70	576	830	214
10	94	2622	2374	568
11	74	2449	1924	353
12	98	1748	1928	482
13	77	2688	2114	596
14	83	1653	1725	387
15	93	1790	1864	471
16	97	1759	1711	425
17	54	380	758	148
18	106	1341	1623	550
19	93	1177	1951	560
20	110	1462	1758	618
21	105	1908	1595	455
22	98	2596	1687	514
23	92	2080	1784	454
24	93	1719	1785	471
25	87	1818	1432	379
26	97	3524	2600	570
27	91	2724	2054	471
28	88	2158	1943	470

FIGURE C-4 (C). UH-1H Performance Data (U).

March

DATE	NO OF ACFT	PAX	SORTIES	HOURS
1	85	2404	2218	557
2	63	1678	1507	431
3	93	1403	1389	482
4	50	1281	1050	334
5	96	3007	1986	666
6	133	2120	1465	513
7	65	1346	1363	339
8	72	1543	1604	364
9	57	376	710	230
10	49	479	741	280
11	89	2234	1756	526
12	94	1819	1569	463
13	76	1225	1378	295
14	96	2015	1674	536
15	81	979	1273	326
16	80	1349	1440	350
17	76	1744	1803	485
18	95	2874	2058	654
19	80	1284	1341	365
20	115	2728	1923	608
21	84	2673	1823	408
22	79	1014	1372	392
23	66	3038	1712	513
24	63	3242	1807	390
TOTALS	3790	84003	68733	19981

Avg No of Acft/Day: 84.2
Avg PAX/Day: 1867
Avg Sorties/Day: 1527
Avg Hours/Day: 444

FIGURE C-4 (C). (Continued) UH-1H Performance Data (U).

February

DATE	NO OF ACFT	SORTIES	HOURS
8	20	262	142
9	16	77	49
10	16	228	109
11	14	203	80
12	19	360	118
13	17	226	52
14	19	283	110
15	20	224	114
16	18	174	64
17	11	72	35
18	20	151	90
19	17	178	70
20	22	288	101
21	18	227	107
22	22	132	82
23	12	96	53
24	10	88	44
25	12	108	58
26	17	194	78
27	18	206	86
28	14	121	46

FIGURE C-5 (C). UH-1C Performance Data (U).

March

DATE	NO OF ACFT	SORTIES	HOURS
1	10	104	38
2	12	135	55
3	15	155	49
4	16	214	78
5	12	237	98
6	14	287	73
7	11	144	41
8	13	205	69
9	14	45	58
10	17	44	54
11	17	242	146
12	16	216	104
13	16	186	71
14	18	172	95
15	15	117	66
16	10	235	72
17	14	185	75
18	15	432	92
19	15	150	72
20	14	309	80
21	10	271	63
22	14	145	92
23	13	180	70
24	9	199	68
TOTALS	682	8515	3474

Avg No of Acft/Day: 15.2
Avg Sorties/Day: 190
Avg Hours/Day: 77.2

FIGURE C-5 (C). (Continued) UH-1C Performance Data (U).

February

DATE	NO OF ACFT	SORTIES	HOURS
8	34	545	259
9	16	96	48
10	29	196	107
11	27	297	163
12	28	484	176
13	22	294	108
14	24	370	133
15	22	311	128
16	24	351	123
17	15	173	29
18	25	467	171
19	30	452	165
20	30	537	175
21	27	489	150
22	29	506	169
23	20	351	111
24	19	322	110
25	20	335	111
26	22	450	132
27	34	607	202
28	39	523	219

FIGURE C-6 (C). AH-1G Performance Data (U).

March

DATE	NO OF ACFT	SORTIES	HOUR
1	35	388	168
2	32	455	149
3	44	486	237
4	39	555	273
5	37	392	181
6	38	425	308
7	42	434	226
8	34	323	159
9	14	91	53
10	20	105	84
11	49	499	315
12	45	645	248
13	50	704	291
14	40	378	196
15	41	431	195
16	48	544	289
17	43	464	315
18	57	804	356
19	49	549	262
20	58	584	314
21	48	493	253
22	39	298	168
23	50	585	322
24	40	447	192
TOTALS	1528	19235	8540

Avg No Acft/Day: 33.9
Avg Sorties/Day: 427.4
Avg Hours/Day: 189.8

FIGURE C-6 (C). (Continued) AH-1G Performance Data (U).

February

DATE	NO OF ACFT	SORTIES	HOURS
8	19	140	43
9	4	81	20
10	10	140	34
11	13	140	38
12	8	120	31
13	10	126	55
14	12	105	43
15	3	216	15
16	10	154	36
17	1	46	5
18	7	74	27
19	16	89	106
20	12	96	98
21	12	94	78
22	13	95	70
23	10	91	29
24	9	89	31
25	9	78	21
26	11	90	26
27	8	86	23
28	10	124	40

FIGURE C-7 (C). OH-6A Performance Data (U).

March

DATE	NO OF ACFT	SORTIES	HOURS
1	10	124	40
2	5	46	18
3	11	119	42
4	13	156	49
5	8	72	34
6	14	213	61
7	10	147	37
8	9	102	25
9	3	56	6
10	3	112	28
11	6	60	19
12	9	139	43
13	6	120	23
14	9	70	22
15	6	59	15
16	7	78	22
17	7	90	26
18	9	77	22
19	6	64	16
20	10	137	43
21	9	95	26
22	8	80	26
23	9	116	57
24	9	88	29
TOTALS	395	4694	1598

Avg No Acft/Day: 8.8
Avg Sorties/Day: 104.3
Avg Hours/Day: 35.5

FIGURE C-7 (C). (Continued) OH-6A Performance Data (U).

TYPE A/C	TONS	PAX	SORTIES	HOURS
CH-47	15,689	8,301	12,534	4,135
CH-53	5,422	1,944	3,302	982
CH-54	3,346	-	1,638	466
UH-1H	-	84,003	68,733	19,981
UH-1C	-	-	8,513	3,474
AH-1G	-	-	19,235	8,543
OH-6A	-	-	4,694	1,598
TOTALS	24,457	94,248	118,651	39,179

FIGURE C-8a (U). Recapitulation of Aircraft Performance in Support of LAMSON 719 by 101st Abn Div (Ambl) plus OPCON units (U).

TYPE A/C	TONS	PAX	SORTIES	HOURS
CH-47	27,230	19,608	16,162	7,044
CH-53	5,422	1,944	3,302	982
CH-54	4,499	-	1,854	753
UH-1H	5,581	155,275	122,696	42,626
UH-1C	-	-	8,709	3,799
AH-1G	-	-	23,237	12,953
OH-6A	31	16,688	28,107	10,811
TOTALS	42,763	193,517	204,065	78,968

FIGURE C-8b (C). Recapitulation of Aircraft Performance in Support of LAMSON 719 plus Operations in Thua Thien and Quang Tri Provinces by 101st Abn Div (Ambl) plus OPCON units (U).

DATE	TROOP LIFT		HELO GUN		MEDEVAC		AIR CAV		LOGISTIC	
	IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
Feb 8	386	1076	169	333	9	1	15	109	665	50
9	157	-	172	-	1	-	39	-	437	-
10	504	147	56	218	3	3	62	126	596	40
11	456	163	232	122	3	3	30	90	395	133
12	462	249	364	480	-	3	169	375	817	58
13	701	242	213	270	3	1	97	188	1030	192
14	478	280	144	377	12	1	241	234	837	146
15	694	194	375	447	4	-	106	361	888	128
16	482	160	231	293	2	1	135	163	669	74
17	125	-	78	37	-	-	-	-	292	-
18	577	137	230	414	7	7	51	381	583	137
19	756	198	188	414	1	2	148	284	639	142
20	641	183	455	413	4	1	244	269	790	152
21	255	216	316	371	23	5	166	305	873	426
22	381	125	126	463	1	14	97	380	830	195
23	463	339	237	325	2	3	83	282	820	74
24	399	142	170	278	1	4	135	146	813	276
25	450	248	177	248	10	1	90	172	567	99
26	490	283	136	419	1	10	128	292	935	294
27	504	146	261	495	-	1	93	308	874	120
28	584	113	271	396	-	-	167	184	1079	113

FIGURE C-9 (C). Sortie Data (U).

DATE		TROOP LIFT IN	OUT	HELO IN	GUN OUT	MEDEVAC IN	OUT	AIR IN	CAV OUT	LOGISTIC IN	OUT
Mar	1	305	556	230	303	5	1	187	184	1091	183
	2	542	495	240	449	-	-	187	187	720	138
	3	444	265	279	508	2	2	254	120	568	131
	4	1012	477	294	514	2	3	217	129	556	193
	5	905	758	283	478	10	-	252	138	714	560
	6	753	1021	272	518	17	2	138	156	651	342
	7	940	119	354	301	-	-	136	90	766	238
	8	451	202	195	333	4	5	133	75	717	196
	9	110	-	35	42	-	12	-	12	253	28
	10	28	63	59	66	-	-	-	-	604	34
	11	708	343	181	508	4	12	23	-	1216	280
	12	617	312	302	593	-	17	155	103	627	278
	13	481	164	237	571	-	2	138	110	941	263
	14	337	229	169	457	26	33	169	99	687	192
	15	280	92	172	370	-	5	113	89	448	190
	16	523	114	307	431	-	-	139	56	841	189
	17	737	178	304	331	9	16	215	93	1048	206
	18	756	576	390	846	3	-	86	100	659	199
	19	542	181	230	456	8	22	167	75	622	300
	20	1015	282	284	1104	-	1	141	55	598	221
	21	976	459	331	457	2	-	216	70	705	133
	22	300	80	256	187	-	-	119	50	701	88
	23	752	274	359	397	3	10	119	51	1230	110
	24	810	362	470	233	-	4	106	51	681	38
TOTALS		23769	12243	10534	17267	182	208	5696	6742	33073	7393

FIGURE C-9 (C). (Continued) Sortie Data (U).

February

DATE	UH-1C HELO GUN SORTIES NO OF ACFT	IN	OUT	HRS	AH-1G HELO GUN SORTIES NO OF ACFT	IN	OUT	HRS	AH-1G AIR CAV SORTIES NO OF ACFT	IN	OUT	HRS	AH-1G ARA SORTIES NO OF ACFT	IN	OUT	HRS
Feb 8	20	262	133	142	10	385	100	153	11	52	52	41	13	108	83	65
9	16	77	-	49	10	68	10	34	-	-	-	-	6	28	28	14
10	16	228	-	109	4	70	50	35	13	46	30	32	12	80	60	40
11	14	203	86	80	4	76	50	35	15	130	120	83	8	91	-	45
12	19	360	62	118	4	62	62	32	11	258	222	57	13	164	134	87
13	17	226	41	52	4	72	72	36	5	127	103	22	13	95	83	50
14	19	283	158	110	4	42	42	21	9	196	177	46	11	132	94	66
15	20	224	42	114	4	70	46	36	6	117	110	31	12	124	74	61
16	18	174	70	64	4	46	46	23	8	182	126	40	12	123	75	60
17	11	72	-	35	4	4	-	3	-	-	-	-	11	111	27	26
18	20	151	57	90	4	54	54	27	13	254	201	67	12	159	149	77
19	17	178	47	70	4	44	44	22	14	258	240	71	12	150	123	72
20	22	288	58	101	4	46	46	24	15	352	196	82	11	139	90	69
21	18	227	40	107	4	40	40	20	12	317	220	65	11	132	132	65
22	22	132	62	82	4	52	52	26	12	324	279	78	12	130	130	65
23	12	141	22	53	4	64	64	32	8	216	188	47	8	71	2	32
24	10	88	45	44	4	58	58	29	6	177	92	37	9	87	67	44
25	12	108	53	58	4	48	46	25	5	143	104	22	11	144	144	64
26	17	194	27	78	4	72	72	37	11	299	238	54	7	79	70	41
27	18	206	42	86	16	188	170	96	9	305	260	51	9	114	19	55
28	14	121	38	46	20	222	207	127	7	185	122	34	12	116	70	58

FIGURE C-10 (C). AH-1G/UH-1C Statistical Data (U).

March

DATE	UH-1C HELO GUN SORTIES NO OF ACFT	IN	OUT	HRS	AH-1G HELO GUN SORTIES NO OF ACFT	IN	OUT	HRS	AH-1G AIR CAV SORTIES NO OF ACFT	IN	OUT	HRS	AH-1G ARA SORTIES NO OF ACFT	IN	OUT	HRS
Mar 1	10	104	48	38	16	199	168	90	7	108	30	38	12	81	81	40
2	12	135	51	55	16	177	171	78	8	173	112	33	8	105	105	38
3	15	155	60	49	26	231	202	124	8	113	72	45	12	142	100	68
4	16	214	121	78	22	298	255	178	7	113	51	38	12	144	113	57
5	12	237	189	98	21	196	153	107	6	113	52	35	10	83	83	39
6	14	287	182	73	25	213	146	129	5	117	48	32	8	95	90	47
7	11	144	89	25	16	180	104	101	17	172	93	81	9	82	74	44
8	13	205	128	69	12	102	86	58	14	182	96	82	8	39	35	19
9	14	45	-	58	6	42	42	24	2	4	-	6	6	45	45	23
10	17	44	12	54	6	67	63	56	3	12	8	15	7	26	26	13
11	17	242	180	146	14	135	118	135	20	268	172	138	9	96	81	42
12	16	216	158	204	14	217	170	90	23	356	226	123	8	72	72	35
13	16	186	97	71	20	257	313	140	19	275	177	116	9	72	26	35
14	18	172	128	95	14	106	98	80	16	164	77	63	10	108	101	53
15	15	117	123	66	16	159	151	91	15	175	100	63	10	87	82	41
16	10	235	56	72	16	211	199	89	25	299	177	182	7	36	36	18
17	14	185	115	75	12	114	84	90	24	285	126	193	7	65	56	32
18	15	432	280	92	24	405	365	172	26	325	230	147	7	74	74	37
19	15	158	110	79	20	204	196	113	20	267	168	110	9	78	76	39
20	14	309	161	80	24	280	272	158	26	242	136	128	8	62	54	28
21	10	271	130	63	14	141	141	87	24	283	117	146	10	69	65	20
22	14	145	64	92	10	78	28	44	20	160	81	103	9	60	34	21
23	13	180	90	70	16	240	118	111	26	287	162	172	8	58	50	29
24	9	199	55	68	14	183	61	68	18	214	98	101	8	50	30	23
TOTALS	682	8560	3675	3474	526	6318	5025	3286	572	8663	5659	3150	436	4206	3243	1997

FIGURE C-10 (C). (Continued) AH-1G/UH-1C Statistical Data (U).

ANNEX D
SUMMARY OF COMBAT DAMAGE

1. Explanation of columns contained in Appendices 1 through 7.

   A. Julian Date

   B. Unit identification code (UIC)

   C. Final three digits of aircraft serial number

   D. Damage code (USARV Regulation 95-10)

      A. Incident damage
      B. Minor damage
      C. Major damage
      Lost (destroyed); indicated by a vacant space

   E. Location in six digits (grid zone designator is XD in all cases)

   F. Cause of damage/loss code (USARV Regulation 95-10)

      AAA Antiaircraft artillery (over 23mm)
      ART Artillery
      GDE Grenade and RPG
      GNH Ground fire 12.7 and 14.5mm
      GNL Ground fire less than 12.7mm
      MIF Missing in flight
      MTR Mortar
      RKT Rocket
      SCH Satchel charge
      UNK Unknown

   G. Local time of day

Explanation of columns contained in Appendices 1 through 7 (continued)

H. Flight phase code (USARV Regulation 95-10)

EH Enroute high (1500 feet above the terrain or higher)
EL Enroute low (less than 1500 feet above the terrain)
HO Hovering
LD Landing
OG On ground in LZ or PZ
OR Orbiting
OT Other
PK Parked in an unprotected location
TA Target attack
TO Take off
TW Target withdrawal
UN Unknown

I. Altitude in feet above the terrain when aircraft was hit

J. Airspeed in knots when aircraft was hit

K. Number of hits; UN if unknown

L. Responsible system (USARV Regulation 95-10)

AR Armament
AT Anti-torque
CT Controls
CU Casualties
DS Driveshaft
EL Electric
EN Engine
EO Engine oil
FF Fire in flight
FU Fuel
GB Gearbox
HD Hydraulics
MR Main Rotor
NA Not applicable

L. Responsible system (USARV Regulation 95-10) (continued)

OT Other
TR Transmission
UN Unknown
XO Transmission Oil

An asterisk (*), when shown, indicates damage sustained outside Laos, yet considered as within the operational environment for statistical purposes.

2. List of Appendices

Appendix 1 - OH-6A, OH-6AA
Appendix 2 - AH-1G
Appendix 3 - UH-1C
Appendix 4 - UH-1H
Appendix 5 - CH-47
Appendix 6 - CH-53, CH-54
Appendix 7 - UIC Codes and Unit Designations

OH-6A (cont)

1055	GZ6B	054	A	727264	GNH	1500	EL	0020	060	01	NA
1055	GZ6B	341	A	718212	GNL	1530	EL	0020	040	01	NA
1056	GZ6B	881	A	723266	GNL	1400	EL	0020	060	01	NA
1056	GZ6B	298		723266	GNL	1600	RF	0010	060	07	EN
1057	GZ6B	630		727214	AAA	1305	RF	UN	UNK	UN	UN
1057	GZ6B	054		668319	GDE	1400	RF	0100	105	01	EN
1058	GZ6B	256		625208	GNH	1540	RF	UN	UNK	UN	UN
1059	ABOC	195	C	548430	GNH	1230	EL	0050	075	05	OT
1076	AZNC	339	A	845419	ART	1845	OG	0000	000	01	NA*

[redacted]

OH-6A

A	B	C	D	E	F	G	H	I	J	K	L
1039	ABQA	775	C	728240	GNL	1050	EL	0050	080	01	MR
1039	AZNC	083	A	595416	GNL	1440	EL	0025	080	01	MR
1041	ABQA	483		650289	GNH	1115	RF	0050	100	02	CT
1041	AZNC	083	A	521398	GNL	1125	EL	0025	080	01	MR
1041	AZNC	339	A	515405	GNL	1210	EL	0025	080	01	MR
1042	AZNC	117	A	432416	GNL	1402	EL	0050	080	05	CT
1043	AZNC	216	A	544381	GNL	0900	EL	0050	100	02	CT
1043	AZNC	579	A	490405	GNH	1530	EL	0050	100	01	MR
1044	ACJA	636	A	378279	GNL	1345	EL	0600	090	03	NA
1044	ABQC	390	C	671477	GNH	1445	EL	0050	070	02	EL*
1045	GZ6B	187	B	501358	GNH	1225	EL	0025	070	01	EN
1045	ABQC	997	C	618498	GNL	1330	EL	0050	060	02	EN
1045	GZ6B	779	B	468277	GNL	1500	EL	0050	070	01	NA
1045	ABQC	195	B	612500	GNH	1630	EL	0300	105	01	NA
1046	ABQC	528	A	565365	GNH	1250	EH	2000	100	05	MR
1046	GZ6B	341	B	465295	GNL	1330	TA	0020	080	01	MR
1046	AZNC	027	B	475406	GNH	1430	EL	0050	100	06	CT
1046	GZ6B	779	A	503356	GNL	1520	EL	0050	085	01	NA
1046	ABQC	528	A	693505	GNH	1530	EH	1800	100	03	MR*
1046	ABQC	195	B	612500	GNH	1630	EL	0300	105	10	MR
1050	GZ6B	207	B	575086	GNL	1020	EL	0030	10	01	MR
1050	ABQC	528	✓	465415	GNH	1640	EL	0050	30	UN	UN
1051	AZNC	141	B	536438	GNL	1215	EL	0050	080	01	MR
1052	GZ6B	054	B	673196	GNH	1610	RF	0050	060	01	NA
1054	GZ6B	187	B	628163	GNL	1340	RF	0030	070	04	NA

Appendix 1 (OH-6A) to Annex D (Summary of Combat Damage)

[redacted]

AH-1G (cont)

1045	ABOC	745	A	560530	GNH	1615	EH	3000	100	03	FU
1046	AZNC	822	A	482460	GNH	1046	TA	0020	100	01	OT
1046	AZNC	832	B	482406	GNH	1046	TA	0020	100	05	HD
1046	FJ8B	055	A	613430	GNL	1630	TA	1000	130	01	OT
1047	FJ8B	055	A	690160	GNH	1420	TA	1000	130	01	OT
1047	FJ8A	025	A	732174	GNH	1645	TA	1000	110	01	AR
1049	AZNC	076	B	858384	GNL	1120	OG	0000	000	03	OT*
1049	ABOA	698	✓	470348	GNL	1200	TA	0200	100	UN	UN
1049	FJ4D	042	C	594505	GNH	1210	TA	1000	140	02	EN
1049	AZNC	822	B	528398	GNL	1330	EL	0050	100	03	HD
1049	FJ8B	260	B	570330	GNL	1530	TA	0600	135	02	NA
1049	ABOA	099	B	566252	GNL	1620	EL	0800	110	01	MR
1049	ABOA	679	B	566252	GNL	1620	EL	0800	110	01	MR
1050	FJ8B	702	B	593505	GNH	1045	TA	1000	140	04	OT
1050	FJ8B	200	A	595512	GNH	1445	OR	1500	095	01	OT
1050	FJ8C	129	B	506471	GNH	1600	OR	1000	100	04	EL
1051	AZNC	807	C	524486	GNL	1230	TA	0100	110	04	OT
1051	FJ8B	260	B	595518	GNH	1410	TA	0880	150	01	CT
1051	FJ8A	654	A	575507	GNH	1510	TA	1000	150	01	CT
1051	ABOA	168	B	600239	GNL	1830	TA	0020	080	03	EL
1051	AZNC	076	B	591594	GNH	1730	EL	0200	110	02	EN
1052	GZ6B	344	B	650270	GNH	1420	TA	1200	100	01	NA
1052	GZ6B	827	B	547306	GNL	1420	EL	0100	090	01	AR
1052	ABOA	099	B	566252	GNL	1620	EL	0800	110	01	MR
1052	FJ8C	167	B	519461	GNH	1625	TA	2000	130	03	EL
1052	ABOA	093	C	595226	GNH	1720	EH	3500	120	05	OT
1053	FJ8B	055	A	591227	GNH	1155	OR	1800	070	01	MR
1053	GZ6B	478	B	547306	GNH	1330	TA	1000	080	02	NA
1054	FJ8C	058	A	523472	GNH	1020	TA	2000	140	01	AR
1054	FJ4D	844	B	590450	GNH	1120	TW	3000	140	01	CT
1054	FJ8B	702	A	500472	GNH	1450	TA	2000	100	02	OT
1055	FJ8C	030	A	665265	GNH	1330	OR	3500	100	01	OT

AH-1G

A	B	C	D	E	F	G	H	I	J	K	L
1039	AB3D	348	A	497584	GNL	1000	TA	0200	070	03	TR
1039	AB3D	572	A	497582	GNL	1000	UN	0175	060	01	NA
1039	AZNC	019	A	580403	GNL	1210	EL	0140	140	01	OT
1039	AB0A	168	A	705232	GNL	1400	TA	0150	110	01	MR
1039	FJ8A	025	A	593435	GNL	1730	TA	0400	110	03	OT
1040	AB3D	106	✓	901433	GNL	1615	EL	0200	080	25	UN
1041	AB0A	102	✓	655285	GNL	1115	TA	0050	130	04	TR
1041	AB0A	698	A	655285	GNL	1120	TA	0200	120	03	MR
1041	AZNC	019	A	515405	GNL	1210	TA	0100	110	01	MR
1041	AZNC	047	A	493410	GNL	1250	TA	0100	120	02	MR
1041	AZNC	822	A	493410	GNL	1250	TA	0100	120	02	MR
1041	FJ8B	848	✓	566368	GNH	1530	TA	0600	130	UN	FF
1041	AZNC	832	C	553404	GNL	1620	TA	0050	100	07	MR
1041	FJ8A	059	✓	593369	GNH	1715	OR	UN	UNK	UN	FF
1042	AB0A	743	B	692245	GNL	0905	TA	0300	120	01	MR
1042	AZNC	481	A	432416	GNH	1402	TA	0100	080	01	AR
1043	AZNC	479	A	564398	GNL	0910	EL	0100	100	01	NA
1043	AZNC	076	A	568402	GNH	0915	TA	1500	120	01	MR
1043	AZNC	807	A	424462	GNH	0930	TA	0100	100	02	NA
1043	AB0C	089	✓	641490	GNH	1120	TA	UN	UNK	UN	UN
1043	AB0C	456	A	667483	GNH	1130	OR	0250	120	01	MR*
1043	AB0C	745	A	650482	GNH	1145	EL	0150	100	01	MR
1043	AB0C	755	✓	641502	GNH	1305	EL	UN	UNK	UN	UN
1043	AB0C	137	A	645505	GNL	1310	EL	0300	100	01	MR
1043	AZNC	487	A	432416	GNH	1340	TA	0100	080	01	NA
1044	AZNC	076	A	485436	GNL	0905	EL	0500	120	01	EN
1044	AZNC	327	C	469412	GNH	1115	TA	0500	120	01	HD
1044	FJ8C	700	B	483516	GNL	1130	TW	1000	110	02	DS
1044	AB0A	108	C	962270	GNL	1715	EL	0200	120	01	FU*
1044	FJ8B	736	A	515500	GNL	1715	TA	0800	110	01	NA
1044	FJ8C	710	B	515490	GNL	1815	TA	1000	120	07	CU
1045	AB0A	099	B	585287	GNH	1300	TA	0200	140	01	OT
1045	FJ8C	030	A	621229	GNL	1600	TA	1000	120	01	OT

Appendix 2 (AH-1G) to Annex D (Summary of Combat Damage)

AH-1G (cont)

1055	GZ6B	827	B	709207	GNH	1530	TA	3000	100	03	EN
1055	FJ8B	744	C	600230	GNH	1700	TA	1500	140	06	EN
1056	FJ4D	599	A	505471	GNL	1500	TA	1500	140	01	MR
1056	AZNC	076	C	510470	GNH	1545	TA	0225	130	13	MR
1056	AZNC	822	B	510470	GNL	1545	TA	0025	130	05	MR
1056	AZNC	832	B	549485	GNL	1545	TA	0050	130	02	NA
1057	FJ8A	017	A	650250	GNH	1100	TA	2000	120	01	MR
1057	FJ8A	794	A	650250	GNH	1100	TA	2000	120	02	MR
1057	AB0C	749	C	845375	GNH	1115	EL	1200	110	02	EN*
1057	FJ8C	030	A	620270	GNH	1600	TA	1500	120	02	MR
1057	AB0A	757	C	507471	GNH	1630	EL	0200	110	11	OT
1058	FJ8C	151	B	630270	GNH	1100	TA	2000	100	01	CT
1058	AB0A	480	A	632130	GNH	1525	TA	0200	120	01	CT
1058	FJ8C	710	A	620260	GNL	1530	TA	0015	120	01	CT
1058	FJ4D	093	B	598439	GNL	1600	EH	2500	100	03	EN
1058	FJ4D	120	[illegible]	505471	GNL	1600	EL	1000	100	06	[illegible]
1058	AB0A	572	C	625265	GNH	1730	TA	0300	130	02	CT
1059	AB0A	743	B	563237	GNL	1750	EH	5000	120	03	CT
1060	AB3D	787	B	557437	GNH	1030	TA	1000	100	01	CT
1060	AB0A	697	C	477325	GNH	1110	EL	1000	110	02	CT
1060	AB0A	348	A	436209	GNH	1145	TA	0200	110	01	CT
1060	AB0A	108	C	477325	GNH	1430	EL	1000	110	02	ED
1060	FJ8A	759	A	523475	GNL	1845	TA	2500	120	01	CT
1061	DX6A	854	B	580500	GNH	1100	TA	0100	120	01	NA
1061	DX6A	855	B	580500	GNH	1100	TA	0100	120	01	NA
1062	FJ4D	577	A	354540	GNH	1300	TA	2500	120	03	NR
1062	FJ8B	310	A	600400	GNL	1600	TA	2000	110	02	ED
1063	DX6A	780	[illegible]	578315	RKT	1520	TA	0050	100	01	UE
1064	AAVD	727	B	648391	GNL	1100	TW	1000	140	03	EN
1064	AAVD	548	C	491412	GNL	1500	OR	1000	130	07	EN

AH-1G (cont)

1065	AZNC	832	✓	527495	GNL	0835	TA	0500	080	UN	TR
1065	FJ8A	153	✓	532391	MTR	0900	OG	0000	000	UN	OT
1065	FJ8A	018	✓	532391	MTR	1330	OG	0000	000	UN	OT
1065	AAVD	031	A	595391	GNL	1330	EL	1000	130	01	NA
1065	ABOA	743	B	474405	GNL	1800	TA	0050	120	01	OT
1065	ABOA	760	C	672535	GNL	1800	OR	3000	100	01	OT
1065	ABOA	480	B	464398	GNL	1810	TA	2000	110	01	OT
1065	ABOC	137	B	473415	GNL	1830	EL	0050	120	01	OT
1065	ABOC	745	B	473415	GNL	1830	EL	0050	110	06	MR
1066	DX6A	023	A	685382	GNL	1300	EH	2000	080	01	NA
1066	ABOA	063	C	472416	GNL	1345	EL	1000	120	04	MR
1066	AAVD	740	C	595390	GNL	1645	EL	1000	130	08	NA
1066	ABOC	749	A	653387	GNL	1720	EL	0800	140	04	OT
1067	ABOA	697	C	659442	GNH	0845	EL	1400	120	07	OT
1067	FJ8B	260	A	595395	GNL	1245	OR	2000	100	01	OT
1067	FJ8B	708	B	595395	GNH	1245	TA	2000	150	01	OT
1068	FJ4D	079	A	585382	GNL	1600	TW	0900	090	01	AR
1068	AAVD	084	C	650398	GNL	1600	EL	1200	120	05	AT
1070	DX6A	656	B	431371	GNH	1615	EH	3000	150	03	NA
1070	FJ8C	720	A	625270	GNL	1830	TA	1300	120	01	OT
1070	FJ8C	805	B	436356	GNH	1900	TA	3500	130	01	OT
1073	FJ8B	260	B	423362	GNH	1145	TA	1500	140	01	OT
1073	FJ8B	595	B	431362	GNH	1250	TA	0500	120	01	OT
1073	ABOA	465	B	413100	GNH	1315	TA	0200	090	02	OT
1073	FJ8B	524	B	584402	GNH	1735	TA	1500	150	01	OT
1074	FJ8A	073	✓	432372	MTR	1000	OG	0000	000	01	CT
1074	ABOA	108	B	847418	MTR	1715	OG	0000	000	UN	NA*
1074	FJ8A	337	✓	432372	GNH	1800	OR	1000	100	UN	HD
1074	GZ6B	687	A	840420	RKT	1800	OG	0000	000	01	MR*
1074	FJ8A	185	B	425367	GNH	1830	OR	0800	100	01	FU
1075	ABOA	057	B	482363	GNL	1530	EH	2000	120	02	OT
1075	FJ8B	595	A	430370	GNH	1600	TA	1500	130	01	MR
1075	ABOC	432	B	844200	RKT	1705	OG	0000	000	02	OT*
1075	ABOC	748	B	844200	RKT	1705	OG	0000	000	01	OT*

AH-1G (cont)

1076	FJ8C	793	B	448378	GNH	1520	OR	0800	110	04	FF
1076	FJ8A	564	B	448367	GNH	1545	TA	3000	110	02	OT
1076	AB0A	465	B	433381	GNH	1800	TA	0400	120	02	OT
1076	FJ4D	577	A	974605	GNL	1810	TA	1500	140	01	OT*
1077	AB0A	743		439405	GNL	1305	TA	0075	100	UN	UN
1077	AB3D	077		469392	GNL	1530	TA	1000	120	UN	HD
1077	AAVD	031	A	575405	GNH	1730	EH	2500	100	01	MR
1078	FJ4D	452	B	552415	GNH	1130	TA	1000	120	02	MR
1078	FJ4D	599	B	552415	GNH	1130	TA	1000	120	01	MR
1079	FJ8A	066	A	850418	MTR	0826	OG	0000	000	01	OT*
1079	AB3D	787	A	510355	GNH	1300	TA	2500	130	01	NA
1079	FJ4D	774	B	540420	AAA	1530	OR	5050	110	01	OT
1079	FJ4D	093	A	615380	GNL	1630	OR	1000	130	01	MR
1079	FJ4D	079	A	537413	GNL	1745	TA	0030	050	02	OT
1079	FJ4D	831	C	537413	GNH	1745	OR	0100	080	04	DS
1080	AZNC	019		628356	GNH	1315	EH	2000	140	UN	UN
1080	AB0A	108	B	530350	GNL	1330	EL	0900	100	01	MR
1080	AB0A	748	B	844180	GNL	1400	EL	0004	010	01	MR*
1082	FJ8A	150		850418	RKT	0345	OG	0000	000	01	NA*
1082	FJ8A	017	C	850418	SCH	0415	OG	0000	000	01	UN*
1082	FJ8A	025	C	850418	SCH	0415	OG	0000	000	01	UN*
1082	FJ8A	564	C	850418	SCH	0415	OG	0000	000	01	UN*
1082	AZNC	144	A	646360	GNL	1630	TA	0050	100	01	NA

UH-1H (cont)

1067	ABOC	165	B	652388	GNL	0810	EL	0010	100	01	OT	
1067	AB3A	350		630267	GNL	1500	LD	0040	070	UN	UN	
1067	ABOA	155	B	471416	GNL	1800	EL	0300	100	03	OT	
1068	D65A	624	B	656387	GNL	1400	EL	0600	100	02	OT	
1068	BM2A	249		348402	MTR	1500	OG	0000	000	01	XO	
1069	FJ4A	616		532376	GNH	1800	LD	0200	070	UN	AT	
1069	C42A	695		701403	GNH	1845	LD	0020	020	UN	OT	*
1070	ABOC	429	A	650400	GNL	1146	EH	1800	100	01	OT	
1070	FJ4A	606	B	390430	MTR	1400	HO	0005	000	01	OT	
1070	FJ4A	566	C	390432	GNL	1400	HO	0005	000	10	OT	
1070	AB3C	980	A	385395	GNL	1400	EH	5000	080	01	NA	
1070	C41A	382		490350	GNL	1430	EH	2500	100	UN	CT	
1070	C41A	346	B	500350	MTR	1600	OG	0000	000	02	NA	
1070	C3EA	206		502357	GNL	1630	LD	0050	035	05	EN	
1070	C42A	763	B	627288	GNL	1730	LD	1000	060	02	OT	
1071	C3EA	079	C	580240	GNH	1130	EH	1500	060	02	OT	
1071	AB3F	303	A	495335	GNL	1600	LD	0050	085	01	CT	
1071	AB3.	630	A	460360	GNL	1630	EL	0500	080	02	CT	
1071	FJ4A	606	B	410370	GNH	1700	EL	0600	065	01	DS	
1071	FJ4A	640	B	410370	GNH	1700	EL	0600	065	01	DS	
1072	AB3B	438	B	683437	GNL	1000	TO	1000	080	01	OT	*
1072	C42A	540	A	635273	GNH	1130	EH	3500	090	01	CT	
1072	D65A	617	B	615255	GNL	1130	EL	0700	100	01	FU	
1072	FJ4C	258	B	535412	GNL	1145	EL	0020	090	01	FU	
1072	EAEA	147	B	447367	GNH	1230	EL	0900	110	01	MR	
1072	AB6A	104	C	968589	GNL	1700	LD	0003	000	04	OT	*
1073	C42A	667	A	683275	GNL	1300	LD	1000	080	04	OT	
1073	C41A	689	A	440370	GNH	1400	TO	0600	080	01	NA	
1073	C3EA	446	A	443375	GNH	1530	EH	2800	060	01	NA	
1073	D65A	216	A	731371	MTR	1600	TO	0030	070	01	OT	*
1073	EAEA	247	C	640381	GNH	1600	EL	0200	100	15	EN	
1074	ABOC	429	B	652367	GNH	1100	EL	0900	100	01	OT	
1074	C3EA	386	B	438362	GNH	1410	TO	0300	070	03	NA	
1074	C3EA	949	A	438368	GNH	1420	EH	1500	080	02	MR	
1074	C3EA	446	A	434372	GNH	1420	TO	0300	050	01	NA	
1074	C3EA	259	A	440378	GNH	1500	TO	0800	070	01	NA	
1074	C3EA	221	A	433372	GNH	1520	TO	0500	085	01	NA	

UH-1H (cont)

1075	FJ4A	175	B	656385	GNH	0800	TO	0025	110	01	MR	
1075	C3EA	345		480370	GNH	1315	LD	0200	060	10	OT	
1075	C3EA	388	B	480370	GNL	1315	LD	0100	060	10	NA	
1075	ABOC	216	C	640465	GNH	1400	EL	1200	110	10	OT	
1075	D65A	216	B	504358	MTR	1600	HO	0010	000	01	OT	
1075	ABOC	199		844200	MTR	1700	OG	0000	000	UN	OT	*
1075	ABOC	700	B	844200	RKT	1705	OG	0000	000	01	OT	*
1075	ABOC	429	B	844200	RKT	1705	OG	0000	000	01	OT	*
1076	C41A	155	B	462373	GNH	1015	TO	0700	070	03	OT	
1076	C42A	516	A	673485	GNH	1016	EH	2000	090	01	OT	*
1076	C41A	385	A	468382	GNH	1045	TO	0100	030	01	NA	
1076	D64A	656	B	640380	MTR	1550	OG	0000	000	01	OT	
1076	ARTA	491	B	645295	GNH	1600	OG	0000	000	01	OT	
1076	C41A	689	B	465390	GNH	1700	LD	0300	080	02	NA	
1076	FJ4A	946	B	556401	GNL	1730	EL	0050	120	01	OT	
1076	AZNC	489	A	845419	ART	1945	OG	0000	000	02	NA	*
1077	AZNC	328	C	845419	ART	0630	OG	0000	000	01	EN	*
1077	C3NA	378	A	507385	MTR	0730	HO	0005	000	01	NA	
1077	EANA	364	C	570430	GNH	1215	EL	0050	040	10	MR	
1077	AB3A	519	B	439405	GNL	1310	EL	0100	060	02	OT	
1077	ARTA	770	B	726347	GNH	1425	EL	0200	110	04	MR	*
1077	AB3C	192	B	345410	MTR	1500	LD	0002	000	01	NA	
1077	C41A	088		642387	GDE	1515	HO	0010	000	UN	EN	
1077	C3EA	107	A	453384	GNH	1530	HO	0015	000	01	CT	
1077	FJ4A	376	B	515392	GNL	1720	EL	0100	090	01	MR	
1077	ARTA	742	B	726347	MTR	1820	OG	0000	000	01	CT	*
1078	FJ4A	396	B	584426	GNL	1015	LD	0010	010	02	MR	
1078	FJ4A	370	B	584426	GNL	1030	EL	0015	090	01	CT	
1078	FJ4A	597	B	589413	GNL	1030	EL	0050	110	02	OT	
1078	FJ4A	472	B	585425	GNH	1030	EL	0010	080	03	OT	
1078	FJ4A	174	B	585425	GNH	1035	EL	0010	110	02	OT	
1078	ABOC	215	B	440382	GNH	1100	EH	1500	110	01	OT	
1078	C41A	689	A	585432	GNL	1200	LD	0050	050	01	NA	
1078	C41A	823		585428	MTR	1200	LD	0030	040	01	TR	
1078	C41A	130		585435	MTR	1230	LD	0050	030	01	CT	
1078	AB3C	155	B	668505	GNH	1230	EH	4000	100	01	OT	*
1078	C41A	385	A	585435	GNL	1230	LD	0060	080	01	NA	
1078	C41A	643	B	580420	GNL	1245	LD	0020	030	08	EN	
1078	C42A	191	B	733371	GNH	1300	LD	1000	075	01	OT	*
1078	FJ4A	598	B	585424	GNH	1400	EL	0020	060	05	OT	
1078	FJ4A	678	B	584426	GNL	1440	HO	0005	000	04	EN	

UH-1H (cont)

1078	FJ4A	566	C	564389	GNH	1530	EL	0025	100	04	OT	
1078	D65A	216	C	516340	GNL	1800	EL	0050	113	03	FU	
1078	FJ4C	602	C	582389	GNL	1830	TO	0025	100	06	EN	
1078	FJ4C	389	C	582389	GNL	1830	HO	0008	000	UN	EN	
1079	C3EA	085	B	515343	GNH	0745	TO	0010	050	04	NA	
1079	C41A	155	C	520390	GNL	1130	TO	0030	010	05	EN	
1079	C42A	458	B	515352	GNH	1130	LD	0020	000	09	MR	
1079	C41A	669	A	513353	GNL	1130	LD	0060	040	03	NA	
1079	C41A	024	C	510250	GNL	1145	LD	0020	005	01	EN	
1079	C3EA	223	B	515343	GNL	1145	LD	0010	020	02	NA	
1079	C3EA	776	C	515343	GNH	1145	LD	0500	040	04	EN	
1079	C3EA	238		580240	GNH	1150	LD	0050	050	02	EN	
1079	C3EA	764	B	515352	GNH	1150	LD	0050	040	06	NA	
1079	C3EA	016	A	513359	GNL	1200	LD	0050	090	02	NA	
1079	C42A	340	A	551342	GNL	1200	OG	0000	000	01	OT	
1079	AB3B	341	B	515352	GNL	1200	TO	0200	060	02	NA	
1079	AB3A	501	B	515352	GNL	1200	TO	0300	070	05	NA	
1079	AB3B	505		515352	GNL	1200	TO	0300	060	12	EN	
1079	C42A	953	B	517358	GNH	1200	LD	0050	030	04	MR	
1079	AB3B	337	B	515352	GNL	1200	TO	0400	080	40	NA	
1079	C3EA	446	A	515352	GNH	1200	LD	0100	060	01	NA	
1079	AB3C	746	C	515352	GNH	1215	EL	0500	060	10	UN	
1079	AB3C	819	B	515352	GNH	1215	LD	0100	110	04	NA	
1079	C42A	667	B	517358	GNH	1215	LD	0500	020	10	OT	
1079	C42A	676	B	513364	GNH	1220	LD	0300	010	16	MR	
1079	AB3A	630	B	515352	GNL	1230	TO	0300	060	12	EN	
1079	C42A	223	A	515352	GNL	1230	LD	0500	080	01	TR	
1079	AB3A	492	C	515352	GNL	1230	LD	0050	090	75	CT	
1079	C42A	284	B	517358	GNH	1300	LD	0250	080	10	OT	
1079	C42A	654	C	511348	GNH	1300	LD	0050	050	30	EN	
1079	C42A	359	C	515355	GNL	1315	LD	0010	010	12	OT	
1079	AGFT	226	C	500340	GNL	1400	TO	0050	080	05	MR	
1079	EALA	230	C	505345	GNL	1420	EL	0010	080	04	TR	
1079	C41A	352	B	850418	MTR	1430	OG	0000	000	04	NA	*
1079	D65A	623	C	847418	MTR	1430	HO	0003	000	03	MR	*
1079	AB3A	185	C	515352	GNL	1500	LD	0200	080	01	FU	
1079	FJ4A	720	B	645414	GNL	1500	EL	0030	040	01	MR	
1079	FJ4B	705	C	625377	GNL	1530	TO	0050	110	01	FF	
1079	FJ4B	718	C	576406	GNH	1545	EL	0100	030	UN	FF	
1079	ARTA	122	B	741382	MTR	1600	EL	0050	040	02	MR	*
1079	ARTA	496	B	648302	MTR	1600	EL	0005	005	02	CU	
1079	ARTA	826	B	742306	MTR	1600	HO	0020	000	08	MR	*
1079	C41A	383	C	512342	GNH	1600	LD	0060	050	04	NA	
1079	C41A	669	B	530240	GNL	1630	LD	0100	080	02	NA	

UH-1H (cont)

1079	GZ6B	708	✓	595378	GNL	1640	EL	0900	090	02	FU	
1079	C3EA	169	B	515338	GNH	1645	LD	0100	050	04	NA	
1079	AB3A	491	B	561412	GNL	1800	EL	0030	110	UN	FU	
1080	ARTA	210	B	648308	GNL	1100	LD	0100	060	01	OT	
1080	FJ4A	633	B	725361	GNL	1200	EL	0025	110	04	HD	
1080	FJ4A	720	B	725361	GNL	1200	EL	0025	110	04	EN	
1080	ARTA	770	B	648301	GNH	1200	EL	0800	095	01	MR	
1080	FJ4A	720	B	725361	GNL	1202	EL	0025	110	04	EN	
1080	ARTA	227	B	648301	GNH	1230	EH	1700	110	02	FU	
1080	ACFT	642	✓	705450	GNH	1340	HO	0025	000	UN	UN	*
1080	ARTA	357	B	648308	MTR	1400	HO	0003	000	06	MR	
1080	AB3A	693	B	691387	GNL	1400	EL	0100	095	05	NA	
1080	ARTA	742	B	648301	MTR	1420	HO	0010	000	01	EN	
1080	ARTA	491	B	648308	MTR	1420	OG	0000	000	04	EN	
1080	FJGA	643	A	554344	MTR	1500	OG	0000	000	01	NA	
1080	C3GA	667	A	555345	MTR	1530	LD	0010	010	02	OT	
1080	ARTA	826	✓	648308	MTR	1630	HO	0003	000	50	EN	
1081	ABOT	403		844200	ART	1115	OG	0000	000	02	OT	*
1081	ACFT	702	B	845380	RKT	1350	OG	0000	000	01	NA	*
1081	ACFT	460	A	970590	GNL	1510	LD	0800	090	01	NA	*
1081	C44A	759		666365	AAA	1600	EH	4500	090	UN	FF	
1081	FJ4A	597	B	665362	MTR	1600	HO	0005	000	01	MR	
1081	ABOC	555	✓	815368	RKT	1705	OG	0000	000	05	NA	*
1081	C42A	340	A	648301	GNH	1715	EH	3500	080	02	OT	
1081	C3EA	101	A	795362	MTR	1745	OG	0000	000	01	NA	*
1081	C3EA	418	A	795362	MTR	1745	OG	0000	000	01	NA	*
1082	ABOC	316	A	854418	RKT	0240	OG	0000	000	05	NA	*
1082	C42A	676	C	790360	GNH	0900	LD	0500	090	01	TR	*
1082	AB3B	341	A	760358	GNH	0900	EH	2000	080	01	MR	*
1082	C42A	651	C	743352	GNL	1130	TO	0800	090	03	TR	*
1083	FJ4C	493	B	849380	MTR	0930	HO	0003	000	01	OT	*
1083	ARTA	004	B	665535	GNH	1010	OG	0000	000	05	CT	*
1083	C3EA	704	B	725358	GNH	1030	EH	1500	090	01	OT	
1083	ARTA	122	B	673525	GNH	1230	LD	0005	002	02	CU	*
1083	FJ4C	508	B	976434	GNL	1550	OR	0300	080	01	OT	*
1083	ARTA	357	✓	664438	GNH	1815	EL	0150	03	07	TR	*

A	B	C	D	E	F	G	H	I	J	K	L	M
1041	FJ5B	016	B	995555	GNH	1200	EL	0100	050	01	XO	*
1042	FJ5B	516	B	520455	GNH	1300	TO	2400	100	03	OT	
1043	C03A	449	A	515458	GNL	1700	LD	0020	060	01	MA	
1046	FJ5C	506		379438	OTH	1420	EL	UN	UNK	UN	EN	
1057	FJ5C	829	B	526402	MTR	1300	OR	0100	090	02	MR	
1058	C03A	440	A	595397	GNL	1300	EL	0070	090	01	MR	
1058	C03A	451	A	595397	GNL	1300	EL	0100	100	05	MR	
1058	FJ5C	829	B	565387	GNL	1300	OR	0100	090	02	MR	
1058	FJ5A	863	A	569463	GNL	1300	EL	0070	025	02	DS	
1058	FJ5A	014	A	670380	GNL	1315	EL	0100	090	01	MR	
1058	C03A	447	A	595397	GNL	1330	EL	0090	100	03	EN	
1058	C03A	449		565387	GNL	1330	EL	0100	100	UN	HD	
1059	C03A	448	A	528497	GNL	1530	TO	0050	030	02	FU	
1063	C03A	454	A	450370	GNL	1320	LD	1800	070	01	MA	
1063	FJ5C	020	B	460396	AAA	1400	EH	4400	080	01	HD	
1064	FJ5B	012	B	340390	GNH	1730	EH	5000	070	04	OT	
1066	C03A	447	A	523358	GNH	1145	EL	0200	060	03	OT	
1070	FJ5A	521	A	431372	MTR	1410	EL	0075	030	01	EL	
1070	FJ5A	113	A	459354	GNH	1415	EH	6000	060	03	FU	
1070	FJ5B	002	A	433370	GNH	1430	LD	1500	070	04	HD	
1075	FJ5A	863	A	646300	GNL	1345	EL	0500	100	01	MA	
1076	FJ5B	103	B	646295	GNL	1400	HO	0050	000	01	OT	
1076	C5KA	528	A	640300	GNL	1600	EH	2000	140	02	MA	
1077	FJ5C	009	B	618314	GNH	1350	EH	2200	100	01	MA	
1077	FJ5C	502		640380	MTR	1400	EH	1500	050	01	XO	
1078	FJ5B	018	B	738345	GNH	1250	EH	2000	090	03	MR	

Appendix 5 (CH-47) to Annex D (Summary of Combat Damage)

CH-47 (cont)

1079	FJ5A	541	A	755371	GNL	1530	TO	1500	080	01	NA *
1079	C5KT	102	A	595378	GNH	1640	EL	0900	090	02	EN
1080	FJ5B	504	C	735365	GNH	1710	EH	2500	090	01	OT *
1080	FJ5C	813	B	373438	GNL	1840	EH	1500	070	02	NA
1081	FJ5C	848	B	720360	GNL	1750	EH	3500	070	01	MR
1082	C03A	444	A	725320	GNH	1430	EL	0500	070	01	NA
1082	C03A	438	A	725320	GNH	1500	EL	0500	070	01	NA

CH-53

A	B	C	D	E	F	G	H	I	J	K	L	M
1046	USMC	664	B	712280	GNL	1700	EH	2500	100	03	HD	
1047	USMC	674	B	698220	GNL	1420	LD	0200	080	02	FU	
1049	USMC	667	-	UNK	OTH	1700	EL	0800	UNK	UN	MR	*
1054	USMC	953	A	698216	MTR	1820	HO	0010	000	02	OT	
1054	USMC	660	-	698216	MTR	1825	HO	0010	000	15	HD	
1056	USMC	657	A	698213	GNL	1355	TO	0300	070	01	EL	
1056	USMC	658	B	696216	AAA	1400	TO	2000	090	01	OT	
1063	USMC	133	B	425325	GNL	1245	EH	3000	070	01	OT	
1067	USMC	668	B	431371	MTR	1010	HO	0010	000	13	MR	
1067	USMC	663	A	398378	GNL	1200	EH	2500	040	02	MR	
1067	USMC	157	A	438372	MTR	1300	OR	0010	000	01	OT	
1070	USMC	669	A	UNK	GNH	UNK	UN	UNK	UNK	01	MR	
1070	USMC	953	B	490345	GNH	1445	OR	1700	070	04	OT	
1072	USMC	668	B	496346	GNL	1300	EH	1500	120	01	MR	

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1083	ARBA	418	B	852420	MTR	0200	OG	0000	000	NA	NA	*

101st Aviation Battalion (Assault Helicopter) (Airmobile)

AB3A Company A (Assault Helicopter)
AB3B Company B (Assault Helicopter)
AB3C Company C (Assault Helicopter)
AB3D Company C (Assault Helicopter)
DX6A Company D (Assault Helicopter)

158th Aviation Battalion (Assault Helicopter) (Airmobile)

FJ4A Company A (Assault Helicopter)
FJ4B Company B (Assault Helicopter)
FJ4C Company C (Assault Helicopter)
FJ4D Company D (Attack Helicopter)
AAVD Company D (Attack Helicopter) 227th Aviation Battalion

159th Aviation Battalion (Assault Support Helicopter)

FJ5A Company A (Assault Helicopter)
FJ5B Company B (Assault Helicopter)
FJ5C Company C (Assault Helicopter)
C5KA 179th Aviation Company (Assault Support Helicopter)
CO3A 132d Aviation Company (Assault Support Helicopter)
ARBA 478th Aviation Company (Heavy Helicopter)
USMC 463d Heavy Marine Helicopter, 3d Marine Amphibious Force

4th Battalion (Aerial Artillery), 77th Artillery (Airmobile)

FJ8A Battery A (Aerial Artillery)
FJ8B Battery B (Aerial Artillery)
FJ8C Battery C (Aerial Artillery)

223d Combat Aviation Battalion

DLKA 223d Aviation Battalion
C3EA 48th Aviation Company (Assault Helicopter)
C41A 173d Aviation Company (Assault Helicopter)
DX9A 238th Aviation Company (Aerial Weapons)
FJGA 282d Aviation Company (Assault Helicopter)

14th Combat Aviation Battalion

ARTA 71st Assault Helicopter Company
C3GA 116th Assault Helicopter Company
C42A 174th Assault Helicopter Company

Air Cavalry Units

ABOT Headquarters & Headquarters Troop, 2d Squadron (Airmobile) 17th Cavalry
ABOA A Troop, 2d Squadron (Airmobile), 17th Cavalry
ABOB B Troop, 2d Squadron (Airmobile), 17th Cavalry
ABOC C Troop, 2d Squadron (Airmobile), 17th Cavalry
AZNC C Troop, 7th Squadron, 17th Cavalry
GZ6B B Troop, 7th Squadron, 17th Cavalry

Medical Units

D64A 236th Medical Company
D65A 237th Medical Company
ACFT 326th Medical Battalion
BM2A 498th Medical Company
EAEA 571st Medical Company

Other Units

AB6A 3d Brigade, 101st Airborne Division (Airmobile)
ACJA Battery A (Aviation), 377th Artillery

ANNEX E
ABBREVIATIONS / ACRONYMS

ACL	-	Allowable Cargo Load
ADC (O)	-	Assistant Division Commander (Operations)
ADC (S)	-	Assistant Division Commander (Support)
AGL	-	Above Ground Level
AHB	-	Assault Helicopter Battalion
ALO	-	Air Liaison Officer
AMC	-	Air Mission Commander
AMTFC	-	Air Mission Task Force Commander
API	-	Armor Piercing, Incendiary
ARA	-	Aerial Rocket Artillery
ARP	-	Aero Rifle Platoon
ARVN	-	Army of the Republic of Vietnam
ASHB	-	Assault Support Helicopter Battalion
ASL	-	Authorized Stockage List
AWC	-	Aerial Weapons Company
BDA	-	Bomb Damage Assessment
BOC	-	Battalion Operations Center
CA	-	Combat Assault
CAB	-	Comabt Aviation Battalion

CAP	-	Cover and Protection
CBU	-	Cluster Bomb Unit
C&C	-	Command and Control
COMUSMACV	-	Commander, United States Military Assistance Command, Vietnam
DISCOM	-	Division Support Command
DMZ	-	Demilitarized Zone
DSSA	-	Direct Support Supply Activity
FAC	-	Forward Air Controller
FB	-	Fire Base
FDC	-	Fire Direction Center
FFAR	-	Folding Fin Aerial Rocket
FSA	-	Forward Support Area
FSE	-	Fire Support Element
FWMAF	-	Free World Military Assistance Forces
GC	-	Ground Commander
GVN	-	Government of the Republic of (South) Vietnam
HE	-	High Explosive
HEAT	-	High Explosive, Antitank
HEI	-	High Explosive, Incendiary
IFR	-	Instrument Flight Rules

KIA	-	Killed in Action
LNO	-	Liaison Officer
LZ	-	Landing Zone
MEDCOM	-	Medical Command
MEDEVAC	-	Medical Evacuation by Helicopter
MIA	-	Missing in Action
NDP	-	Night Defensive Postition
NORFM	-	Not Operationally Ready, Field Maintenance
NORM	-	Not Operationally Ready, Maintenance
NOROM	-	Not Operationally Ready, Organizational Maintenance
NORS	-	Not Operationally Ready, Supply
NVA	-	North Vietnamese Army
NVN	-	North Vietnam
OPCON	-	Operational Control
OR	-	Operationally Ready
PAX	-	Aircraft Passenger
PMP	-	Preventive Maintenance Periodic Inspection
PZ	-	Pickup Zone
RVN	-	Republic of Vietnam
RVNAF	-	Republic of Vietnam Armed Forces

SOI	-	Signal Operating Instructions
TAC air	-	Tactical Air (Air Force)
TF	-	Task Force
UHF	-	Ultra High Frequency
USAF	-	United States Air Force
USARV	-	United States Army Vietnam
VFR	-	Visual Flight Rules
VHF	-	Very High Frequency
VNMC	-	Vietnamese Marine Corps
WIA	-	Wounded in Action
WP	-	White Phosphorus
7th AF	-	Seventh US Air Force

ANNEX F
DEFINITIONS

AERIAL ROCKET ARTILLERY

Attack helicopters (AH-1G) armed with 2.75-inch rockets, 40mm grenade launchers, and 7.62mm miniguns, organized and employed as an integral part of field artillery (also known as aerial field artillery).

AIR STRIKE

An attack on specific objectives by fighter, bomber, or attack aircraft on an offensive mission. One strike may be delivered by several air organizations under a single command in the air.

ARMED HELICOPTERS

Those helicopters having primary weapon subsystems installed and utilized to provide direct fire support.

BASE AREA

A section of terrain which contains enemy installations, defensive fortifications, or other physical structures used for the following purposes:

a. Basic or advanced training of personnel and units.
b. Political, military, or logistic headquarters.
c. Storage and distribution of supplies.
d. A site used by combat units to rest, regroup, train, evade allied forces, and / or initiate the preparatory phase of offensive operations.

BASE AREA 604

Base Area bounded by the following grids: XD0636, XD3063, XD5543, XD5527, and XD0643.

BASE AREA 611

Base Area bounded by the following grids: XD5422, XD6324, XD7109, YD0004, YD2506, YD3100, YC3190, XC7890, and XD6000.

BINH TRAM

A regimental size unit of the NVA which controls the movement of men and supplies through a specific area of operations. To accomplish this mission, each Binh Tram has subordinate to it transportation, engineer, antiaircraft, and communication-liaison battalions. In addition each Binh Tram has infantry elements to provide security. All personnel within a Binh Tram have received infantry training and are prepared to fight as infantry when required to defend the Binh Tram area of operations.

BLIVET

A collapsible container for fuel or water, varying in capacity, i.e., 50, 250, 500 gallon.

CLOSE AIR SUPPORT

Air action against hostile targets which are in close proximity to friendly forces and which require detailed integration of each air mission with the fire and movement of those forces.

COBRA

An AH-1G armed helicopter.

COMMAND AND CONTROL (C&C) HELICOPTER

Usually used to designate a helicopter equipped with additional radios, in which a commander positions himself over a battle area.

COMMANDO VAULT

A 15,000 pound bomb (Blu 82) with a fuze extender utilized to construct one to three-ship landing zones.

CONTACT OR "IN CONTACT"

Engagement with an enemy force, i.e., being fired upon and returning fire. The supported unit commander is responsible for making the "in contact" determination.

DAISY CUTTER

USAF bombs modified with an M1A1 fuze extender which insures a height of burst one to three feet above ground level. This ordnance is used in the construction of landing zones.

DIRECT AIR SUPPORT CENTER (DASC)

A subordinate operational component of a tactical air control system designed for control and direction of close air support and other tactical air support operations, normally located with the fire support coordination elements.

DUSTOFF

Designation of medical evacuation helicopters.

HAC BAO (BLACK PANTHER COMPANY)

An elite volunteer force of the 1st ARVN Inf Div numbering approximately 300 men. During LAMSON 719 the company conducted bomb damage assessment and was employed as a strick force for raid type operations.

HEAVY LIFT

For the purpose of this study, heavy lift is a term which includes medium and heavy lift helicopters (CH-47, CH-53, and CH-54).

HEAVY PINK TEAM

Reconnaissance team composed of one OH-6A, two AH-1G's, and one UH-1H command and control aircraft.

LIGHT FIRE-TEAM

Two AH-1G gunships operating as a tactical element.

PINK TEAM

Reconnaissance team composed of one OH-6A and one AH-1G.

SORTIE

An operational flight by one aircraft. One sortie is one aircraft making one takeoff and one landing on an operational flight.

WHITE TEAM

Reconnaissance team composed of two OH-6A's.