Taking a Whirl At Life

R. ADAMS COWLEY, M. D.
DIVISION OF EMERGENCY MEDICAL SERVICES
22 S. GREENE STREET
BALTIMORE, MARYLAND 21201

By Wayne Cowan
Freelance Writer

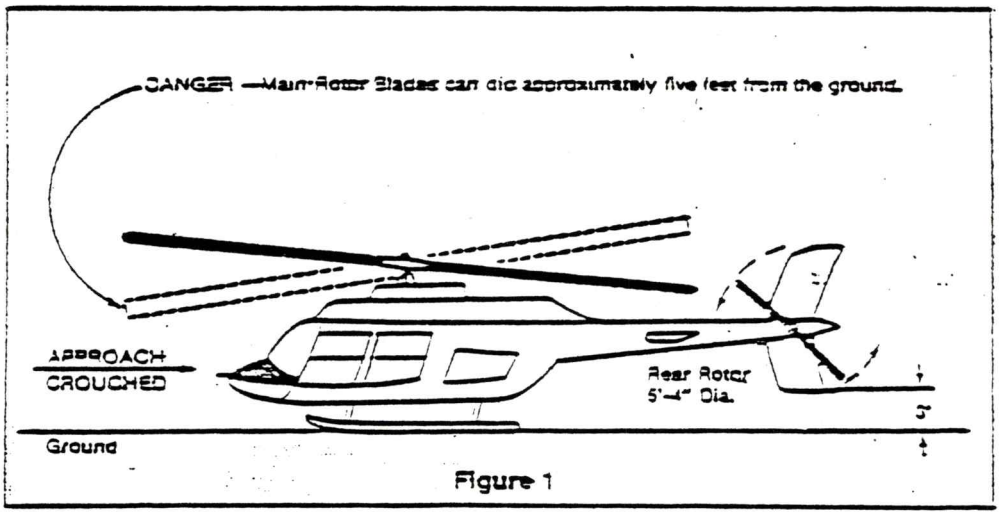

Figure 1

Approach and depart the helicopter to the front or side and NEVER to the rear.

A HIGH SCHOOL boy and his date are speeding home from a party on a late, wet Saturday night in rural Maryland. The dark country road suddenly curves sharply to the right and the young man tries to manuever his speeding car around the curve. He loses control and the car skids off the road into a grove of trees.

Another driver sees the wreckage and places a call for help. Within minutes after receiving the call, the local volunteer fire department responds.

Extrication procedures begin as two EMTs crawl into the car to assess the injuries, control the bleeding, and splint the evident fractures. The injuries sustained by the couple are too severe to be treated at the local emergency room. Only a few comprehensive care centers in the state can treat the injuries, a good hour's drive by ambulance, a trip the couple could not survive. One of the Maryland State Police helicopters is called to fly a "Med-Evac" mission.

While the helicopter is en route to the scene, a search begins for a suitable landing site. The site has to be close to the scene of the incident but free of obstacles such as trees, poles, ditches, signs, and wires. It is a night mission and wires are particularly difficult to see and must be avoided. Suitable landing sites may be parking lots, dual lane boulevards, median strips, or, as in this case, a nearby farm field. The landing site should also allow the helicopter to land and take off similar to a fixed wing aircraft: hovering straight up and down into a landing area is more dangerous. The steeper the angle of approach made by the helicopter, the faster the helicopter will fall should engine failure develop. With an angle of approach between 12 and

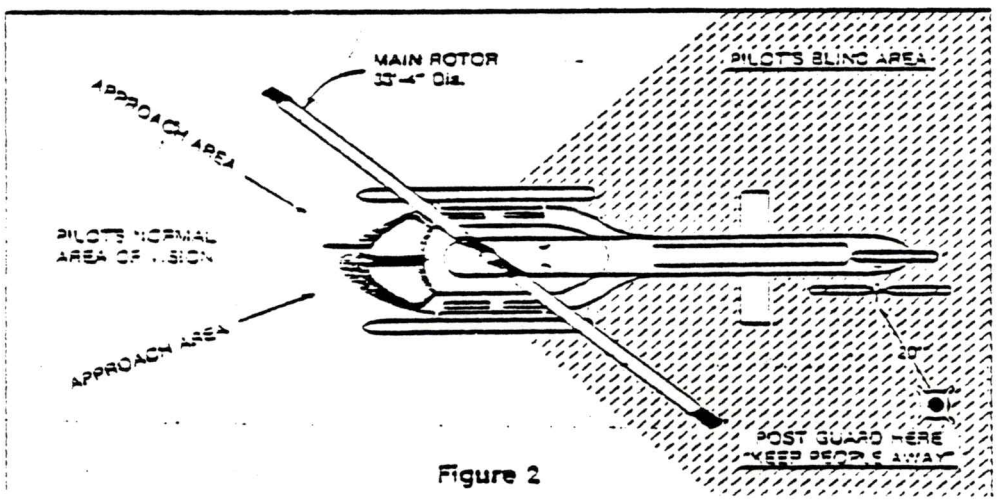

Figure 2

(Continued from page 61)

20 degrees, the helicopter can autorotate to the ground in the event of engine failure. After a suitable landing site has been selected, the border of the landing zone must be marked by lighted flares placed in either circular or square pattern with borders allowing a minimum of 50 to 60 feet within the pattern (See Figures 3 and 4). Flares should not be placed in an "X" pattern because the helicopter cannot land over flares.

The landing site has no sooner been selected and properly marked than when the sound of an approaching helicopter is heard. (The average response time to the scene of a Med-Evac mission is 12 minutes.) Once the helicopter is on the ground, the observer/medic is directed to the accident. A guard is placed at the helicopter to warn people of the danger presented by the rotor blade. (See Figures 1 and 2.)

After the victims have been extricated and further stabilization and necessary splinting is completed, the victims are carefully placed on litters. They are then carefully loaded into the helicopter and secured for the flight. The Med-Evac leaves the scene for the Maryland Institute for Emergency Medical Services (MIEMS) in Baltimore, an average of 12 minutes flying time.

Although the State Police has used helicopters since 1961 for police work, the Med-Evac missions were not undertaken until 1970. Dr. R Adams Cowley, Director of MIEMS, which was then called the Center for the Study of Trauma, realized that many lives were being lost because there was no way of transporting many of the critically injured or ill patients out of rural areas of the state other than long transfers in ambulances. The cost of maintaining a fleet of helicopters solely for medical missions would have been far too expensive to seriously consider. The solution was to utilize an existing fleet of helicopters which were primarily missions on short notice. The only existing fleet of helicopters that met this criteria was that of the Maryland State Police Division. The State Police agreed to undertake the Med-Evac missions at no charge to the patient, the cost being absorbed by the state, despite an average operating cost of $45 per hour.

Observer/medics on a Med-Evac mission have to be a member of the department for at least three years, have no reservations about flying, and be a certified EMT. In some cases, these observer/medics also have taken the Cardiac Rescue Technician course (a paramedic training course). Observers undergo two weeks of specialized training at MIEMS and each observer/medic must take various refresher courses offered through MIEMS each year as well as a CPR refresher course each year and EMT recertification every three years.

The pilots who fly Med-Evac missions are assigned on the basis of tenure, assignment, and ability at the time of applications. They must be a uniformed member of the department, hold a commercial helicopter license, and have prior turbine engine experience.

The pilot has the option of deciding if a particular mission is too hazardous to of poor weather or landing conditions, he may fly to the hospital closest to the accident. The victim will be transferred to the same hospital by vehicle. At this point, the Med-Evac assumes control of the patient and transports him to a receiving hospital recommended by physicians at MIEMS.

Flying the Med-Evac mission is sometimes hazardous. Since the inception of the Med-Evac program, three helicopters have been lost and four troopers killed.

Med-Evac uses, as a primary aircraft, the Bell 206B Jet Ranger helicopter. The craft has a cruising speed of 130 miles per hour and a range of 400 miles. Two litter patients can be accommodated in addition to the pilot and medic. The helicopters are equipped with first aid supplies, portable oxygen bottles, Laerdal suction units, and a cardiac monitor; in addition to State Police FM radios and a 3.9 million candlepower searchlight. The Jet Ranger helicopters are assigned small primary operating areas (60 miles in diameter) in three areas around the state: Martin Field in the Greater Baltimore area; Andrews Air Force Base in the Greater Washington area; and at the Fredrick Airport in the Fredrick area. A fourth helicopter is now stationed at Salisbury on the

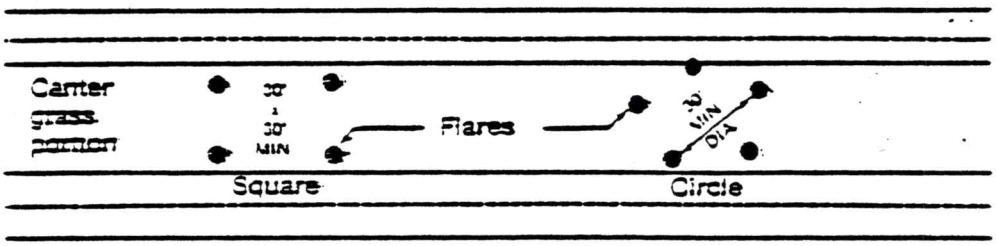

Figure 3

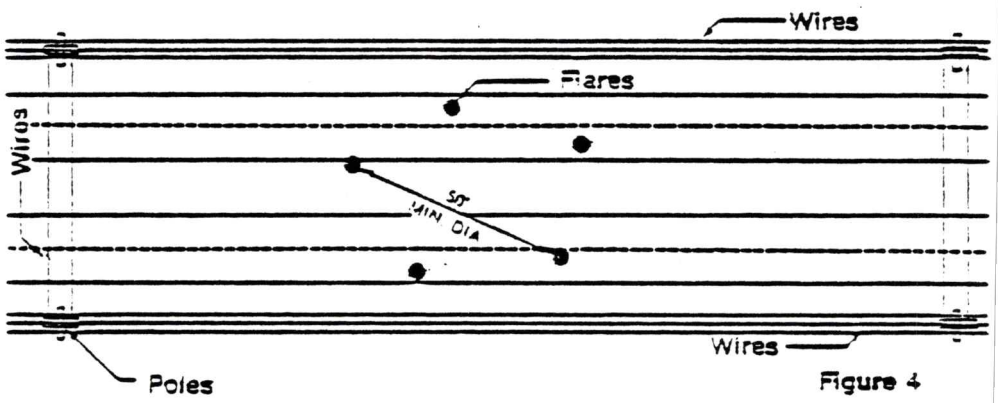

Figure 4

The diagrams show the best ways to place flares near the scene at the landing site. Normally a circle, or square or pattern is best to use at the site. Use of four or five is all that is necessary. An "X" or cross type pattern is not recommended because the helicopter cannot land on top of flares for safety reasons. Spread flares out as far as possible so as not to restrict final positioning of helicopter in landing area.

quiring from the federal government four surplus Huey UH1-B helicopters to use as backups. Hueys hold three litter patients.

For search and rescue missions, either in the water or on land, the Aviation Division utilizes two Sikorsky HH 34J helicopters with a cruising speed of 120 miles per hour and a range of 385 miles. The Sikorskys are capable of carrying six internal litter patients and large amounts of first aid and emergency medical supplies for treatment and evacuation of large numbers of patients from disaster areas. In addition to the land and water rescue equipment and equipment simular to that of the Jet Rangers, both Sikorskys are equipped with an external rescue hoist, a sling load capacity of 5,000 pounds, and a public address system.

After the helicopter has a patient on board, the crew calls Systems Control (Syscom), located at MIEMS and advises the operators to the age, sex, race, and nature of injuries that the victim(s) has sustained. The Syscom operator advises the physician in charge of the medical team at MIEMS and decides which referral center the patient should be taken to. Other factors affecting the selection of a referral hospital is the availability of beds at any given referral center and the area in which the injury occurred.

It is important to remember that the Med-Evac missions comprise only a small percentage of all actual flight time of the helicopters of the Aviation Division. The less glamorous duties of highway patrol and traffic control make up most of the flight time of the helicopters. The helicopters also play an important role in criminal apprehension and the recovery of stolen vehicles. While these other duties make up approximately 85 percent of all flight time, lifesaving missions have top priority and all other duties are set aside (one reason for the fantastic 81 percent survival rate of patients in the Med-Evac program). Even Maryland Governor Marvin Mandel has been "bumped" from helicopter flights when Med-Evac missions have arisen.

Future plans for the system include the possible addition of helicopters to cover each of the five EMS regions of Maryland. Until that time, the citizens of Maryland will have to settle for one of the most successful Med-Evac systems operated outside of the military. It is a system that is truly second to none.

For more information on the subject see related feature, "Guest Comment"