



Sikorsky Archives News

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Model Building is “A Labor of Love” Part 2

This publication is a sequel to the October 2009 issue covering the continued interest shown in building Sikorsky Aircraft models. The issue highlights those individuals who have demonstrated extraordinary

modelling talent and craftsmanship skills. The models shown cover the aircraft periods from 1913 to current periods of aircraft technology. The model builders provided the data and contributed to the preparation of this issue.



S-22 Ilya Moramets

Andrey Fedorenko



S-29A German Gotha Scheme

Lawrence Klingberg



H-34

Alain Davaux



MH-53M

Arlo Watkins



S-76C

Butch Wellmaker



Comanche

Butch Wellmaker

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Igor Sikorsky Developed the S-22 to S-27 Ilya Moramets four engine aircraft series during the 1913-1918 time period in Russia.

On August 2, 2008 Andrey Fedorenko demonstrated his radio controlled Ilya Moramets model in Kharkov, Ukraine, and was awarded the Championship of Ukraine Silver Prize. The competition occurred at a model aircraft festival held near Kiev, Ukraine, the birthplace of Igor Sikorsky. The project was started on February 17, 2007 with a 3-D computer model and construction drawings.

The model specifications are as follows:

- Scale: 1:10
- Wing Span: 2.98 m (9.83 feet)
- Take Off Weight: 5.5 kg (12 pounds)
- Fuselage material: pine-tree wood, plywood, balsa
- Wings material: pine-tree wood, foam plastic, balsa
- Power: electric motors powered by lithium batteries

Staff of the State Polytechnic Museum of Ukraine attended the model aircraft festival and took photos of the events. The data and photos were provided by courtesy of Constantin Antonenko of the museum.



Typical of the four engine installations in the wing



The wing and tail airfoil structure, nose cockpit, and landing gear technique is shown in these three photos



S-27 Ilya Moramets

S-27 Ilya Moramets model photos below



Andrey Fedorenko with his Award Winning S-27 Ilya Moramets

The S-29A two engine airplane is the first aircraft Igor Sikorsky built in the United States in 1923.

The aircraft could carry 14 passengers at a cruise speed of 100 mph. After a number of productive revenue years, it was sold to Howard Hughes in the 1930 time period. The S-29A was modified to look like a German Gotha bomber and was accidentally crashed in a simulated shoot down in the Howard Hughes World War I epic movie, Hell's Angels.

Lawrence Klingberg is an award winning model builder who completes one new model every year. He previously built an S-35 model which was reported in the October 2009 newsletter. His most recent is the S-29A Gotha bomber shown in the photos.

The model specifications are as follows:

- Scale: 1:6
- Wing Span: 13 feet
- Wing structure material is balsa, pine and plywood, wrapped aluminum covering
- Fuselage structure material is balsa, pine and plywood wrapped with Solartex covering
- Finish is Rustoleum paint and primer



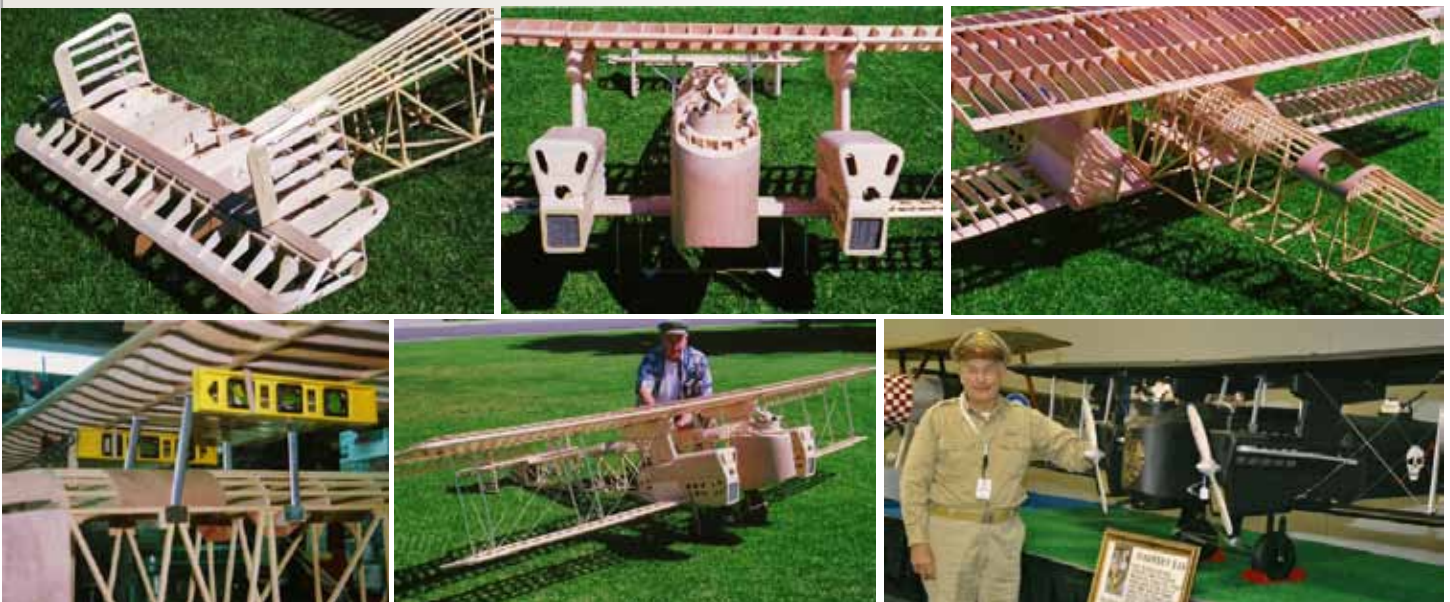
S-29A original aircraft



S-29A Gotha Bomber version



The end of the S-29A in Hell's Angels



The photos above show the S-29A in various stages of construction, and with the builder Lawrence Klingberg with his prize winning S-29 Gotha Bomber

The H-34/HSS-1 helicopter was a utility aircraft produced during the mid 1950s and used by the United States and foreign governments.

A **A**lain Devaux is a recently retired technician living in France who has become interested in helicopter model building. With HSS-1 drawing and photo data obtained from the archives, and using the actual French aircraft as reference, he has created a realistic model with the following specifications:

- Scale: Obtained a 1:9 H-34 fuselage in Germany and modified it to French Navy version.
- Length is 1.6 meters (5.2 feet)
- Weight: 11 kg (24.2 pounds)
- Power: electric motor
- Gun Mount: scaled 20 mm Mauser
- Created detail machined parts for:
 - tail drive shaft disconnect coupling
 - main gearbox drive gear train
 - landing gear attach fittings
 - tail drive system
 - rotor system details
 - cabin gun and mount



French HSS-1



Front Quarter View of HSS-1 Model



Rear Quarter View of HSS-1 Model



Cabin Door Gun Mount



Landing Gear Machined Fittings



Electric Motor Driven Main Rotor



Nose Clam Shell Door



Disconnect Coupling at Pylon Fold



Pylon Fold



Tail Rotor and Gear Drive

The H-53 series of heavy lift twin engine helicopters were built for the US Navy, Marines and Air Force during the mid 1960s to early 1970s. The Air Force subsequently upgraded the aircraft to various versions including the MH-53M PaveLow in 1989.

Arlo Watkins is a professional aircraft mechanic on EMS helicopters. He has built models for 25 years and is an avid radio controlled model builder. Arlo selected the MH-53M for his project due to its unique characteristics. He started with a CH-53 fiberglass fuselage adding rivets and building all the peculiar items to convert it to a PaveLow aircraft. Arlo modelled the aircraft after the decommissioned PaveLow now on exhibit at the Hill AFB Museum in Utah. His model took first place in helicopter scale at the 2011 AMA show in Ontario, CA. Model Specifications are as follows:



MH-53M PaveLow in service



MH-53M PaveLow finished model



Arlo Watkins flying his MH-53M RCM prior to final finish

- Scale: 1:10
- Engine: Jetcat SPH-5 two stage free turbine (8 hp at 165,000 rpm)
- Main Rotor Diameter and Speed : 79 inches and 900 rpm
- Tail Rotor speed: 5000 rpm
- Engine to rotor reduction via delrin bevel and spur gears
- Retractable landing gear, tail skid and all retractable lights; steerable nose gear; working hoist and cargo hook, cargo gear and ramp.
- 13 servos using 10 channels
- Weight: 45 lbs



View looking rearward



View looking forward from rear ramp



Ramp doors area and completed finish



Main Rotor Shaft Delrin Gear Drive



Main, Transmission, and Engine in position relative to fuselage



Main Rotor and Gearbox



Turbine Engine



Engine in Cabin



Pilot in Cockpit

The S-76 commercial helicopter was launched during the late 1970s and evolved to the current S-76D.

Butch Wellmaker is an experienced helicopter crew chief and an award winning RCM builder. He worked at Sikorsky Aircraft in Florida for twenty years on various experimental and production aircraft. He subsequently moved to the corporate helicopter world, and has accumulated over 32 years experience on S-76 aircraft. He currently utilizes his technical skills on building models. His most recent amazing helicopter models are the S-76C and the Comanche. The completed S-76C model won the 2010 U.S. Scale National Champion 1st Place Award. The S-76C model specifications are as follows:

- Scale: 1:7
- Length x height: 85 inches x 20 inches
- Main Blade diameter: 2.3 m (7 ft)
- Tail Rotor is driven by a brass tube Teflon liner flex drive
- Airframe material: fiberglass and wood
- Landing Gear: Retractable doors and gears servo actuated
- Gyro and servo actuated main and tail rotors
- Weight: 41 pounds
- Power: 8 hp electric motor battery powered



Cockpit Instrument Panel, Center Console, and Flight Controls



Main Rotor and Gear Box-Top View



Main Rotor and Gear Box- Side View



Cockpit Overhead Console and Engine Control Quadrant



Retractable Main Landing Gear



Electric Motor and Batteries in Cabin



S-76C Corporate Aircraft
Butch Wellmaker and Model in front of Corporate Aircraft

I was impressed to learn that Butch maintains his model using commercial aircraft standards. His maintenance schedule is based on number of flights, and he uses a copy of the Sikorsky log book to track maintenance. He also stated that model building is similar to R&D. Proof of concept; design; assembly; ground test; flight test; then completion. If all goes well we have a National Champion.

The RAH-66 Comanche was an advanced technology aircraft built by Boeing/Sikorsky for the US Army in the 1990s.

Butch Wellmaker worked on the aircraft during the experimental program, and decided to build an RCM model. He is currently in the flight test and development phase. The model specifications are as follows, and it looks like another winner:

- Scale: 1:7
- Fuselage length: 65 inches
- Rotor diameter: 1.5m (5.92 feet), and 8 bladed Fantail
- Power: Two electric motors, battery powered; one for each rotor and geared at 11.5:1 for the main, and Fantail is shaft driven at 1:1.
- Landing gear and weapon bay doors, flight controls are electric servo driven. The aircraft uses 15 servos.
- Fuselage is fiberglass with epoxy resin. Internal structure is carbon fibre laminate with birch ply core.
- Aircraft finish will be Army Olive Klass Kote with black markings
- Weight: 25 pounds
- Cockpit will have functioning MFDs that cycle through various screens, and cameras to record each flight for later viewing.
- Considering a down-link from cameras to view in real time.
- Pilots head and arms may be automated and linked to the movement of the NVPS, collective and side arm controller when complete.



RAH-66 Flight Test Aircraft



RAH-66 RCM Test Flight Configuration



RAH-66 Right Side View



RAH-66 Left Side View



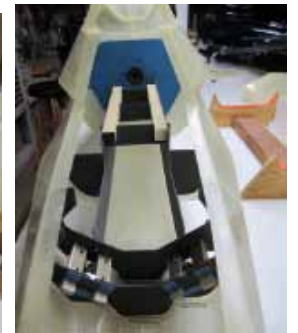
Main Rotor and Fantail Drive Relative to Aircraft



Dynamic System Structure Relative to Cockpit



Dynamic System Structure Relative to Fantail



Top Deck Structure



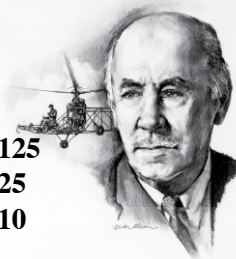
Dynamic Drive System Right Quarter View

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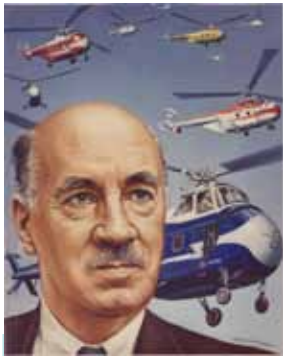
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Newsletter designed and edited by Lee Jacobson and Sikorsky Historical Archive Members.



Model Builder's "Labor of Love" is a Tribute to the Igor Sikorsky Legacy

"In America I found the confirmation of my hopes and came to understand the reason for the success of this country, nothing can equal free work of free men. This is the foundation upon which the indisputable success of the United States has been built."

- Igor Sikorsky

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