UTAH HELICOPTER

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HELICOPTER HISTORY

The Chinese ~

The first concept of rotary-wing aviation came from the Chinese in the Fourth Century A.D. (Fay 125-126). A book called "Pao Phu Tau" tells of the "Master" describing flying cars with wood from the inner part of the jujube tree with ox-leather straps fastened to returning blades as to set the machine in motion "Joseph Needham, the author of Science and Civilization, also suggests that although this was no more than a design for a toy, it is indeed the first recorded pattern of what we might understand as a helicopter" (Sadler 1). The concept of rotary-wing aviation had unquestionably been found, but the technology needed to create a helicopter had not been produced.

Leonardo Da Vinci ~

Although, Leonardo Da Vinci's vaunted spiral design created in 1490, called the Helical Air Screw, has often been cited as the first serious attempt to produce a working helicopter (Sadler 1). Da Vinci himself quoted on the device: "...I have discovered that a screw-shaped device such as this, if it is well made from starched linen, will rise in the air if turned quickly..." (History of Helicopters 1). However, this was only an experimental design and was never put into practical use. "Da Vinci was in this instance no more than an experimental engineer, putting onto paper age-old principles" (Sadler 1). Without adequate technology the ability to create such machines was virtually impossible during this time.

Fifteenth through the Twentieth Centuries ~

A wide amount of minor inventions contributed to the advancement of the helicopter. Between the Fifteenth and Twentieth Centuries, adequate machinery needed to produce helicopters, like turbine engines and rotors, was not yet made possible by assembly lines, but as the Industrial Revolution prompted factories and technology accelerated, the helicopter evolved. One of the first breakthroughs in helicopter advancement was by George Cayley who produced a converti-plane in 1843 (Sadler 1). A man named Bourne flew the helicopter-like aircraft a year later. This model was apparently powered by spring-like contraptions inside (Fay 127). All helicopter models at this time lacked suitable power to achieve flight and were both bulky and heavy.

Sikorsky's Advancements ~

The success in the field of rotary-wing aviation was due almost entirely to a man living in America named Igor Sikorsky. Sikorsky was a Russian who had fled from the Bolshevik Revolution in 1917 to France (Sadler 2). After years of private development, he encouraged the United States Government to agree to a considerable budget of two million dollars for rotary-wing research in 1938 (Sadler 2). The government ended up choosing a joint Sikorsky-Vought effort to be funded, and the project evolved into the VS-300 model helicopter. It formed the most tangible link between the early design concept of rotary-wing aviation and the practical aircraft that is capable of military operation (Sadler 2). The machine was indeed quite different from earlier models. It was an incredible advancement in helicopters, but others soon followed.

The Turbine Engine's Impact ~

The creation of the turbine engine advanced the helicopter's capabilities even further. With assembly lines brought about by the Industrial Revolution, these engines could be produced with high efficiency and increased precision. The world's first turbine gas-powered engine was the Kaman K-225 (History of Helicopters 3). Mc Donnell made the first successful helicopter with horizontal winged flight from a vertical rotor powered by the turbine engine (History of Helicopers 3). He continued to create newer models in the proceeding decades.

Ref:

"History of Helicopters." Infoseek. Internet. 1 Sept, 2009, Available: http://www.helis.com

September Birthdays!

Joe Dominguez 9/7

Alex Waldron 9/9

Mindy Braithwaite 9/20

Eric Marsing 9/21

Craig Ericson 9/22

Rich Frerichs 9/26

Upcoming Events!

September 7-12th

Eastern Idaho State fair 9/5-9/12

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Chris Sasser
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Eli Hobbs
Solo
Tracy Kofoed
Solo

U42 Spotlight:

Mindy Braithwaite came to UTH in September of 2007. She is currently studying at our West Jordan location. After spending time at University of Utah, Mindy discovered that she wanted to learn how to fly. "To me, flying is….living the dream." This U42 student is not married but keeps very busy with her 3 nephews that sometimes feel like hers.

She loves animals and owns a variety of them. 4 cats, a bird, turtle, and a Chinchilla. Her favorite maneuver to perform is a 180 auto and her dream job would be to become a part of the Search and Rescue team. Mindy is a football fan. So the next time you see her, ask her who she likes the most.

One of the many accomplishments that stand out for her is passing an auto during her private pilot check-ride. Although she openly admits that, "each check-ride is an accomplishment."

When she does have spare time, Mindy likes to watch movies and TV shows. "I Love Lucy and Alias" are her favorites. She often feels that the glass is half-full instead of being half-empty. Heroes come in all shapes and sizes. Mindy puts it fairly simple; "My heroes are those people in my life who don't just talk about their plans and dreams, but are actually willing to put in the work to achieve what they want to accomplish."

She enjoys her time being outdoors, which includes hiking or unicycling. She also likes musical theatre and modern dance.

Mindy has been with Utah Helicopter for almost 2 years and we know that she will continue to excel and discover her dreams in the industry.

Jason's Jabber

WAAS... what is that?
The Wide Area Augmentation System (WAAS) is a navigation system composed of satellites and ground stations that improve the quality of the Global Positioning System (GPS). With WAAS on board the aircraft, pilots are authorized to fly throughout the United States under instrument flight rules (IFR) without reliance on ground-based navigation aids. Capable of supporting all phases of flight including precision instrument approaches, WAAS is a cost-effective navigation system that general aviation pilots can use to improve safety as well as increased access to airports in all weather conditions.

The Federal Aviation Administration (FAA) began developing WAAS in 1995. A 1998 study by Johns Hopkins University Applied Physics Laboratory concluded that WAAS would allow pilots to rely on GPS as a sole means of navigation. Also, an independent review board administered by the Institute for Defense Analyses concluded in a January 2001 study that WAAS is both aviation and other users. The FAA authorized pilots to use WAAS for IFR operations in July 2003. In September 2003, the first WAAS approaches were published with minimums as low as 250 feet above the airport.

How does WAAS work? There are 24 GPS receivers throughout the United States, all networked into the WAAS system. The extremely accurate receivers evaluate the quality of the GPS signal and pass that information on to two master stations. They receive the information and determine what differential GPS information is needed to improve the quality of GPS to precision navigation quality. The master stations then transmit the correction data through a ground transmitter up to geostationary satellites that "hover" over the United States. These satellites broadcast the GPS correction signal, which is received by a WAAS-capable satellite navigation receiver. The WAAS receiver uses the WAAS signal to calculate the improved accuracy and integrity information, ultimately improving its known GPS position. Simultaneously, the receiver uses WAAS to ensure that the pilot will not be receiving false or misleading navigation information.

The benefits of WAAS and its precision approach capability will give the pilot increased access to more airports in bad weather conditions. The FAA is publishing WAAS LPV (lateral precision with vertical guidance) approaches to general aviation airports. They are frequently providing minimums of less than 300 feet and 3/4 mile. The LPV approaches provide unprecedented access to general aviation airports, at a fraction of the cost of traditional instrument landing system (ILS) approaches.

WAAS also supports "pseudo glideslope" capabilities to every runway served by a non precision GPS approach. The WAAS avionics system generates a virtual glidepath that the aircrafts navigation system presents to the pilot. The pilot follows the glidepath, reducing workload and eliminating the to level off at intermediate step-down points along the final approach. There are over 3,000 straight-in GPS and RNAV (GPS) approaches published with straight-in minimums. (www.aopa.com, 2009).