**Military helicopter**

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| **Military helicopter** |
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| [Bermuda Regiment](http://en.wikipedia.org/wiki/Bermuda_Regiment) soldiers board a [USMC](http://en.wikipedia.org/wiki/United_States_Marine_Corps) [CH-46 Sea Knight](http://en.wikipedia.org/wiki/CH-46_Sea_Knight) helicopter at [Marine Corps Base Camp Lejeune](http://en.wikipedia.org/wiki/Marine_Corps_Base_Camp_Lejeune). |

A **military helicopter** is a [helicopter](http://en.wikipedia.org/wiki/Helicopter%22%20%5Co%20%22Helicopter) that is either specifically built or converted for use by [military forces](http://en.wikipedia.org/wiki/Military_force%22%20%5Co%20%22Military%20force). A military helicopter's mission is a function of its design or conversion. The most common use of military helicopters is transport of troops, but transport helicopters can be modified or converted to perform other missions such as [combat search and rescue](http://en.wikipedia.org/wiki/Search_and_rescue%22%20%5Co%20%22Search%20and%20rescue) (CSAR), [medical evacuation](http://en.wikipedia.org/wiki/Medical_evacuation%22%20%5Co%20%22Medical%20evacuation) (MEDEVAC), airborne command post, or even [armed with weapons](http://en.wikipedia.org/wiki/Armed_helicopter%22%20%5Co%20%22Armed%20helicopter) for attacking ground targets. Specialized military helicopters are intended to conduct specific missions. Examples of specialized military helicopters are [attack helicopters](http://en.wikipedia.org/wiki/Attack_helicopter%22%20%5Co%20%22Attack%20helicopter), [observation](http://en.wikipedia.org/wiki/Reconnaissance) helicopters and [anti-submarine warfare](http://en.wikipedia.org/wiki/Anti-submarine_warfare%22%20%5Co%20%22Anti-submarine%20warfare) helicopters.

**Types and roles**

Military helicopters play an integral part in the land, sea and air operations of modern militaries. Generally manufacturers will develop airframes in different weight/size classes which can be adapted to different roles through the installation of mission specific equipment. To minimise development costs the basic airframes can be stretched and shortened, be updated with new engines and electronics and have the entire mechanical and flight systems mated to new fuselages to create new aircraft. For example, the [UH-1](http://en.wikipedia.org/wiki/UH-1%22%20%5Co%20%22UH-1) has given rise to a number of derivatives through stretching and re-engining, including the [AH-1](http://en.wikipedia.org/wiki/AH-1%22%20%5Co%20%22AH-1).

Modern helicopters have introduced modular systems which allow the same airframe to be configured for different roles, for example the [EH-101](http://en.wikipedia.org/wiki/EH-101%22%20%5Co%20%22EH-101) in [Royal Navy](http://en.wikipedia.org/wiki/Royal_Navy%22%20%5Co%20%22Royal%20Navy) service can be rapidly configured for [ASW](http://en.wikipedia.org/wiki/Anti-submarine_warfare%22%20%5Co%20%22Anti-submarine%20warfare) or transport missions in hours. To at the same time retain flexibility and limit costs, it is possible to fit an airframe [for but not with](http://en.wikipedia.org/wiki/For_but_not_with%22%20%5Co%20%22For%20but%20not%20with) a system, for example in the US Army's [AH-64D](http://en.wikipedia.org/wiki/AH-64D%22%20%5Co%20%22AH-64D) variants are all fitted to be able to take the Longbow radar system, but not enough sets have been brought to equip the whole force. The systems can be fitted to only those airframes that need it, or when finances allow the purchase of enough units.

**Equipment**

Most military helicopters are [armoured](http://en.wikipedia.org/wiki/Vehicle_armour%22%20%5Co%20%22Vehicle%20armour) to some extent however all equipment is limited to the installed power and lift capability and the limits installed equipment places on useful payload. The most extensive armour is placed around the pilots, engines, transmission and fuel tanks. Fuel lines, control cables and power to the tail rotor may also be shrouded by Kevlar armour. The most heavily armoured helicopters are attack, assault and special forces helicopters. In transport helicopters the crew compartment may or may not be fully armoured, a compromise being to give the passengers Kevlar lined seats but to leave the compartment for the most part unarmoured. [Survivability](http://en.wikipedia.org/wiki/Survivability%22%20%5Co%20%22Survivability) is enhanced by [redundancy](http://en.wikipedia.org/wiki/Redundancy_%28engineering%29%22%20%5Co%20%22Redundancy%20%28engineering%29) and the placement of components to protect each other. For example the [Blackhawk](http://en.wikipedia.org/wiki/UH-60_Black_Hawk%22%20%5Co%20%22UH-60%20Black%20Hawk) family of helicopters uses two engines and can continue to fly on only one, the engines are separated by the transmission and placed so that if attacked from any one flank, the engine on that flank acts to protect the transmission and the engine on the other side from damage.

Aviation electronics, or [avionics](http://en.wikipedia.org/wiki/Avionics%22%20%5Co%20%22Avionics), such as communication [radios](http://en.wikipedia.org/wiki/Radio%22%20%5Co%20%22Radio) and navigation aids are common on most military helicopters. Specialized avionics, such as [electronic countermeasures](http://en.wikipedia.org/wiki/Electronic_countermeasures%22%20%5Co%20%22Electronic%20countermeasures) and [identification friend or foe](http://en.wikipedia.org/wiki/Identification_friend_or_foe%22%20%5Co%20%22Identification%20friend%20or%20foe) systems, are military specific systems that can also be installed on military helicopters. Other payload or mission systems are installed either permanently or temporarily, based on specific mission requirements; optical and IR cameras for scout helicopters, dunking sonar and search radar for anti-submarine helicopters, extra radio transceivers and computers for helicopters used as airborne [command posts](http://en.wikipedia.org/wiki/Command_post%22%20%5Co%20%22Command%20post).

Armour, fire suppression, dynamic and electronics systems enhancements are invisible to casual inspection, as a cost cutting measure some nations and services have been tempted to use what are essentially commercial helicopters for military purposes. For example it has been reported that the [PRC](http://en.wikipedia.org/wiki/People%27s_Republic_of_China%22%20%5Co%20%22People%27s%20Republic%20of%20China) is carrying out a rapid enlargement of its assault helicopter regiments with the civilian version of the [Mil Mi-17](http://en.wikipedia.org/wiki/Mil_Mi-17). These helicopters without armor and electronic counter measures will function well enough for training exercises and photo opportunities but would be suicidal to deploy in the assault role in actual combat situations. The intention of China appears to be to be to [retrofit](http://en.wikipedia.org/wiki/Retrofit%22%20%5Co%20%22Retrofit) these helicopters with locally produced electronics and armor when possible, freeing available funds to allow rapid creation of enough regiments to equip each of its [Group Armies](http://en.wikipedia.org/wiki/Group_Army%22%20%5Co%20%22Group%20Army). Allowing a widespread build up of experience in helicopter operations.

**Attack helicopters**

Main article: [Attack helicopter](http://en.wikipedia.org/wiki/Attack_helicopter%22%20%5Co%20%22Attack%20helicopter)

[Attack helicopters](http://en.wikipedia.org/wiki/Attack_helicopter) are armed helicopters used in the [anti tank](http://en.wikipedia.org/wiki/Anti_tank%22%20%5Cl%20%22Helicopters%22%20%5Co%20%22Anti%20tank) and [close air support](http://en.wikipedia.org/wiki/Close_air_support%22%20%5Co%20%22Close%20air%20support) roles. The first of the modern attack helicopters was the Vietnam era [AH-1 Cobra](http://en.wikipedia.org/wiki/AH-1_Cobra%22%20%5Co%20%22AH-1%20Cobra), which pioneered the now classic format of pilot and weapons officer seated in [tandem](http://en.wikipedia.org/wiki/Tandem%22%20%5Co%20%22Tandem) in a narrow fuselage, chin mounted guns and disposable armament of rockets and missiles mounted on stub wings. To enable them to find and identify their targets, some modern attack helicopters are equipped with very capable sensors such as the Longbow [millimeter wave](http://en.wikipedia.org/wiki/Extremely_high_frequency%22%20%5Co%20%22Extremely%20high%20frequency) radar system used on the [AH-64D Longbow](http://en.wikipedia.org/wiki/AH-64_Apache%22%20%5Co%20%22AH-64%20Apache) and Britain's [WAH-64 Apache](http://en.wikipedia.org/wiki/WAH-64_Apache%22%20%5Co%20%22WAH-64%20Apache).

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| Attack helicopters |
| A Russian [Mi-24P Hind-F](http://en.wikipedia.org/wiki/Mil_Mi-24) large helicopter gunship and low-capacity troop transport at [Naval Air Station](http://en.wikipedia.org/wiki/Naval_Air_Station) [Fallon](http://en.wikipedia.org/wiki/Naval_Air_Station_Fallon) at [Fallon, Nevada](http://en.wikipedia.org/wiki/Fallon%2C_Nevada) (2000). | [Westland WAH-64 Apache Longbow](http://en.wikipedia.org/wiki/Westland_WAH-64_Apache) attack helicopter operated by the [British Army](http://en.wikipedia.org/wiki/British_Army).[[note 1]](http://en.wikipedia.org/wiki/Military_helicopter#cite_note-2#cite_note-2) | [Tiger UHT](http://en.wikipedia.org/wiki/Eurocopter_Tiger) of the [German Army](http://en.wikipedia.org/wiki/German_Army) | [Cobra](http://en.wikipedia.org/wiki/AH-1_Cobra) attack helicopters being refueled at a FARP during [Operation Iraqi Freedom](http://en.wikipedia.org/wiki/Iraq_War) |

**Transport helicopters**

Transport helicopters are helicopters used by militaries with the primary purpose of transporting personnel (troops) and cargo in support of military operations and training. Transport helicopters are also referred to as utility or cargo helicopters. In larger militaries, these helicopters are often purpose-built for military operations, but commercially available aircraft are also used. The benefit of using helicopters for these operations is that personnel and cargo can be moved to and from locations without requiring a runway for takeoffs and landings. Cargo is carried either internally, or externally by sling load where the load is suspended from an attachment point underneath the aircraft. Personnel are primarily loaded and unloaded while the helicopter is on the ground. However, when the terrain restricts even helicopters from landing, personnel may also be picked up and dropped off using specialized devices, such as rescue hoists or special rope lines, while the aircraft hovers overhead.

[Air assault](http://en.wikipedia.org/wiki/Air_assault) is a military mission that relies heavily on the use of transport helicopters for success. An air assault involves a customized assault force that is then assembled on the pick-up zone (PZ) and staged for sequential transport to a landing zone (LZ). The idea is to use the helicopters to transport and land a large number of troops and equipment in a relatively short amount of time, in order to assault and overwhelm an objective near the LZ. The advantage of air assault over an airborne assault is the ability of the helicopters to continually resupply the force during the operation, as well as to transport the personnel and equipment to their previous location, or a follow-on location if the mission dictates.

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| Transport helicopters |
| [Mi-17](http://en.wikipedia.org/wiki/Mi-17) transport of the Kazakhstan government.[[note 2]](http://en.wikipedia.org/wiki/Military_helicopter#cite_note-3#cite_note-3) | an [Israeli](http://en.wikipedia.org/wiki/Israel) [CH-53](http://en.wikipedia.org/wiki/CH-53) uploading a [jeep](http://en.wikipedia.org/wiki/Jeep) | [CH-21C](http://en.wikipedia.org/wiki/Piasecki_H-21) with 105mm [howitzer](http://en.wikipedia.org/wiki/Howitzer) as an under-slung load | [UH-1D](http://en.wikipedia.org/wiki/UH-1_Iroquois) helicopters airlift members of the 2nd Battalion, [U.S. 14th Infantry Regiment](http://en.wikipedia.org/wiki/U.S._14th_Infantry_Regiment) ([U.S. Army](http://en.wikipedia.org/wiki/United_States_Army)), 1966 |

**Observation helicopters**

The first reconnaissance and observation aircraft were balloons, followed by light airplanes, such as the [Taylorcraft L-2](http://en.wikipedia.org/wiki/Taylorcraft_L-2%22%20%5Co%20%22Taylorcraft%20L-2) and [Fieseler Fi 156](http://en.wikipedia.org/wiki/Fieseler_Fi_156%22%20%5Co%20%22Fieseler%20Fi%20156). As the first military helicopters became available, their ability to both maneuver and to remain in one location made them ideal for reconnaissance. Initially observation helicopters were limited to visual observation by the aircrew, and most helicopters featured rounded, well-glazed cockpits for maximum visibility. Over time, the human eye became supplemented by optical sensor systems. Today, these include [low light level television](http://en.wikipedia.org/wiki/Low_light_level_television%22%20%5Co%20%22Low%20light%20level%20television) and [forward looking infrared](http://en.wikipedia.org/wiki/Forward_looking_infrared%22%20%5Co%20%22Forward%20looking%20infrared) cameras. Often, these are mounted in a stabilised mount along with multi-function [lasers](http://en.wikipedia.org/wiki/Laser%22%20%5Co%20%22Laser) capable of acting as [laser rangefinder](http://en.wikipedia.org/wiki/Laser_rangefinder%22%20%5Co%20%22Laser%20rangefinder) and [targeting designators](http://en.wikipedia.org/wiki/Laser_designator%22%20%5Co%20%22Laser%20designator) for weapons systems.

By nature of the mission, the observation helicopter's primary weapons are its sensor suite and communications equipment. Early observation helicopters were effective at calling for artillery fire and [airstrikes](http://en.wikipedia.org/wiki/Airstrike%22%20%5Co%20%22Airstrike). With modern sensor suites, they are also able to provide terminal guidance to ATGWs, laser guided bombs and other missiles and munitions fired by other armed aircraft. Observation helicopters may also be armed with combinations of gun and rocket pods and sometimes [anti-tank guided missiles](http://en.wikipedia.org/wiki/Anti-tank_guided_missile%22%20%5Co%20%22Anti-tank%20guided%20missile) or [air-to-air missiles](http://en.wikipedia.org/wiki/Air-to-air_missile%22%20%5Co%20%22Air-to-air%20missile), but in smaller quantities than larger attack helicopters. Primarily, these weapons were intended for the counter-reconnaissance fight—to eliminate an enemy's reconnaissance assets—but they can also be used to provide limited direct fire support or close air support.

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| Observation helicopters |
| A [Gazelle](http://en.wikipedia.org/wiki/A%C3%A9rospatiale_Gazelle) helicopter of the French [ALAT](http://en.wikipedia.org/wiki/French_Army_Light_Aviation). | An [OH-58 Kiowa](http://en.wikipedia.org/wiki/OH-58_Kiowa) showing its mast mounted sight and a rocket pod. (*OH-58 CM.jpg is missing.*) | The [Kawasaki OH-1](http://en.wikipedia.org/wiki/Kawasaki_OH-1) resembles the U.S. Army's cancelled [RAH-66](http://en.wikipedia.org/wiki/RAH-66_Comanche). |

**Maritime helicopters**

Among the first practical uses of helicopters when the [R4](http://en.wikipedia.org/wiki/Sikorsky_R-4%22%20%5Co%20%22Sikorsky%20R-4) and [R5](http://en.wikipedia.org/wiki/Sikorsky_H-5%22%20%5Co%20%22Sikorsky%20H-5) became available to US and UK forces was deployment from Navy cruisers and battleships, at first supplementing and later replacing catapult launched observation aircraft. Another niche within the capability of the early helicopters was as guard aircraft operating from [aircraft carriers](http://en.wikipedia.org/wiki/Aircraft_carriers%22%20%5Co%20%22Aircraft%20carriers) tasked with the recovery of pilots who had been forced to ditch in the water.

As helicopter technology matured with increased payload and [endurance](http://en.wikipedia.org/wiki/Combat_endurance%22%20%5Co%20%22Combat%20endurance), [anti-submarine warfare](http://en.wikipedia.org/wiki/Anti-submarine_warfare) (ASW) was added to the helicopter's repertoire. Initially, helicopters operated as weapons delivery systems, attacking with air launched [torpedoes](http://en.wikipedia.org/wiki/Torpedo%22%20%5Co%20%22Torpedo) and [depth charges](http://en.wikipedia.org/wiki/Depth_charge%22%20%5Co%20%22Depth%20charge) based on information provided by its parent and other warships. In the 1960s, the development of the [turboshaft](http://en.wikipedia.org/wiki/Turboshaft%22%20%5Co%20%22Turboshaft) engine and [transistor](http://en.wikipedia.org/wiki/Transistor%22%20%5Co%20%22Transistor) technology changed the face of maritime helicopter aviation. The turborshaft engine allowed smaller helicopters, such as the [Westland Wasp](http://en.wikipedia.org/wiki/Westland_Wasp%22%20%5Co%20%22Westland%20Wasp), to operate from smaller vessels than their reciprocating engine predecessors. The introduction of transistors allowed helicopters, such as the [SH-3 Sea King](http://en.wikipedia.org/wiki/SH-3_Sea_King%22%20%5Co%20%22SH-3%20Sea%20King), to be equipped with integral dunking [sonar](http://en.wikipedia.org/wiki/Sonar%22%20%5Co%20%22Sonar), [radar](http://en.wikipedia.org/wiki/Radar) and [magnetic anomaly detection](http://en.wikipedia.org/wiki/Magnetic_anomaly_detector%22%20%5Co%20%22Magnetic%20anomaly%20detector) equipment. The result was aircraft able to more quickly respond to submarine threats to the fleet without waiting for directions from fleet vessels.

Today, maritime helicopters such as the [LAMPS](http://en.wikipedia.org/wiki/Light_airborne_multi-purpose_system%22%20%5Co%20%22Light%20airborne%20multi-purpose%20system) and the [Westland Lynx](http://en.wikipedia.org/wiki/Westland_Lynx%22%20%5Co%20%22Westland%20Lynx) are designed to be operated from [frigates](http://en.wikipedia.org/wiki/Frigate%22%20%5Co%20%22Frigate), [destroyers](http://en.wikipedia.org/wiki/Destroyer) and similar size vessels. The desire to carry and operate two helicopters from frigate- and destroyer-sized vessels has had an impact on the maximum size of the helicopters and the minimum size of the ships. Increasing [miniaturisation](http://en.wikipedia.org/wiki/Miniaturization%22%20%5Co%20%22Miniaturization) of electronics, better engines and modern weapons now allows even the modern, destroyer-based, multi-role helicopters to operate nearly autonomously in the ASW, anti-shipping, transport, [SAR](http://en.wikipedia.org/wiki/Search_and_rescue%22%20%5Co%20%22Search%20and%20rescue) and [reconnaissance](http://en.wikipedia.org/wiki/Reconnaissance%22%20%5Co%20%22Reconnaissance) roles.

Medium- and large-sized helicopters are operated from carriers and land bases. In the British, Spanish, and Italian navies, the larger helicopters form the main anti-submarine strength of carrier air wings. When operating from shore bases, the helicopters are used as antisubmarine pickets to protect against hostile submarines loitering outside military ports and harbours; their endurance and payload providing advantages over smaller helicopters.

Soviet maritime helicopters, operating from its cruisers, had the additional role as guidance and mid-course update aircraft to exploit the full range of the cruisers' long range anti-shipping missiles.

Maritime helicopters are [marinised](http://en.wikipedia.org/wiki/Marinised%22%20%5Co%20%22Marinised) for operation from ships, this includes enhanced protection against salt water corrosion, protection against ingestion of water (including that from hosing down with fresh water to get rid of salt water), the tuning of the electronics fitted to be compatible with the complex electronic equipment of a warship and provision for forced ditching at sea.

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| Maritime helicopters |
| [Royal Navy](http://en.wikipedia.org/wiki/Royal_Navy) [AgustaWestland EH101 Merlin](http://en.wikipedia.org/wiki/AgustaWestland_EH101) [anti-submarine warfare](http://en.wikipedia.org/wiki/Anti-submarine_warfare) & medium-lift transport / [utility helicopter](http://en.wikipedia.org/wiki/Utility_helicopter). | A [LAMPS](http://en.wikipedia.org/wiki/Light_airborne_multi-purpose_system) [SH-60B Seahawk](http://en.wikipedia.org/wiki/SH-60_Seahawk) 2 helicopter. | [Polish Navy](http://en.wikipedia.org/wiki/Polish_Navy)'s [Mil Mi-14](http://en.wikipedia.org/wiki/Mil_Mi-14)PŁ on display at [Radom Air Show](http://en.wikipedia.org/wiki/Radom_Air_Show) 2005 | Russian [Kamov Ka-27](http://en.wikipedia.org/wiki/Kamov_Ka-27) shipborne helicopters, showing its unique contra-rotating rotor system, and bulbous radar radome. |

**Multi-mission and rescue**

As helicopters came into military service, they were quickly pressed into service for [search and rescue](http://en.wikipedia.org/wiki/Search_and_rescue%22%20%5Co%20%22Search%20and%20rescue)[[note 3]](http://en.wikipedia.org/wiki/Military_helicopter#cite_note-8#cite_note-8) and [medical evacuation](http://en.wikipedia.org/wiki/MEDEVAC%22%20%5Co%20%22MEDEVAC). During World War II, [Sikorsky R-4s](http://en.wikipedia.org/wiki/Sikorsky_R-4%22%20%5Co%20%22Sikorsky%20R-4) were used by the United States to rescue downed aircrews and injured personnel in remote areas of the [China Burma India Theater](http://en.wikipedia.org/wiki/China_Burma_India_Theater_of_World_War_II%22%20%5Co%20%22China%20Burma%20India%20Theater%20of%20World%20War%20II), from April 1944 until the war's end. The use of helicopters for rescue during combat increased during the [Korean War](http://en.wikipedia.org/wiki/Korean_War%22%20%5Co%20%22Korean%20War) and the [Algerian War](http://en.wikipedia.org/wiki/Algerian_War%22%20%5Co%20%22Algerian%20War). In the [Vietnam war](http://en.wikipedia.org/wiki/Vietnam_war%22%20%5Co%20%22Vietnam%20war) the [USAF](http://en.wikipedia.org/wiki/USAF%22%20%5Co%20%22USAF) acquired [Sikorsky S-61R](http://en.wikipedia.org/wiki/Sikorsky_S-61R%22%20%5Co%20%22Sikorsky%20S-61R) (Jolly Green Giant) and [CH-53 Sea Stallion](http://en.wikipedia.org/wiki/CH-53_Sea_Stallion%22%20%5Co%20%22CH-53%20Sea%20Stallion) (Super Jolly Green Giant) helicopters for the CSAR mission.

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| Multimission and Rescue helicopters |
| [Bell 47](http://en.wikipedia.org/wiki/Bell_47) with patient transfer panniers. | [Fast-roping](http://en.wikipedia.org/wiki/Fast-roping) at a [Combat Search and Rescue](http://en.wikipedia.org/wiki/Combat_Search_and_Rescue) action, featuring a [HH-60G Pave Hawk](http://en.wikipedia.org/wiki/HH-60G_Pave_Hawk). | Patient transfer unit for the [German Army Aviation Corps](http://en.wikipedia.org/wiki/Army_Aviation_Corps_%28Germany%29) CH 53Gs. |

**Training helicopters**

Some services use a version of their operational helicopters, usually in the light class, for pilot training. For example, the British use the [Aérospatiale Gazelle](http://en.wikipedia.org/wiki/A%C3%A9rospatiale_Gazelle) both in operations and as a trainer. Some services also have an [Ab initio](http://en.wikipedia.org/wiki/Ab_initio) phase in training that uses very basic helicopters. The [Mexican Navy](http://en.wikipedia.org/wiki/Mexican_Navy) has acquired a number of the commercially available [Robinson R22](http://en.wikipedia.org/wiki/Robinson_R22) and [R44](http://en.wikipedia.org/wiki/Robinson_R44) helicopters for this purpose.

**Tactics and operations**

First generation Alouette anti-tank helicopter of the [German Army](http://en.wikipedia.org/wiki/German_Army) armed with [SS.10](http://en.wikipedia.org/wiki/SS.10) missiles

An OH-58 and an AH-1 of the 19th Air Cavalry Hawaii [ARNG](http://en.wikipedia.org/wiki/Army_National_Guard), such a combination would have formed hunter-killer team during the [Cold War](http://en.wikipedia.org/wiki/Cold_War)).

While not essential to combat operations, helicopters give a substantial advantage to their operators by being a [force multiplier](http://en.wikipedia.org/wiki/Force_multiplier). To maximise their impact, helicopters are utilised in a [combined arms](http://en.wikipedia.org/wiki/Combined_arms) approach.

**High intensity warfare**

High-intensity warfare is characterized by large arrays of conventional armed forces, including mass formations of [tanks](http://en.wikipedia.org/wiki/Tank), with significant air defenses. Helicopter armament and tactics were changed to account for a less-permissive flight environment. [Anti-tank missiles](http://en.wikipedia.org/wiki/Anti-tank_missile), such as the [Nord SS.11](http://en.wikipedia.org/wiki/Nord_SS.11) and the [Aerospatiale SS.12/AS.12](http://en.wikipedia.org/wiki/Aerospatiale_SS.12/AS.12) were developed and mounted on French military helicopters. In turn, the United States adapted its [BGM-71 TOW](http://en.wikipedia.org/wiki/BGM-71_TOW) for firing from helicopters and eventually developed the [AGM-114 Hellfire](http://en.wikipedia.org/wiki/AGM-114_Hellfire). Meanwhile, the Soviet Union adapted the [3M11 Falanga](http://en.wikipedia.org/wiki/3M11_Falanga) missile for firing from the [Mil Mi-24](http://en.wikipedia.org/wiki/Mil_Mi-24).

In the air, attack helicopters armed with anti-tank missiles, and one or more unarmed, or lightly armed scout helicopters operate in concert. The scout helicopter, flying at low level in a [nap-of-the-earth](http://en.wikipedia.org/wiki/Nap-of-the-earth) approach, attempts to both locate the enemy armoured columns and to map out approaches and ambush positions for the attack helicopters. Late-model scout helicopters include laser designators to guide missiles fired from the attack helicopters. After finding a target, the scout helicopter can locate it and then direct the attack helicopter's missile where to fire. The attack helicopters have only to rise from cover briefly to fire their missiles before returning to a concealed location. Late-development of attack helicopters, such as the [Mil Mi-28](http://en.wikipedia.org/wiki/Mil_Mi-28)N, the [Kamov Ka-52](http://en.wikipedia.org/wiki/Kamov_Ka-52), and the [AH-64D Longbow](http://en.wikipedia.org/wiki/AH-64_Apache#AH-64D), incorporate sensors and command and control systems to relieve the requirement for scout helicopters.

To enhance the [combat endurance](http://en.wikipedia.org/wiki/Combat_endurance) of these missile-armed helicopters, transport helicopters were used to carry technicians, reloads and fuel to forward locations. Establishing these forward arming and refuel points (FARP) at pre-arranged locations and times allowed armed or attack helicopters to re-arm and refuel, often with their engines running and the rotors still turning, and to quickly return to the front lines.

**Low intensity warfare**

An [Iraqi](http://en.wikipedia.org/wiki/Iraq) unit prepares to board a [US](http://en.wikipedia.org/wiki/US) [Blackhawk](http://en.wikipedia.org/wiki/UH-60_Black_Hawk) for a [COIN operation](http://en.wikipedia.org/wiki/Counter-insurgency)

Main article: [Counter-insurgency](http://en.wikipedia.org/wiki/Counter-insurgency)

In counter-insurgency (COIN) warfare, the government force establishes its presence in permanent or temporary military bases from which to mount patrols and convoys. The government forces seek to deter the insurgent forces from operating, and to capture or kill those that do. The operation of forces from fixed bases linked by a fixed network of roads becomes a weakness. Emplaced insurgents and local sympathisers may observe such facilities covertly and gather intelligence on the schedules and routes of patrols and convoys. With this intelligence the insurgents can time their operations to avoid the COIN forces or plan ambushes to engage them, depending on their own tactical situation.

Helicopters return a measure of surprise and tactical flexibility to the COIN commander. Patrols need not start and end in the same place (the main entrance of the local compound), nor do supply convoys need follow the same roads and highways. During [the Troubles](http://en.wikipedia.org/wiki/The_Troubles), the [Provisional Irish Republican Army](http://en.wikipedia.org/wiki/Provisional_Irish_Republican_Army) (IRA) became adept at avoiding conventional, fixed roadblocks and patrols. To prevent predictable patterns, the patrols were deployed by helicopter, known as Eagle Patrols, and were then able to disrupt the IRA's ability to move personnel and arms. In the [aftermath](http://en.wikipedia.org/wiki/Post-invasion_Iraq%2C_2003%E2%80%93present) of the [American invasion of Iraq](http://en.wikipedia.org/wiki/2003_invasion_of_Iraq) helicopters have been used as aerial supply trucks and troop transports to prevent exposure to ambushes set by the [Iraqi insurgency](http://en.wikipedia.org/wiki/Iraqi_insurgency).

Due to the cost and complexity of training and support requirements, insurgent forces rarely have access to helicopters.

**Manufacturers**

A USAF [HH-60 Pave Hawk](http://en.wikipedia.org/wiki/HH-60_Pave_Hawk) is [aerial refueled](http://en.wikipedia.org/wiki/Aerial_refueling) from a [HC-130P](http://en.wikipedia.org/wiki/HC-130P)

A [Royal Danish Navy](http://en.wikipedia.org/wiki/Royal_Danish_Navy) [Lynx](http://en.wikipedia.org/wiki/Westland_Lynx) performing [in-flight refueling](http://en.wikipedia.org/wiki/HIFR) from a [Danish patrol vessel](http://en.wikipedia.org/wiki/Thetis_class_ocean_patrol_vessel). This procedure allows the helicopter to stay airborne while refueling.

It is useful to think of helicopter manufacturers as falling into two categories, those that can design, certify and manufacture new helicopter designs from scratch and those that can only manufacture extant designs under license. [Boeing Vertol](http://en.wikipedia.org/wiki/Boeing_Vertol) is an example of the first type and [Kawasaki Heavy Industries](http://en.wikipedia.org/wiki/Kawasaki_Heavy_Industries), who license-produced Boeing Vertol designs for much of its recent history, is an example of the second type.

The [peace dividend](http://en.wikipedia.org/wiki/Peace_dividend) at the end of the [Cold War](http://en.wikipedia.org/wiki/Cold_War) and the increased cost of developing new helicopters has seen a [consolidation](http://en.wikipedia.org/wiki/Consolidation_%28business%29) of arms manufacturers, and helicopter manufacturers are no exception, with even great names such as [Aerospatiale](http://en.wikipedia.org/wiki/Aerospatiale) disappearing. With too many manufacturers chasing the same contracts, and the removal of government subsidies, it was impossible for individual manufacturers to absorb the costs of bringing a design to maturity that subsequently failed commercially. For example the [AgustaWestland EH101](http://en.wikipedia.org/wiki/AgustaWestland_EH101), which will be a mainstay of the newly merged [AgustaWestland](http://en.wikipedia.org/wiki/AgustaWestland) company for the foreseeable future, had, and to an extent still has, the ability to break its parents. Although sales of the design are growing, there is still the danger that not enough helicopters will be sold to be able to maintain the teams needed for the continuous development of the design to keep it competitive over the next twenty to thirty years, and to eventually develop its replacement. The sporadic nature of defense procurement is also unattractive to companies wishing to maintain a constant income stream. While the upkeep of a work force and industrial infrastructure is expensive without a full work load, companies that have reduced capacity have lost work for fear that they would not be able to meet production targets.

Consolidation is seen as a way of both limiting the number of competing designs and increasing the financial strength of companies. However, helicopter manufacturing is seen as a strategic industry, and some governments have sought to protect their national champions from the marketplace. Even when consolidation is inevitable, governments and politicians have sought to play matchmaker, as seen in the [Westland affair](http://en.wikipedia.org/wiki/Westland_affair). In the United States, in addition to the concern of maintaining national champions, there is also the fear of a loss of competition in the domestic market, creating a situation where designs and prices become uncompetitive. Increasing competition by considering foreign designs is something the US government is especially loathe to do. The selection of a foreign helicopter for the new [Presidential helicopter](http://en.wikipedia.org/wiki/Marine_One) being seen by some as unpatriotic. This is a problem facing the US defence industry as a whole. There is the very real possibility that defence contractors with failing bids will leave segments of the industry for good, leaving an ever smaller pool of qualified contractors. One possible solution would be to use a system similar to the [OKBs](http://en.wikipedia.org/wiki/OKB) of the Soviet Union, where bidding companies whose designs were not chosen would be allowed to bid as subcontractors on the winning design.

The major Western European helicopter [manufacturers](http://en.wikipedia.org/wiki/Manufacturer) are now [AgustaWestland](http://en.wikipedia.org/wiki/AgustaWestland) and [Eurocopter Group](http://en.wikipedia.org/wiki/Eurocopter_Group). In America, the three large remaining companies are [Boeing](http://en.wikipedia.org/wiki/Boeing) ([Boeing Vertol](http://en.wikipedia.org/wiki/Boeing_Vertol) and [McDonnell Douglas](http://en.wikipedia.org/wiki/McDonnell_Douglas)), [Bell Helicopter](http://en.wikipedia.org/wiki/Bell_Helicopter) and [Sikorsky Aircraft](http://en.wikipedia.org/wiki/Sikorsky_Aircraft).

In Japan the three main manufacturers of helicopters are the aviation arms of the [Japanese conglomerates](http://en.wikipedia.org/wiki/Keiretsu) [Mitsubishi](http://en.wikipedia.org/wiki/Mitsubishi_Heavy_Industries), [Kawasaki](http://en.wikipedia.org/wiki/Kawasaki_Aerospace_Company) and [Fuji Heavy Industries](http://en.wikipedia.org/wiki/Fuji_Heavy_Industries). These companies initially followed a business model based on forming [strategic partnerships](http://en.wikipedia.org/wiki/Strategic_partnership) with foreign, usually american, companies with the [license production](http://en.wikipedia.org/w/index.php?title=License_production&action=edit&redlink=1) of those companies products, whilst building up their own ability to design and manufacture helicopters through a process of workshare and technology transfer. Though initially loose these partnerships settled down to the pairing of Mitsubishi with Sikorsky, Kawasaki with Boeing, and Fuji with Bell. With the experience they have built up as licensees and sub-contractors the Japanese companies are beginning to produce and offer their own products.

A 2006 re-organisation of the helicopter industry in Russia created [Oboronprom](http://en.wikipedia.org/wiki/Oboronprom), a holding company to bring together [Mil](http://en.wikipedia.org/wiki/Mil_Moscow_Helicopter_Plant) and Manufacturing Plants. In the Soviet-[planned economic](http://en.wikipedia.org/wiki/Command_economy) system, the Mil and [Kamov](http://en.wikipedia.org/wiki/Kamov) [OKB](http://en.wikipedia.org/wiki/OKB)'s were responsible only for the design of helicopters. After a winning design had been chosen it was assigned to large manufacturing complexes responsible only for production. For example, both the [Ulan-Ude Aviation Plant](http://en.wikipedia.org/wiki/Ulan-Ude_Aviation_Plant) and the [Kazan Helicopter Plant](http://en.wikipedia.org/wiki/Kazan_Helicopter_Plant) were responsible for the production of helicopters derived from the Mil Mi-8 family. The products of these factories were then exported through state export corporations, the predecessors of the present [Rosoboronexport](http://en.wikipedia.org/wiki/Rosoboronexport). With the [dissolution of the Soviet Union](http://en.wikipedia.org/wiki/Dissolution_of_the_USSR) and the break up of the [Soviet Empire](http://en.wikipedia.org/wiki/Soviet_Empire), the helicopter industry in Russia became fragmented. For example, PZL, in the former Soviet satellite state of Poland, was tasked with the production of light helicopters. As a result, there was no production of light helicopters in Russia and the Mil Mi-8 family of helicopters was used for tasks which in the West would have been carried out by much smaller [OH-58 Kiowa](http://en.wikipedia.org/wiki/OH-58_Kiowa)-sized helicopters. Although light helicopter designs had been produced by Mil and Kamov, there was no longer a system by which the manufacturing complexes could be forced to retool to produce these designs. There was also a damaging conflict of interest between the manufacturing complexes and [Rosoboronexport](http://en.wikipedia.org/wiki/Rosoboronexport), with both [Ulan-Ude Aviation Plant](http://en.wikipedia.org/wiki/Ulan-Ude_Aviation_Plant) and [Kazan Helicopter Plant](http://en.wikipedia.org/wiki/Kazan_Helicopter_Plant) competing to undercut official [Rosoboronexport](http://en.wikipedia.org/wiki/Rosoboronexport) prices, by exporting helicopters destined for military users as civilian in purpose.

**See also**

* [Air assault](http://en.wikipedia.org/wiki/Air_assault)
* [Armed helicopter](http://en.wikipedia.org/wiki/Armed_helicopter)
* [Army aviation](http://en.wikipedia.org/wiki/Army_aviation)
* [Helicopter bombing](http://en.wikipedia.org/wiki/Helicopter_bombing)
* [List of active United States military helicopters](http://en.wikipedia.org/w/index.php?title=List_of_active_United_States_military_helicopters&action=edit&redlink=1)

**Notes**

1. [**^**](http://en.wikipedia.org/wiki/Military_helicopter#cite_ref-2#cite_ref-2) The [AH-64 Apache](http://en.wikipedia.org/wiki/AH-64_Apache) is an exercise in survivability, the engines are in armoured boxes either side of the transmission, the fuselage and undercarriage form a [crumple zone](http://en.wikipedia.org/wiki/Crumple_zone), and made of five armoured spars each, the rotors are capable of withstanding 23mm auto-cannon fire. [PBS:AH-64A Apache](http://www.pbs.org/wgbh/pages/frontline/gulf/weapons/apache.html)
2. [**^**](http://en.wikipedia.org/wiki/Military_helicopter#cite_ref-3#cite_ref-3) Some members of the Mil Mi-8 family carry a substantial load of armament as well as carrying troops.
3. [**^**](http://en.wikipedia.org/wiki/Military_helicopter#cite_ref-8#cite_ref-8) Search and rescue is sometimes referred to as *SAR*. Search and rescue during combat is referred to by NATO countries as *CSAR* and is a specialized personnel recovery mission.

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