



# Sikorsky Archives News

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## The Advanced Aircraft Design Technology Utilized at Sikorsky Has Been The Foundation for Developing The World Class Helicopters of Today

This issue of the newsletter is devoted to the aircraft designs and paintings by Andy Whyte, who had a 40 year career at Sikorsky Aircraft, joining in 1952 and retiring in 1992. The majority of this time was as a senior preliminary design engineer in the Advanced Design department. He was involved with the creation of all of Sikorsky's production aircraft over these years. He also investigated many unusual aircraft concepts that never made it into production. Along the way, he followed an interest and skill in painting and became the company's primary artist for illustrating both production and conceptual aircraft. Andy always had an interest in the history of the aviation industry. In the 1960s he worked with United Aircraft executives in setting up displays at what was to become the New England Air Museum. In 1995 Andy became the tenth member of the Sikorsky Historical Archives, following the founding members and the four Sikorsky brothers.



Family of Sikorsky Helicopters

Visit us at [Sikorskyarchives.com](http://Sikorskyarchives.com)

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Dear Members,

As we enter a new year, I want to sincerely thank all our members, donors and volunteers for your hard work and support in 2016 and to wish everyone a very happy and healthy 2017.

We continue to carry the Igor Sikorsky message literally around the world. Even after 44 years since his passing, the name Sikorsky continues to generate interest. Over the past year we have provided support to several activities celebrating Igor Sikorsky's life, such as Museum of Ukrainian Dispore, Kiev, Tampa International Airport, Two Roads Brewing Company in support of an archives fund raiser, the Connecticut Historical Society and the National Museum of the USAF. Our cataloguing and digitization efforts now have over 1.3 terabytes of data. We have made eight presentations to community organizations and to Sikorsky personnel. We have averaged 11 per year since we started tracking these events in 2005.

Our goals for 2017 are to: expand our membership base through encouragement of membership renewals and solicitation of new members, continue the digitization process of the valuable historical memorabilia that we hold, upgrade our web site and seek volunteers in certain select areas, such as grant writing, support of the newsletter, financial expertise and web site support.

Again, let me express my sincere appreciation for your support through our donor and membership programs and the volunteers that work to preserve this treasured material for future generations.

Best wishes for a Happy New Year  
Dan Libertino, President



Lineage of Sikorsky Helicopters in the U.S. Air Force as of 1978



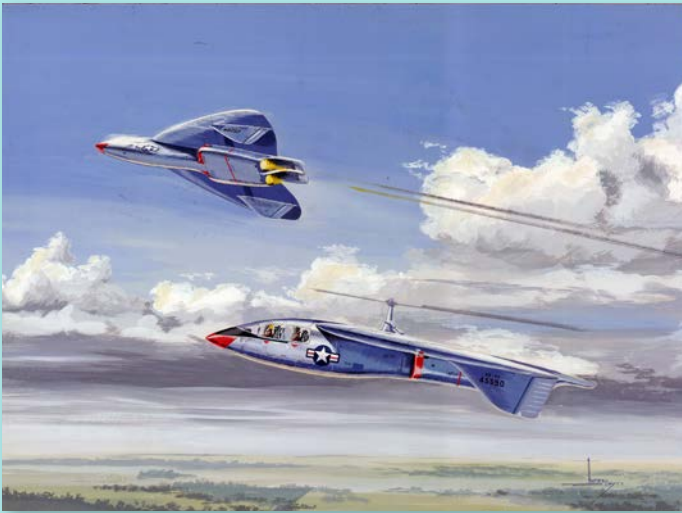
Proposed Civil S-65 Over Washington



## High Speed Vertical Take-Off and Landing Aircraft (VTOLS)

By the late 1950s Igor Sikorsky's early experiments with the VS-300 had evolved into very successful production designs. The S-55, S-56 and S-58 were all in production and Sikorsky reached a level of aircraft production that remains a record for the company.

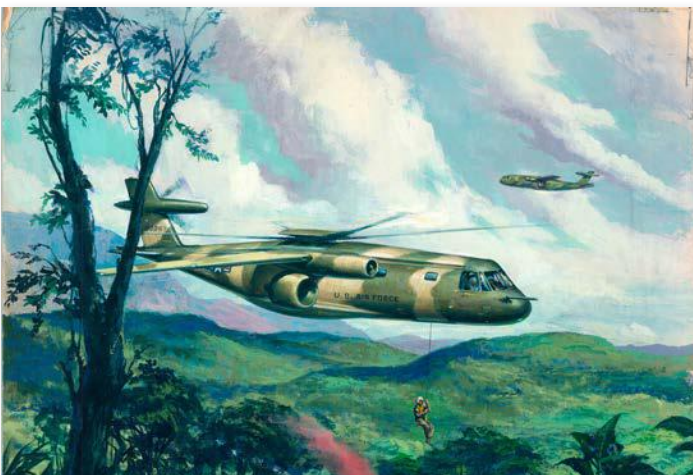
This was a time when the helicopter industry began looking at combining the hovering characteristics of the helicopter with the high-speed abilities of fixed wing aircraft. One of the most ambitious of these was Sikorsky's retractable single bladed rotor concept, the S-57. We had flown a counter balanced single bladed rotor on an R-4 helicopter, and the designers thought it would be possible to stop this rotor in flight and retract it into the top of the fighter aircraft.



S-57 Retractable Single Bladed Rotor Aircraft



Two Bladed Stowed Rotor Aircraft



Combat Air Crew Rescue Aircraft (CARA) Four Bladed Stowed Rotor



X Wing Aircraft Using Stopable Rotor/Wing

## Tilt Rotor Aircraft

Sikorsky continued to investigate concepts that promised higher speed, and proposed a tilt rotor for the Marine Corps JVX mission. We also went further with the tilt rotor idea by proposing to stop the rotors in flight, fold them back along wing tip pylons and fly to 450 knots using turbofan engines. This concept was called the Tri-Verti-Plane.



Marine Corps JVX Tilt Rotor



The Tri-Verti-Plane Concept

## Advancing Blade Concept

Sikorsky created the Advancing Blade Concept which used two counterrotating rotors to achieve high speed without the use of a wing. Andy Whyte illustrated a number of ideas using the ABC system. One was high speed gunship. Another was a smaller aircraft using armor plate for the fuselage.



Advancing Blade Concept Helicopter with Steel Armored Plate Fuselage



Advancing Blade Concept Gunship

The ABC was successfully tested on the experimental XH-59A concept demonstrator aircraft in the late 1970's, but military priorities at that time were in different areas. The concept was reintroduced in recent years as the X-2 demonstrator, which flew to an unofficial speed record of 250 knots. The S-97 Raider and the Sikorsky Boeing SB1 Defiant currently under development, also utilize the advancing blade concept.



## Crane Helicopters

Igor Sikorsky had pioneered the crane helicopter concept with the S-60 and the S-64. Sikorsky Aircraft held a company wide contest to officially name this helicopter. The winning name selected was the "Sikorsky Sky-crane Helicopter."

With the S-64 in production, new crane concepts were investigated. One ambitious plan was to hinge the forward fuselage of the S-64 to make it air transportable in a C-5 aircraft as shown below.

In 1968 Sikorsky proposed the S-64B growth crane to the U.S. army. The S-64B used a 79 foot rotor and three engines with a new main gearbox. This concept was not pursued beyond the proposal stage, but the three engines, gearboxes and 79 foot rotor became the configuration for the CH-53E helicopter.



S-60



Large Crane Helicopter Using Dual Tail Rotors and V Tail



The Proposed S-64B



Large Coaxial Crane



Folded S-64 Being Loaded in a C-5 Transport

## Utility Tactical Transport Aircraft System

During the Vietnam war in the 1960s the United States Army started to think about the replacement for the Bell UH-1 Huey. This would eventually become the S-70 (UTTAS), then the Black Hawk, the aircraft that saved Sikorsky from an uncertain future.

In the early days the requirements were in flux, with some wanting high speed, or simplicity, or other somewhat odd specifics. One group of Army thinkers wanted a simple, low cost design. Andy came up with various designs shown below. The final design chosen is shown in the painting on the lower right.



Simple Low Cost Design



"Close to Final" Design



High Speed Design Utilizing ABC Concept



Final S-70 UTTAS Design

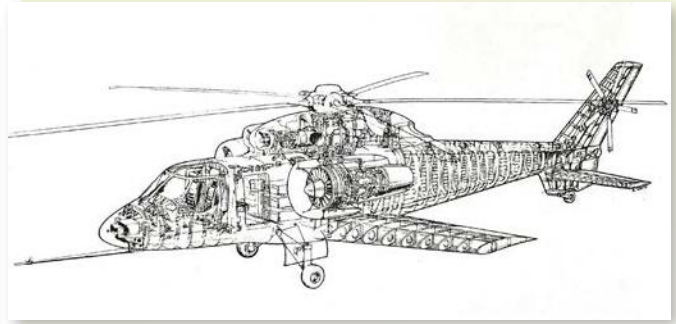


## Andy Whyte was Born to be a Designer and an Aircraft Artist

Andy's many contributions to Sikorsky cannot be fully captured within this single issue of the Archives News. He also created isometric cutaway drawings of Sikorsky helicopters. These clearly gave the impression that much work and detail had gone into the design. Andy created the lines of the S-92 and led the effort to build a mock-up of the aircraft for proposals to the customer.



Andy was the Manager for the S-92 Mockup



Rotor System Research Aircraft (RSRA) Isometric Drawing



Dan Libertino presenting Andy with a commemorative plaque celebrating his 90th birthday and his many years volunteering at the Sikorsky Historical Archives. Andy's painting of Sikorsky's products is in the background.

# Help Us Preserve the Igor Sikorsky Heritage

Igor I. Sikorsky Historical Archives  
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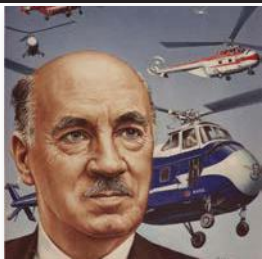
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## Early Astronaut Recovery



**Sikorsky S-58 (HUS-1) To The Rescue**

Newsletter prepared by Arthur Linden, Doug Whyte, Andy Whyte, Lee Jacobson and archive members with graphic art assistance by Jodi Buckley.



“A flying machine rising directly from the ground by the action of a lifting propeller was most appealing to my imagination. The helicopter approaches closer than any other vehicle to fulfillment of mankind’s ancient dream of the flying horse and the magic carpet.”

Igor Sikorsky

