

PECULIARITIES OF HELICOPTER SUPPORTED OPERATIONS

(Presentment of a Combat Recovery operation's helicopter assisted part)

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Abstract:

The success of a contemporary military operation closely depends on the involved own force's quick reaction ability, flexibility; on the benefits which can be recovered from the initiation and on the high level of mobility. It is unquestionable that the above listed capabilities can only be ensured by the use of helicopters. Helicopter forces are involved in many tasks of every defence forces. In joint operations, they take part in both combat support and combat service support operations. The objective of writing this article was to represent the capabilities of the helicopter forces and to clarify all of the restrains which can negatively effect the helicopter operations. As for that, considering my intent, the reader will get a clear understanding on the helicopter capabilities and helicopter supported operations. Using up the presentment of a Combat Recovery operation's helicopter assisted part can even more highlight the importance of those joint force operations which are supported by helicopters.

Keywords: helicopter, operation, rescue, support, transport

INTRODUCTION:

Helicopters are representing a really crucial factor of all armed force's efficient operational activities in the world today, since their wide and diverse spectrum of abilities. A wide range of tactical application however required the specialization of the helicopters, so light- (like liaison), medium- (like transport and attack), and heavy (mainly transport) category helicopters have been developed. Each type or category of the helicopters has its own special characteristics, which determine the primary role of the given model, but there are some general properties which facilitate the widest possible range of suitable application.

Regardless of their categories, helicopters have numerous clearly defined, specific features, which are essential for land operations, but each type of helicopter has a personal touch, which makes them suitable for the implementation of their priority tasks. Amongst these application properties, we must mention the helicopter's versatility, mobility, agility, flexibility of response to the changes in the tactical situation. The further advantage in the employment of helicopters is that, they can exploit nature provided camouflaging up to the maximum level. "Surprise"¹ as a tactical advantage can be achieved by a helicopter flight speed, cooperated with the application of its low-level and even NOE² flying/maneuvering capabilities.

¹ Surprise: It is an important principle in the art of war, which means an offensive activity, that unexpectedly reaches the enemy. It is a major prerequisite for success.

² NOE flight = Nap-Of-the-Earth is a type of very low-altitude flight course used by military aircraft to avoid enemy detection and attack in a high-threat environment.

It should be noted, however, that there are certain areas in respect of which the helicopters are grappling with challenges. To be mentioned among such, these can be the vulnerability of helicopters, the probable power insufficiencies due to the low air density, or a major logistical claim.

But just to be more specific, as follows, I will represent the characteristics of helicopter employment in details.

1. CHARACTERISTICS OF HELICOPTER EMPLOYMENTS:

When conducting land operations helicopters are providing unique advantageous capabilities upon their specific characteristics. Surface features such as water, forests, and natural or manmade obstacles or hills do not inhibit a helicopter's freedom of action. It is seldom restricted in its choice of operating area since it can use confined landing sites requiring little or no preparation. Most helicopters can also load and unload external loads and personnel when circumstances do not allow them to land.

The VERSATILITY and MOBILITY of helicopters and their ability to redeploy rapidly in response to changes in the situation give them an inherent FLEXIBILITY in the land battle. Armed helicopters have a further advantage in that they are not constrained by line of sight problems to the same extent as ground direct fire systems. This gives them the ability to acquire their own targets and engage them effectively out to the limits of their weapon range. This tactical integrity provides battlefield helicopters with a very high degree of flexibility.

Most helicopters can carry out a wide range of tasks like air assault operations, medium lift operations, close combat attack, reconnaissance, combat recovery- and urban operations, combat service support operations. Whilst each type of helicopter is likely to be more suited to specific tasks, their versatility will normally be capable of performing other tasks to some degree.

As it was gently touched in the introduction, because of the helicopter's speed, relative freedom of movement, ability to operate at very low altitude during both day and night and use of terrain masking to avoid detection, it can often achieve an element of SURPRISE.

Helicopters are normally deployed close to the supported forces that can thus exploit the helicopters mobility and flexibility to achieve rapid execution of tasks, HIGH OPERATIONAL TEMPO. This speed of execution can be further enhanced if a warning order is given, thereby allowing time for planning and briefing, and for placing helicopters and crews at high readiness state.

But this article would not be exact if I hadn't have a say about those limitations which can pose constraints against the successful helicopter supported operations.

Due to the negative effects of high temperature and high altitude, helicopter's performance is decreased, since engine power and rotor lift are closely related to air density. Should helicopter observe the reduction in air density that produces a significant reduction in payload, maneuverability, and engine performance. As for some added weather related limitations: Helicopters are capable of operating in poor visibility and under a lower cloud base. While low visibility does hinder visual acquisition by the enemy, the helicopter remains vulnerable to radars, laser and thermal-based systems. Most helicopters can be flown without visual ground reference but must do so at a safe height above obstructions and must be able to descend to a landing site by visual reference or with the assistance of electronic guidance, either internal or ground based. Some helicopters have restrictions that preclude or restrict flight in icy conditions or in falling snow. Strong surface winds may make the starting and stopping of rotors hazardous and can necessitate the suspension of flying operations.

Although some modern helicopters have an increased capability to survive on the battlefield and may be equipped with passive and active self-protection devices, the majority remain very vulnerable to a wide range of weapons. Due to the relatively low speed flights on low-level altitudes, their exposure to known or suspected weapons result in an unacceptable aircraft loss rate. Helicopters can, however, survive to discharge their roles effectively provided they are employed with due regard to the threat opposing them, and preferably as part of a combined arms team.

Another serious constrain could be a logistic support. Helicopter operations are requesting a significant logistics background which constitutes flight maintenance (with the maintainers, tools, ground equipments and spare parts), ordnance support, fuel and lubricants supply. To establish logistic background and supply chain should be carefully considered in all planning.

In any helicopter operation the aim must be to exploit the advantages and capabilities of the helicopters and to minimize the effects of limitations on the aircraft, aircrews and support. Commanders and operators must therefore plan accordingly, taking these factors into account with special attention being given to the characteristics of the particular helicopter type.

2. COMBAT RECOVERY OPERATIONS

After having clarified the peculiarities of the helicopter supported operations, it is useful to demonstrate these capabilities through one of the land operations. Surveying the land operations, it can be stated that there are hardly any which are not supported by helicopters. Staying true to the title of this article, I will use Combat Recovery Operation (furthermore: CRO) as an example in which most of the capability components can be shown in their complexity.

Military commanders have recognized the increasing cost of training personnel to use modern high-technology weapon systems; the value of well-trained personnel to the commander has therefore increased. In addition, western populations have grown sensitive (perhaps due to media coverage) to the numbers of fatalities and casualties suffered, and have increased the pressure upon political leaders to minimize the loss of life and to make every effort to recover captured/isolated personnel.

Combat Recovery stands for the operation (tactics, technique and procedures) which focuses on the recovery of personnel from a situation where hostile interference may be expected. Recent multi-national operations have shown a need for Combat Recovery operations. Wide spread Areas of Responsibilities and limited number of troops enhance the possibility of Isolated Personnel³. Military operations can create situations in which personnel need to be rescued. To conduct Combat Search and Rescue (furthermore: CSAR), mainly special operational units are available. The primary purpose of Combat Recovery operations is to employ available assets (air and land components) for the rescue of personnel/equipment who may not be trained and equipped to receive CSAR, but who require recovery or extraction. Combat Recovery is a sub-set of joint personnel recovery (furthermore: JPR). At one end of the spectrum is CSAR with dedicated assets and a full command structure. At the other is Combat Recovery which may be initiated by any commander with organic assets, either rotary or ground. A dedicated platform is not necessary although commanders may hold assets on standby for specific operations.

³ Isolated Personnel = Military or civilian personnel separated from their unit or organization in an environment requiring them to survive, evade, or escape while awaiting rescue or recovery.

Should we deal with any type of combat recovery operations, it is clearly understandable that all of them constitute helicopters for their performances.

2.1. CRO ELEMENTS

CRO requires specialized equipment, personnel and procedures to effect successful rescues in hostile territory. The specific method of recovery will be driven by the threat, survivor condition, and types of forces available to execute the mission. As a basic, a Search and Rescue Task Force (furthermore: SARTF) is created to accomplish CRO operations. The SARTF is coordinated through planning and briefings with all participating elements. Typical SARTF elements include:

(1) *ON-SCENE COMMANDER* (furthermore: OSC). The person designated to coordinate the rescue efforts at the rescue site. He is responsible for all aspects of the actual CRO, keeps the primary objectives regarding to the influencing hostile incidents, applies and coordinates all the designated land and air resources for a successful mission.

(2) *AIRBORNE MISSION COMMANDER* (furthermore: AMC). The AMC serves as an airborne extension of regional Rescue Coordination Center⁴ (furthermore: RCC). He coordinates the CRO effort between the search and rescue task force and the RCC by monitoring the status of all SARTF elements, requesting additional assets when needed, and ensuring the recovery and supporting forces arrive at their designated areas to accomplish the task. He coordinates the whole CRO radio net; arranges air refueling for recovering helicopters. He is appointed, as necessary, by the OSC. But, which is more important from our perspective is that, he is placed onto the board of the helicopter flying over the actual scene.

(3) *RECOVERY HELICOPTERS*. Two recovery helicopter categories must be distinguished. One is the transport helicopter category which provides the asset for insertion and extraction to and from the given rescue zone. The other is an attack/combat category helicopter, providing Close Air Support⁵ (furthermore: CAS) mainly for transport helicopters and extracting forces. Considering the transport capability, usually a primary and secondary helicopter is flown to the objective area. The secondary helicopter must be prepared to assume the lead and accomplish the recovery should be primary helicopter abort the mission.



Figure 1.: CRO equipped HH-60 Pave Hawk, transport helicopter.

⁴ Rescue Coordination Center = A primary search and rescue facility suitably staffed by supervisory personnel and equipped for coordinating and controlling search and rescue and/or combat search and rescue operations.

⁵ Close Air Support defined as air action by fixed or rotary winged aircraft against hostile targets, that are close to friendly forces, and which requires detailed integration of air assets with fire.

These combat configured transport helicopters are operated where low observability is required using low-level navigation and threat avoidance procedures, onboard electronic defensive systems and countermeasures dispensers, various forward-looking infrared and radar systems, and night vision devices. Combat rescue helicopters are the primary and preferred recovery vehicles for any army. They can be used theater wide for long range, low level, day/night marginal weather operations into hostile environments to recover distressed or isolated personnel. Missions are predominantly flown in a two-ship elements, but may be flown single-ship, multiship, or as part of a large composite force package. Mission planning, composite force tactics, unit-level tactics training, and operational employment should be focused on fully exploiting the unique capabilities of the rescue helicopters. From a designated point in close proximity to the pickup zone, the recovery vehicle formation lead or aircraft commander will normally be the individual ultimately responsible for continuing the mission. These helicopters are transporting the extracting forces to the given are. As for the attack helicopters, they are used to provide support with their direct fires on enemy forces influencing the CRO.



Figure 2.: AH-64 Apache, attack helicopter.

Each CRO constitutes at least two attack helicopters, which are flying in formation with the transport helicopters to and from the rescue zone, while in the rescue zone they remain in the close proximity to provide security. The determining factor for CAS is detailed armed air interdiction. CAS may need to be conducted far from friendly forces, if the mission requires detailed integration with the fire and movement of the forces.

(4) *RESCUE ESCORT* (furthermore: RESCORT). This task requires tactical aircraft, capable of operating within the same altitude, speed, and endurance regimes of the recovery helicopters and capable of protecting them when ground threats.



Figure 3.: A-10 Thunderbolt, RESCORT airplane.

RESCORT aircraft protects the helicopters from ground threats en route to and returning from the objective area; assists the attack helicopters in locating and authenticating the survivor; determines the level of hostility in the objective area and suppress ground threats to the SARTF.

(5) *RESCUE COMBAT AIR PATROL* (furthermore: RESCAP). It is an air superiority tactical aircraft capable of protecting the SARTF from airborne threats.



Figure 4.: F-22 Raptor, RESCAP fighter.

RESCAP aircraft maintains patrol over and protect the survivor until the SARTF arrives in the objective area; assists the SARTF in locating the survivor; assists RESCORT aircraft in suppressing ground threats; maintains protection against and ensure suppression of airborne threats to the OSC or AMC. When Attack helicopter and RESCORT assets cannot avoid the threat on their own, RESCAP aircraft could be employed to suppress, degrade, or destroy the threat, thereby permitting the CRO operation to proceed.

(6) *SPECIAL OPERATIONAL FORCES* (furthermore: SOFs) function as rescue and recovery experts on flying status or as surface elements. They are the essential air/surface link in CRO.



Figure 5.: SOF dedicated to perform CRO.

They provide a rapid response capability and the ability to conduct day and night operations in denied/sensitive areas and environments. SOF teams are tailored for the specific mission, with the smallest deployable increment. They may operate from rotary aircraft by landing, by using alternate insertion and extraction methods (like hoist, fast- and spice rope, and rappel),

or by parachuting (static line or freefall). They are delivered by the transport helicopter to the actual rescue zone.

Following the above described elements we should mention some others, which are only activated when certain causes require. As for this, some combat support elements, like direct fire assets, must be activated, if there is a certain engagement line between our and the hostile forces. With them, enemy fire can be suppressed to provide safe flying conditions/route for extracting forces. Electronic warfare assets are deployed if there is any chance to jam enemy's command, control and communication net. Unmanned Aerial System can be deployed to collect intelligence information upon the hostile forces and activities.

2.2. CRO CONCEPT

The CRO execution consists of certain phases. The first phase can be identified as the "Report" phase. It begins with the recognition of an isolation event and ends when appropriate C2⁶ authorities are informed. The distress indicator may be detected by multiple assets, each relaying the incident directly to the Personnel Recovery Coordination Center or Joint Personnel Recovery Center, causing multiple reports of the same incident. Joint Force Commanders may be notified of a personal recovery requirement through any means within the joint or component force C2 structure.

The second phase is called to be "Locate". The locate task involves the effort taken to precisely find and authenticate isolated personnel. It starts upon recognition of an isolation event and continues until the isolated person is recovered. An accurate location and positive authentication are normally required prior to committing recovery operation. A successful recovery generally depends on the accuracy and reliability of the coordinates or description of the isolated personnel's location. Normally, accurate and reliable location coordinates, and the ability to rapidly transmit and receive those coordinates between the force elements in a secure manner are necessary to ensure proper support to and recovery of isolated personnel.

The third phase is a „Support“, which involves supporting tasks to the isolated person. The support to the isolated person must begin upon recognition that an individual is isolated and ends when the individual is recovered. Supporting task constitutes the following activities: 1. Establishing communication with the isolated person; 2. Maintaining and increasing the isolated person's situational awareness by providing information on adversary and environmental threats, recovery procedures, and other pertinent information; 3. Protection activities and deception techniques designed to make an adversary believe the isolated person is someplace other than the actual location; 4. To deliver resupply packages to isolated personnel by aircraft; 5. Maintain and increase isolated personnel's morale using psychological method to enhance the ability to focus on proper application of his/her knowledge and skills to survive, evade, resist, and escape.

The fourth is a "Recover" phase. The recover task involves the coordinated actions and efforts of commanders and staffs, forces, and isolated personnel to bring isolated personnel under the physical custody of a friendly organization. The recover task begins with the launch or redirection of forces or the engagement of diplomatic or civil processes, and ends when the recovery element hands off the formerly isolated person to the reintegration team. The recover task is accomplished through PR operation and mission planning, individual and synergistic actions of commanders and staffs, forces, and isolated personnel.

In this phase of CRO, the above described forces are composed to to meet PR success. Helicopters are playing two main roles during the whole recovery operation. Transport helicopters are transporting SOFs to the rescue area, and carrying out force extraction after the

⁶ C2 = Command and Control.

positive isolated personnel authentication and after the actual rescue task. The number of transport helicopters is doubled to provide a secure roof over the whole mission. Should any reason to abort the mission for a primary transport helicopter, the secondary helicopter must be capable to continue and accomplish the CRO task. The transporting vehicles must always been helicopters, since their capabilities can only facilitates landings to almost any zones. Attack helicopters are to provide safe flying conditions for the transport helicopters by their direct fire support. They are flying escorting the transport helicopters in a tactical formation. Their task is to suppress any hostile activities on the flight route to, and back from the rescue zone, and to provide security in the close vicinity of the given rescue zone during the authentication and rescue process. They always fly in a pair to provide all-around safety. During the route flight, they are escorting on the both sides, one of them is leading and the other one is securing the rear zone. They rarely leave formation, but at the rescue zone. If there is a determinative hostile action against the helicopter formation, usually RESCORT is requested. The whole helicopter assisted CRO part is usually carried out on NOE height, during nighttime with NVGs in order to provide concealment. Since the requested maneuverability, flexibility among these conditions can only be provided by helicopters, it must be expressed that the helicopters are essentials for a successful completion.

CONCLUSION

Operational experience shows that helicopters with advanced avionics, navigational systems, and terrain following/terrain avoidance radar systems are excellent pathfinders and recovery vehicles. Taking advantages from the characteristics of helicopters, CROs can be carried out with a certain success.

There are a variety of helicopter formation and extraction techniques and procedures exist within and between joint force components and subordinate units, but some constrains (like terrain, visibility, high-density altitude limitations, aircraft and component capabilities, and aircrew experience) should be carefully considered when selecting these techniques and procedures. The wide spectrum of TTPs⁷ is granted by the helicopter's capabilities. The efficiency of the operations depends on making use of them.

Over the last decades it has become undoubtedly clear that the unique capabilities of helicopters can not be bypassed. There is nothing which can prove this statement better, than a gradually growing number of helicopter assisted military operations and MOOTWs⁸ all over the world.

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⁷ TTP = Tactics, techniques and procedures.

⁸ MOOTW = Military operations other than war.