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## **BLACKHAWK TOWARDS A MYTH**

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There is no one who does not know about the success of the Bell UH-1, because this legendary helicopter is well known of the Vietnam war and by that time it came in all our living-rooms by television. In spite of all, this helicopter did need a successor, and success over success is not quite an easy job. Now, decades later, we see that Sikorsky found this road and became the rightful winner of the U.S. Army Utility Tactical Transport Aircraft System (UTTAS) competition in 1976 with its S-70 Blackhawk.

### **WELL THOUGHT OUT**

Outside the U.S. armed forces, the helicopter is immensely popular all over the world by air, naval and ground forces, as a VIP, transport, as a rescue helicopter or just for civilian purposes. In 1979 the first version came out in the U.S. Army as a UH-60A. The Blackhawk was designed with special requirements owes his success to it. This involved, among other things, two engines, sturdy landing gear under the fuselage, reliability, low maintenance cost, good performance at high altitude in desert climate (hot and high), a kind of cage construction with protection for the seats with survival in crashes, as well as a much as possible crash-resistant fuel system to minimize fire. Other requirements were a robust rotor system, or as quiet as possible, modular design with space for more avionics stable flight characteristics and a configuration that allowed transport in a C-130 Hercules aircraft. The UH-60A became the standard utility helicopter of the U.S. Army. There were several versions for specific purposes and improved versions. The naval variant was baptised the SH-60B Seahawk and is equipped with stronger engines and gearbox, and a modern Automatic Flight Control System (AFCS) which both in 1989 were taken over in the new UH-60L Army version, and a large order was placed. They were so pleased that many previous UH-60A here were converted to UH-60L. This potent helicopter saw combat action in places like Grenada, Panama, Iraq, Somalia, the Balkans and Afghanistan.

### **MANY VERSIONS**

Most helicopters are used to move troops through the air and to carry supplies to command and control, medical evacuation and armed versions can attack of course from the air. There may be 11 heavily armed soldiers along, under the fuselage a sling can carry a 105mm Howitzer can be transported included 30 shells in the cabin. Armed versions have a sort of 'stubwing' which is called External Stores Support System (ESSS), it can carry missiles and/or extra fuel tanks for long distance flights. Special versions of the EH-60A and B for Electronic Counter Measures (ECM) duties as eavesdropping and spying, and one other more famous example is the MH-60G all weather Pavehawk operating with an all-weather radar, capable of refuelling air-to-air and able to be used at special operations for example behind enemy lines (repatriation of soldiers in Kuwait and Iraq). There is also the MH-60K Warhawk which is heavily armed. Another well-known version is the UH-60Q medical variant with a crew of three, a care system for six patients, own oxygen supply, cardiac monitoring equipment and supporting staff. This unit has flown for many years in the U.S. Army in Germany and is recognizable by the red cross on the fuselage. The SH-60B Seahawk helicopter became the standard of the U.S. Navy with a complete kit including the LAMPS-III anti-submarine system, MAD, sonobuoys and AGM-119 Penguin missiles against surface ships. The SH-60B itself was succeeded by improved versions such as SH-60F Ocean Hawk. The U.S. Coast Guard employs the HH-60J Jayhawk. A new version, the MH-60R that

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first as SH-60R Strike Hawk has been appointed and is a multi-mission maritime helicopter that can perform naval and tactical tasks from frigates to aircraft carriers and is armed with AGM-114 hellfire missiles. In 2009 a new military version was also brought back into production, the UH-60M with improved avionics, such as Integrated Vehicle Management Systems and rotor blades and more power which can replace the oldest military variants so they can join until well after 2020. developments enough therefor, UH-60M and MH-60R received large orders for defense of the U.S.

## **WORLDWIDE INTEREST**

Export versions are mostly based on the UH-60L & M and the SH-60B & F, MH-60R or hybrid versions. Marine versions were exported to Australia, Japan, Greece, Spain, Thailand and Turkey. The military version was purchased by South Korea, Colombia, Israel, Mexico, Taiwan, Turkey, Austria, Brazil, Jordan, Brunei, Morocco, Philippines, Australia, Egypt, Argentina, Bahrain, Chile, Hong Congo, Audi Arabia. Recent orders for the UH-60M for example, came from Sweden, Denmark and the UAE as India, Indonesia and Qatar showed interest. Finally, the People's Republic of China ordered 20 S70C-2 civilian versions and was impressed by the performance at high altitude they took it in own production but with a five-blade rotor instead of four-leaf. The S70-I is the latest version in the Blackhawk family, a multi-mission machine which attracts an international audience, and can be configured as desired. This can be used as an attack helicopter for troop transport, command and control, border control, search and rescue, and cargo and VIP transport.

## **PZL MIELEC POLAND**

Sikorsky has an assembly plant in Poland at Polski Zaklady Lotnicze (PZL) where the S70-i is made for export. PZL is a subsidiary plant of Sikorsky, wh currently good business can be done. In early December 2013, the first four S-70i Black Hawks were transferred by PZL Mielec in the contract concluded in 2011, to the Minister of Defence and the Sultan of Brunei. Several representatives of the Polish government as well as the "President of the board" of PZL were present. Perhaps it is surprising that the Blackhawk has "suddenly" become a product from Poland, but the Polish company gained an outstanding position in the international market and also supplied all helicopters for Saudi Arabia, Mexico and Colombia, and also negotiations take place now for the delivery indoors to the Polish army. The S-70i Black Hawks are already built and tested at PZL since 2010 and more than 27 pieces now already left the brandnew assembly line. Helicopters from out of the whole 'Hawk family' are now operational in 28 countries around the world and over 4000 were built, generating a statistic now of more than nine million flying hours, of which about a million hours under crisis conditions as in Iraq and Afghanistan.

The helicopters from the whole 'Hawk family' are now operational in 28 countries around the world and there are built over 4000 examples. This generates a statistic now more than nine million flying hours of which about a million hours under crisis conditions, such as in Iraq and Afghanistan. Daarmee heeft de Blackhawk een status van 'alive and kicking' verworven. Thus, the Blackhawk acquired a status of "alive and kicking".

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**Kees Otten, Wim Das and Koos Heemskerk**

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GENERAL DATA / TECHNICAL SPECIFICATIONS BLACKHAWK:

Medium Heavy transport helicopter in different variants.

(Various data can vary considerably because of the variety in types)

Crew	2 pilots, 1 mechanic, 1 loadmaster/gunner
First flight	1978
In service since	1979
Length	19,76 mtr. zonder rotorbladen
Height	5,13 mtr.
Fuselage width	2,36 meter
Rotor diameter	16,36 mtr.
Empty weight	4819 kg.
Maximum weight	9979 kg.
Hardpoints	4 (2 by ESSS stubwings)
Range	584 km. With ESSS stubwings and ext. fuel tanks 2220 Km
Powerplant	2x general Electric T700-GE 701C (of D) Turboshaft
Rotorblades	4 main rotorblades and 4 tail rotorblades composite material
Power	2974 Kw.
Ceiling	8000 mtr.
Cruise speed	280 km/uur
Maximum speed	357 km/uur
Duty	Transport troops and cargo, other variants
Troop transport	11 fully packed, maximum 12
Refuelling capacity	Only certain types
External capacity	Sling (f.i. Bambi bucket firefighting or Howitzer weapon)
Engines	2x general Electric T700-GE 701C (of D) Turboshaft
Rotorblades	4 main blades and 4 tail-rotorblades of composite material
Power	2974 Kw.
Ceiling	8000 mtr.
Vruse speed	280 km/hr
Max. speed	357 km/hr
Duty	Transport of troops and cargo
Troop transport	11 fully packed max. 12.
Refuelling capacity	Only certain types
External capacity	Sling (f.i. bambi bucket fire fighting)

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