

334TH ARMED HELICOPTER COMPANY
145TH AVIATION BATTALION
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ROTOR SWITCHBOARD
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LIGHTNING BUG

IMMEDIATE RELEASE

BIEN HOA (145th Avn Bn) - In the spring of 1965 it became apparent that the majority of Viet Cong logistical and tactical movement in the III and IV Corps areas of South Vietnam was being conducted at night, primarily on the inland waterways of these two tactical zones. Build-up of enemy equipment and personnel and increased night attacks on outposts in these areas pointed to a growing need for new methods of night interdiction of the insurgents' main supply routes. The problem was presented to all the services located in these two regions; develop and put into effect a system to destroy or deter these enemy night movements. One of the units to receive this assignment was the 334th Armed Helicopter Company (then the 197th Armed Helicopter Company). After several attempts at low level search with available light and artificial light from flares, the 197th determined that a more effective means of illumination was required, and set out to develop the present Lightning Bug system.

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After several months of research the company finally settled on the use of Air Forces C123 Provider landing lights. Several configurations were tried. The final system consists of seven lights, six mounted around a center light. The most difficult part of the project was mounting the lights in the UH-1B helicopter. The company armament officer spent several weeks in the design of a mount which would allow the lights to focus, have some movement while attached to the aircraft, and also be retractable so that the organic weapons system on the aircraft could be used if needed. The system was designed and a prototype was produced in Vietnam.

With the means of illumination solved, Lightning Bug debuted in June 1965. Various methods of employment were tested along with numerous combinations of escort aircraft. The Lightning Bug was used primarily on the larger rivers in the III Corps area, the Saigon river north of Saigon and the Vam Co Dong and Vam Co Tay west of Saigon.

The initial results were very surprising, with the Bug locating and destroying as many as 30 sampans in one night. As the Lightning Bug be-

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came more familiar to the Viet Cong it became more suscetible to ground fire. The need for a versatile heavy weapon to protect the low-level search and destroy team was obvious. This system needed the capability to provide immediate and continuous suppression on point-type targets. Again the company armament officer was called upon, and a side-mounted .50 caliber machine gun installed. By virtue of its range, accuracy, and ability to suppress ground fire it proved to be an extremely effective weapon to cover Lightning Bug. Now the Lightning Bug was complete. It consists of a light ship (standard M-6 rocket and machine gun system with light), the .50 caliber ship, and a third ship equipped with the M-5 and M-3 subsystem (40mm grenade launcher and 2.75 in rockets). Lightning Bug continued to increase in effectiveness and it soon became a nightly mission of the company. Toward the end of 1965 a decrease in the number of sampans sighted and destroyed was noted. It was obvious the Lightning Bug had succeeded in its initial mission, destruction of insurgent river traffic and deterrence of renewed enemy night activity, by its constant presence. By this time the use of an OV-1 SLAR airplane was integrated into the Lightning Bug concept. The Mohawk would make a sweep of

the area locating targets, and call the local ground advisor to determine whether or not they could be destroyed. If the target was identified as enemy, the Lightning Bug team would fly to the area and start the search. This system effectively prevented advance warning to the VC which continuous linear search of the rivers had been doing.

During the month of May 1966, the 25th ARVN Division at Duc Hoa received repeated reports of extensive movement west of the Vam Co Dong River up to the Republic of VN border. Coordination between the Lightning Bug team and the 25th ARVN Division resulted in making this area a free strike zone and giving the Lightning Bug the added capability of immediate engagement of targets. This allowed more time for search and less time for personnel aboard the sampans to escape. This area proved to be very lucrative and during the month of June 1966, 196 sampans were destroyed. These sampans were all heavily loaded and by their location showed a definite trend of movement from west to east along very small canals. During the first six months of 1966 the Lightning Bug destroyed a total of 622 sampans. The plotting of target locations for this time period showed a definite change of traffic from the main rivers which were being patrolled so effectively to

the small canals.

TACTICS.

The Lightning Bug has become a continuous mission of the 334th. It has developed tactics and procedures best suited to the performance of the mission. Present tactics call for the light to be employed from 600 to 1000 feet absolute altitude, depending of atmospheric conditions. The light is mounted in the right door so the aircraft commander and the light operator can act as a team in providing continuous illumination of the river or canals. The co-pilot of the light ship navigates and also monitors the airspeed and altitude, and takes control if the pilot experiences vertigo, a not uncommon problem in mist, or light rain. The second ship in the formation carries the .50 caliber machine gun on its right side. The aircraft is flown to the left of the light ship at an altitude of 1500 feet or higher. This position allows suppression of the entire area under and to the rear of the two other aircraft. The third ship carries the M-5 M-3 subsystems and flies from 0 to 200 feet above the terrain blacked out to facilitate the need for security against ground fire. It is flown behind the light in such a position that a slant view of the river

bank can be observed. This is important because the overhang of vegetation along the river edges provides good concealment for sampans from vertical observation. This position also permits greater accuracy when engaging the sampans with the grenade launcher and allows for positive identification of cargo. This positive identification is often necessary when obtaining permission to engage from the ground commander.

The team is often used in conjunction with SLAR and initially checks out all targets which are reported. They then set up a preplanned search route and conduct a visual search of these areas. The visual search has proven very effective, as the VC will leave loaded sampans camouflaged until a need for the contents exists. Another use of the Lightning Bug is immediate response to units which are under attack. The flexibility of the light; light placed inside the aircraft so that weapons are usable, has added the capability of forming, a fire team to Lightning Bug. This fire team is composed of the M-5 M-3 system and the M-6 system. The .50 caliber ship has a flare rack mounted on its leftside and can provide flare illumination for the fire team when called upon to support units

under attack. This system has proven very effective and in many cases has filled the time span that is required to get illumination and fire support to the besieged unit.

SPECIAL EQUIPMENT

The light, mount for the .50 caliber, and flare mount are items which were required in order to round out the team. The light was constructed from seven C-123 landing lights (Photo #1). Each light is mounted in a cast aluminum ring; six of the lights are affixed to the center light by pivots which are built on each ring (Photo #2). The center light is rigid with the six outside lights connected to a moveable sleeve by push pull rods. The sleeve is allowed to move up and down changing the angle of the outer lights (Photo #3). This adjustment allows for spreading or focusing the light. The frame that holds the lights is free to pivot at the outside edge of the cargo compartment allowing the lights to be set at any angle with relation to the aircraft (Photo #4). This allows the light to be swung completely inside the aircraft. A pivot is also placed between

the light base and the light on the main support shaft, to allow for forward and aft movement. The power for the light is taken from the nonessential buss, and each light is protected with its own circuit breaker (Photo #2). A master switch is mounted on the control handle for control of the lights. In addition to these controls, the entire system can be turned off by pulling the nonessential buss circuit breaker located in the overhead console. The base plate of the light has four holes constructed of two inch pipe approximately two inches long. These are set up so as to be aligned with the tie down devices in the cargo floor. "J" hooks are used to secure the base plate to the aircraft (Photo #1).

The .50 caliber mount consists of the M-47 anti-aircraft mount which isolates gun vibration from the aircraft. Securing of the base to the aircraft is done in the same manner as the light (Photo #4).

The flare rack consists of a navy training rack and has the capacity of six flares. These flares are preset to be dropped from 2500 feet opening at 200 feet with a five second delay before they ignite.

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PROBLEM AREAS.

This unit has experienced several problems while performing Lightning Bug. The first and probably the most important is permission to fire in restricted areas. There are two types of areas that Lightning Bug searches. The first is a restricted area and the second is a free strike area. The restricted area requires positive identification of the target and permission from ground units to engage. Coordinates of the target location along with a complete description of the target are required by the American advisors so they can coordinate with the Vietnamese in charge of the area. The time consumed to obtain permission can be as much as 30 minutes, which restricts the amount of area that can be searched and also allows enemy personnel to escape from the target area. The free strike area allows immediate engagement and eliminates these problems. The Lightning Bug is less effective in locating targets on trails and foliated areas. The large amount of natural cover along roads affords very good concealment for movement along highways and trails making detection of personnel and equipment difficult; however, some passive effects are achieved. Of course, climatic

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conditions, haze and rain always a problem, but generally are not severe enough to cause the mission to be cancelled.

Another problem which has confronted the team is the long hours required for the mission. The success of Lightning Bug has increased the demand so much that it is not uncommon for the team to fly as many as seven hours per night. Night flying, by its very nature, is more fatiguing than other modes of flight. The special tactics and system which are used required the M-5 M-3 system to be flown at tree top level and the lightship demands a tremendous amount of pilot concentration and control touch, which greatly complicate the fatigue problem. Efforts are presently being made to equip other companies with light system so that they may absorb some of the missions. The increased use of Lightning Bug has created a need for new equipment which, if developed, could better equip Lightning Bug to perform its mission. A better light system is needed, one with more power-possibly a xenon light which would retain the focusing capability of our present system. A means of accurately fixing a target is needed in the areas of extensive marsh land when contact navigation is virtually impossible.

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The company is currently using a combination of Decca and radar following to determine target location. Another possible solution is TACAN where a continuous, accurate read-out of direction and distance is provided. The pilot of the light ship is required to focus most of his attention on the area illuminated by the light. He must continually move his head to look at his instruments to maintain his altitude and altitude. A possible solution for this would be a system that would project the aircraft instruments on the pilot's door window so he could look at the lighted area and, by changing his eye focus, read his instruments. Another important feature, would be a machine gun which could be coaxially mounted on the light and would allow continuous engagement of the target from the light ship. This light ship normally has the best observation of the target. This has been tried by placing a door gunner and the light side by side and has proven to be very effective. Finally, a means of cutting out the fringe area of light around the main light beam is necessary. This is a critical area for the low ship during target attack as it is illuminated and is much

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more vulnerable to ground fire.

The increased success of the Lightning Bug over the past year and one half points out the ever increasing need to develop new tactics and equipment which would further the helicopter night capability. Through the incorporation devices, and computer system, the realm of the night assault operation can be provided allowing them to meet and encounter the enemy during the time when he is most active.