Small Categories Series

Helicopters

The earliest references for vertical flight have come from China. Since around 400 BC, In 1906, two French brothers, Jacques and Louis Breguet, began experimenting with airfoils for helicopters. In 1907, those experiments resulted in the Gyroplane No.1, possibly as the earliest known example of a quadcopter. Although there is some uncertainty about the date, sometime between 14 August and 29 September 1907, the Gyroplane No. 1 lifted its pilot into the air about two feet for a minute. The Gyroplane No. 1 proved to be extremely unsteady and required a man at each corner of the airframe to hold it steady. For this reason, the flights of the Gyroplane No. 1 are considered to be the first manned flight of a helicopter, but not a free or untethered flight.

Arthur M. Young, American inventor, started work on model helicopters in 1928 using converted electric hover motors to drive the rotor head. Young invented the stabilizer bar and patented it shortly after. A mutual friend introduced Young to Lawrence Dale, who once seeing his work asked him to join the Bell Aircraft company. When Young arrived at Bell he signed his patent over and began work on the helicopter. His budget was US $250,000 to build 2 working helicopters. In just 6 months they completed the first Bell Model 1, which spawned the Bell 30, later succeeded by the Bell 47.

Nicolas Florine, a Russian engineer, built the first twin tandem rotor machine to perform a free flight. It flew in Sint-Genesius-Rode, in April 1933, and attained an altitude of 20 ft and an endurance of eight minutes. It was one of the most stable helicopters in existence.

In 1951, at the urging of his contacts at the Department of the Navy, Charles Kaman modified his K-225 synchropter — a design for a twin-rotor helicopter concept first pioneered by Anton Flettner in 1939, with the aforementioned Fl 265 piston-engined design in Germany — with a new kind of engine, the turboshaft engine. This adaptation of the turbine engine provided a large amount of power to Kaman's helicopter with a lower weight penalty than piston engines, with their heavy engine blocks and auxiliary components. On 11 December 1951, the Kaman K-225 became the first turbine-powered helicopter in the world. Two years later, on 26 March 1954, a modified Navy HTK-1, another Kaman helicopter, became the first twin-turbine helicopter to fly. However, it was the Sud Aviation Alouette II that would become the first helicopter to be produced with a turbine-engine.

Reliable helicopters capable of stable hover flight were developed decades after fixed-wing aircraft. This is largely due to higher engine power density requirements than fixed-wing aircraft. Improvements in fuels and engines during the first half of the 20th century were a critical factor in helicopter development. The availability of lightweight turboshaft engines in the second half of the 20th century led to the development of larger, faster, and higher-performance helicopters. While smaller and less expensive helicopters still use piston engines, turboshaft engines are the preferred powerplant for helicopters today. *[http://en.wikipedia.org/wiki/Helicopter]*