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Searchlight for Helicopters

ONE OF THE greatest challenges encountered by counterinsurgency forces is the necessity to find and destroy guerrillas operating at night. The insurgents use every device available to hide and hide in the natural environment. Passive defense measures are totally inadequate to meet, let alone defeat, aggressive bands operating with full initiative under cover of darkness.

Parachute-suspended pyrotech-

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nic flares, delivered from helicopters, fixed wing aircraft, and mortars, have been the main source of night illumination in Vietnam. The projector has many effective, sometimes by itself, causing Viet Cong to break off attack on an outpost. However, it suffers the drawbacks of short burning time, drifting downwind out of the target area, and being a collision hazard to aircraft in the area.

A specific suggestion for a hand-held carbon arc searchlight system, powered by a portable generator, to be carried internally in the UH-1B was made by Capt Jack R. Barnhisel, a platoon commander in the 119th Aviation Company. The suggestion was routed through U. S. Army Support Command, Vietnam (now U. S. Army, Vietnam), to the Joint Research and Test Activity of the U. S. Military Assistance Command, in Saigon, and was assigned to JRATA's triservice ARPA Field Unit for action.

Navy Lt Cdr Grady A. Weeks took the basic concept and developed it his own way, using a maximum of on-hand materials. For a light source, he used seven C-123 landing lights. A framework of tubing with pivots (see illustration) holds the lights in a cluster and allows the six on the outside to be converged or diverged at the will of the operator. This motion permits a concentrated spot or a more diffuse floodlighting of the terrain.

The cluster itself is pivoted on a lightweight base which clamps without any modification to the cargo tiedown rings on the deck of the UH-1B. Adaptation of the assembly to other hold-down configurations would be relatively simple. A hand lever permits the light array to be retracted completely into the cabin and to be extended outboard to a horizon-

tal position. The mount also allows the operator to aim the beam through an arc of about 40° longitudinally and about 15° laterally. An internal spreader device has no difficulty in compensating for the slight yaw effect resulting from drag.

Individual circuit breakers (on a small console fastened to the base) allow full selection of the lights to be used, and a master switch gives simultaneous on-off control. The total current required is 135 amperes. Since the UH-1B generator is rated at 300 amperes, with a normal operating load of about 100 amperes, it was possible to connect the lights directly to the main bus. Avoiding the necessity of an auxiliary power unit made the system far more attractive to users, and held the total weight to 90 pounds.

Army Maj William E. Crouch was project officer for test and evaluation. He encountered no unusual vibration or control problems in flight, at airspeeds up to 85 knots. In actual night combat use with the 114th Aviation Company, excellent ground illumination was obtained up to 3,500 feet altitude. At higher altitudes a haze layer interfered with the helicopter crew's ability to aim the light at the desired area.

Armed ships flying at lower altitudes outside the cone of light teamed up with the searchlight ship to deliver gun and rocket fire into the illuminated area. They were able to get changes of area on call. Personnel participating were very favorably impressed with the system and felt that a company-sized landing could be made with the beams spread to the floodlight position.

In another combat use, members of the 197th Aviation Company, who were flying the searchlight ship for training, observed

a ground fire fight near Thu Dau Mot. Contacting the friendly ground unit, they were requested to use the searchlight to help identify the position of the attacking Viet Cong. The ground advisor reported that the light helped a great deal and was probably a contributing factor in thwarting the VC attack.

Two of these systems have been locally fabricated. United States Army, Vietnam plans to procure enough of them to equip each air-mobile company in Vietnam.

This helicopter searchlight system has demonstrated its capability for nighttime route reconnaissance and area search, and adds a new dimension to counterinsurgency at night.

