IGOR I SIKORSKY HISTORICAL ARCHIVES

Sikorsky Archives News

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Sikorsky Serves the Coast Guard

Sikorsky Aircraft has been central to the 75 years of Coast Guard helicopter history.
(Igor I. Sikorsky Historical Archives)

A flight demonstration of Igor Sikorsky's VS-300A helicopter at Bridgeport, Connecticut in April 1942 started an air-sea rescue revolution in the U.S. Coast Guard. The chief of the Coast Guard Aviation Engineering Division, Commander William Kossler, and the commanding officer of Coast Guard Air Station Brooklyn, New York, Commander Watson Burton, both saw life-saving potential in the compact rotorcraft that could take off and land vertically and hover. Their vision led to successive Sikorsky helicopters of growing power and sophistication. The VS-300 lineage lives on in the digitized MH-60T Medium Range Recovery helicopters in today's busy fleet, and it may shape the next generation of Coast Guard vertical lift.

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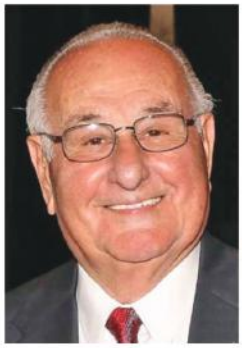

January 2020

Dear Members,

November of this year will mark the 25th Anniversary of the establishment of the Igor I. Sikorsky Historical Archives and my 15th year as your president.

I am deeply honored to again have the opportunity to thank our members, donors, and volunteers for your support over these past years and to wish everyone a very happy and healthy New Year.

The past year has been a transitional period as we plan for the relocation from the Sikorsky site in Stratford to the campus of the University of New Haven (UNH). The process is taking longer than we expected, but it continues to move forward. We look forward to completing the transition within the next six months.

Our temporary facility is limited, but we are very happy to note that our continued digitization efforts have proven very successful in responding to our customer base. Continued digitization of our data backlog is the major task facing us for the next several years.

A shortage of volunteers remains our major challenge, but positive steps are being made. We now have several Sikorsky employees who volunteer two Fridays a month from eight AM until noon. We look forward to furthering volunteer participation once our UNH move is completed by enrolling UNH volunteers.

Again, thank you very much for your continuing support, and very best wishes for a Happy New Year!

Sincerely,

Daniel J. Libertino

Dan Libertino
President

Coast Guard officers, impressed by the 1,300 lb VS-300, quickly saw multiple applications for the helicopter. Burton wanted an air-sea rescue platform and an alternative to harbor patrol blimps. Kossler's friend and early Coast Guard aviator Capt. Frank Erickson visited Bridgeport in June 1942 and advised Coast Guard commandant Adm. Russell Waesche that helicopters flying from ships could use radar and dipping sonar to hunt German submarines attacking Atlantic convoys.

Igor Sikorsky met with Coast Guard helicopter pioneer Captain Frank Erickson. (Igor I. Sikorsky Historical Archives)

Kossler held a place on the interagency board for Army-Navy/Coast Guard helicopter procurement and noted the 2,500 lb Sikorsky S-47 (R-4) in production for the Army could carry two crew, a depth charge, and fuel for four hours' sub-hunting. Coast Guard Commandant Vice Admiral Russell Waesche approved the idea, but Coast Guard aviation acquisition fell to the Navy. After meeting with Waesche in February 1943, Chief of Naval Operations Ernest King directed the Navy Bureau of Aeronautics to test helicopters on merchant ships. Waesche meanwhile ordered Kossler to build a training program for helicopter pilots and maintainers and a plan for helicopters at Coast Guard Air Stations.

Erickson trained on the S-47 (R-4) at Bridgeport and became the first Coast Guard helicopter pilot. He took delivery of the first HNS-1 (the Navy R-4) in October 1943. A month later, Erickson stood up his joint helicopter training base at Coast Guard Air Station Brooklyn, Floyd Bennett Field, with three HNS-1s to train pilots of the U.S. Army, Navy, and Coast Guard, and the British Helicopter Service Trials Unit.

The Coast Guard S-47 (HNS-1) at Coast Guard Air Station Brooklyn was used to develop helicopter rescue hoists in 1944. (Igor I. Sikorsky Historical Archives)

Igor Sikorsky's son Sergei served under Erickson at Floyd Bennett Field and recently recalled, "He saw the role that the helicopter would play as the 'flying lifeboat' for the Coast Guard. It was Erickson who began developing the helicopter rescue hoist, the rescue basket, now called the Erickson Basket, and much more." Erickson was the impassioned proponent of Coast Guard rotary-wing aviation. "His vision of the helicopter did not sit well with Coast Guard headquarters where the focus was on the fixed-wing flying boats. He was the Coast Guard's Billy Mitchell."

In open-sea trials in early 1943, British and American pilots found flying the S-47 (YR-4B) from merchant ships hazardous. In January 1944, Coast Guard helicopter pilot No. 2, Lt jg. Stewart Graham flew from a merchant ship in a North Atlantic convoy, but with early helicopters not ready for sub-hunting, Coast Guard efforts refocused on air-sea rescue.

On Aug 14, 1944, Igor Sikorsky greets son Sergei, AMM3c, during a visit to Coast Guard Air Station, Brooklyn, N.Y. during helicopter tests. (Igor I. Sikorsky Historical Archives)

On January 3, 1944, Erickson demonstrated the value of the helicopter when the destroyer USS Turner blew up in Ambrose Channel off Sandy Hook, New Jersey. The pioneer pilot flew an S-47 (HNS-1) through rain, sleet, and snow from South Ferry, Manhattan to a New Jersey shore hospital to deliver two cases of blood plasma in just 14 minutes. Surface travel would have taken hours. Kossler recommended Erickson for the Distinguished Flying Cross without result. However, Sikorsky News in November 1944 reported a plant visit by ranking Army, Navy and Coast Guard officers including Cdr. F.E. Erickson.

Hover and Hoist

In early 1944, an Army YR-4B recovered four airplane crash survivors with four landings in Japanese-occupied Burma. The Coast Guard took notice, and according to Sergei Sikorsky, "While reading the mission report, Erickson realized that a hoist-equipped helicopter could have lifted the survivors to safety far more quickly, and the concept of the helicopter rescue hoist was born." CGAS Brooklyn experimented with electric and hydraulic hoists. Igor Sikorsky himself visited the air station in August, 1944 and rode the hoist under Erickson's hovering helicopter.

An S-47 (HNS-1) from Brooklyn flew hoist rescue demonstrations in Jamaica Bay. (Igor I. Sikorsky Historical Archives)

The end of World War II shut the Brooklyn helicopter schoolhouse, but rescue experiments continued with the Coast Guard Rotary Wing Development Project Unit at Elizabeth City (E-City) North Carolina. On September 22 and 23, 1946, Coast Guard pilots got a real call to action. Cdr. Frank Erickson, Lt. "Stew" Graham, Lt. Gus Kleisch, and Lt. Walt Bolton were airlifted by Army C-54 transport from E-City to Newfoundland with an HNS-1 to rescue survivors of a Sabena airliner crashed 20 miles from Gander. They were joined by a new HOS-1 (the Sikorsky S-49/R-6) from CGAS Brooklyn. The two helicopters shuttled from makeshift helipads to the crash site to move 18 injured passengers to a lake for evacuation by fixed-wing amphibians.

Like Father, Like Son, just hanging out

On Aug. 14, 1944, an HNS-1 carries Igor Sikorsky on the hoist with pilot Cdr. Frank Erickson at the controls. (Igor I. Sikorsky Historical Archives)

Summer, 1944 - Frst public demonstration of a helcopter rescue hoist. The pilot, Commander Frank Erickson "rescued" AMM 2/c Sergei Sikorsky. (Igor I. Sikorsky Historical Archives)

An S-47 (HNS-1) was airlifted to Newfoundland to rescue survivors of a remote airliner crash in 1946. (Igor I. Sikorsky Historical Archives)

A Coast Guard S-49 (HOS-1), the Gander Express, was also deployed to Newfoundland in 1946. (National Naval Aviation Museum)

The Coast Guard subsequently ordered nine Sikorsky S-51s (HO3S-1Gs) delivered from 1946 to 1950. The 5,500 lb helicopter with a 450 hp Pratt and Whitney Wasp Jr. engine was big enough for a pilot and three passengers. Cdr. Erickson remained the chief helicopter development engineer at E-City. Sikorsky news reported in March 1949 that he flew an HO3S-1G for an hour hands-off thanks to stabilizing airfoils under the main rotor. E-City also tested inflatable floats for water landings. Coast Guard helicopters responded to real emergencies. In February 1950, Lt. Fletcher Brown piloted an HO3S-1G from E-City to Arkansas to taxi doctors and nurses to families cut off by St. Francis River flooding.

The S-51 (HO3S-1G) was used for rescue helicopter development at Elizabeth City, North Carolina. (Igor I. Sikorsky Historical Archives)

The small helicopters initially operated by the Coast Guard were clearly limited in performance and payload. The first of eight HO5S-1G (Sikorsky S-52-3) helicopters was delivered to the Coast Guard on September 24, 1952. The 2,700 lb helicopters proved too small and slow. All were placed in storage beginning in April 1954.

The S-52 (H05S-1G) in the Coast Guard was the first Sikorsky helicopter with all-metal rotor blades but had only a short operational career

The U.S. Air Force had sent prototype Sikorsky S-55s to Korea in March 1951, and production models of the 10-seat, 7,200 lb helicopter were ultimately adopted by all the U.S. armed services. The Coast Guard received the first of seven HO4S-2Gs with 550 hp Wright radial engines in November 1951. On January 19, 1952, LCdr. Gordon MacLane flew a new HO4S-2 from CGAS Port Angeles, Washington to rescue five survivors of an Air Force SB-17 from a 5,000 ft high crash site on Tyler Peak in Washington state. Starting in January 1952, 23 HO4S-3G helicopters (later designated HH-19Gs) introduced 700 hp engines and night/instrument flight capability. Then-Cdr. Stew Graham used one for the first recorded night hoist rescue in the Gulf of Mexico in January 1955. Eight Marine Corps HRS-3s were subsequently transferred to the Coast Guard.

The S-55 (HO4S-1) gave the Coast Guard a helicopter with night/instrument flight capability. (Igor I. Sikorsky Historical Archives)

Coast Guard air-sea rescue doctrine still centered on fixed-wing amphibians, but one HO4S-3G reshaped public helicopter perceptions and overturned Coast Guard aviation plans when the Feather River flooded Yuba City, California on December 23, 1955. In 29 continuous operating hours, the Sikorsky helicopter from air station San Francisco hoisted 138 flood victims to safety. The first 58 rescues were at night. Lieutenant Henry Pfeiffer maneuvered his aircraft among trees, power and telephone lines, and TV antennas to hoist people from flooded homes and take them to high ground. Lt. Cdr. George Thometz relieved Pfeiffer at the controls without shutting the aircraft down. On one sortie, he shuttled 14 adults and children from a roof despite hovering close to a dangerous obstruction.

Nationwide media attention helped make the helicopter the dominant air-sea rescue platform of the Coast Guard. The aviation plan of 1957 included 79 medium range helicopters big enough to rescue six survivors 300 nm offshore. Sikorsky developed the 14,000 lb Sikorsky S-58 (HSS-1) sub-hunter for the Navy with a 1,525 hp Wright radial engine and automatic hover capability. The Coast Guard ordered six derivative HUS-1G helicopters in 1959.

The S-58 (HUS-1G) introduced hands-off night hover capability but was used only briefly by the Coast Guard. (Igor I. Sikorsky Historical Archives)

Turbines to the Rescue

Despite its size and power, the HUS-1G was limited by its heavy reciprocating engine, especially at high ambient temperatures. It was soon retired. Turboshafts promised more power in a far lighter package with greater reliability. Sikorsky flew twin General Electric T58 turboshafts on an HSS-1F test helicopter in February 1957. Late that same year, the company announced development of the 8,300 lb, 10-pasenger S-62 with a single T58, HO4S dynamics, and a boat hull for water landings.

The commercial S-62A became the Coast Guard HU2S-1G or HH-52A (S-62C) Seaguard with hydraulic rescue hoist and fold-down platform for water rescues. The HH-52A stability augmentation system also provided a beep-to-a-hover function that could bring the helicopter to a stable hover over water at night. The S-62A first flew in May 1958, and the Coast Guard

The turbine-powered S-62 or HH-52A Seaguard had a boat hull and fold-down recovery platform for water rescues. (Igor I. Sikorsky Historical Archives)

HH-52 entered service at Air Station Salem, Massachusetts in December 1962. The last of 99 HH-52As was delivered in 1969.

During their time on alert, HH-52As were credited with more than 15,000 “saves.” HH-52As deployed during Hurricane Betsy on the US Gulf Coast in September 1965 alone made 1,200 rescues. On the night of December 21,1968 LCdr George Garbe flew an HH-52A to pull five sailors from a fishing vessel aground and breaking up off Marmot Island, Alaska. Unable to climb higher because of freezing conditions, Garbe penetrated heavy snow showers and fog and executed a beep-to-a-hover approach with aircraft lights off to prevent reflections from sea spray and snow. He landed in the water about a mile from the vessel, taxied the helicopter towards the vessel until rocks appeared, and lifted off again to air-taxi over the ship and hover over the stern while avoiding surrounding terrain and ship’s rigging. He returned five times to rescue the entire crew.

Sikorsky HH-52s served the Coast Guard well from 1963 to 1986, but they were limited to a rescue radius of about 150 nm and on hot days could typically carry only three survivors and crew. The Coast Guard conducted a Medium Range Recovery (MRR) helicopter competition won by Sikorsky’s twin-turbine, long-body S-61R

The S-62 (HH-52A)s deployed during Hurricane Betsy in 1965 were credited with 1,200 lives saved. (Igor I. Sikorsky Historical Archives)

amphibian in production for the Air Force as the HH-3E combat Search And Rescue helicopter. The Coast Guard HH-3F first flew on October 11, 1967. Forty "Pelicans" were delivered from December 1968 to June 1972. (In 1990, the Coast Guard added nine Air Force HH-3Es and CH-3Es.)

The HH-3F First Implementation Station was CGAS New Orleans. At around 19,000 lb normal mission weight, the HH-3F with 4,000 lb normal fuel had 3 to 3.5 hours endurance plus reserves. Maximum gross weight with up to 6,000 lb internal auxiliary fuel was 22,050 lb. On March 1, 1977, Lt. James Stiles rescued four crewmen from a fishing vessel sinking off Cape Sarichef, Alaska. From Air Station Kodiak, he flew the HH-3F 475 miles under ceilings as low as 100-feet with half-mile visibility in heavy snow showers, icing, and winds gusting to 70 knots. On scene, Stiles hovered over the vessel while his crew hoisted the four sailors aboard to return in treacherous weather.

Before commercial helicopter Emergency Medical Services were widespread, long-range

The big S-61 (HH-3F) gave the Coast Guard capability for long-range rescues and counter-drug operations. (Igor I. Sikorsky Historical Archives)

HH-3Fs were called upon for MAST - Military Assistance to Safety and Traffic - missions, flying emergency cases with medical teams to hospitals. The HH-3F supported ATON - Aids TO Navigation -- airlifting work crews and equipment to automated lighthouses, beacons, and buoys. The big helicopter could also carry the 4,200 lb Air Deployable Antipollution Transfer System to pump out oil tankers run aground.

The twin-turbine HH-3F gave the Coast Guard a helicopter with greater range and capability than the single-engine HH-52A. (Igor I Sikorsky Historical Archives)

The mid-1980s brought a change in Coast Guard rescue helicopter doctrine with the addition of qualified rescue swimmers to HH-3F and HH-52A crews. Swimmers were trained and equipped to deploy in storm-tossed seas and help survivors into the helicopter rescue basket. Their presence gave helicopter pilots more rescue options, especially when approaching ships with whipping masts and other hazards.

On 10 December 1987, an HH-3F from Air Station Sitka, Alaska, flew through heavy snow to a vessel taking water. The sailor and his young son abandoned their boat in survival suits. After several unsuccessful attempts to get the survivors into the rescue basket, Petty Officer Jeffery Tunks jumped into 25 to 30 ft seas. The helicopter fought 35 to 70 kt winds to recover the three from the violent sea. Tunks became the first rescue swimmer to earn the Distinguished Flying Cross.

Though the Coast Guard started deploying HH-52As on cutters in 1973 for drug interdiction, HH-3F structures were never designed for shipboard operations. However, in the 1980s, the land-based HH-3F carried drug enforcement agents for OPBAT - Operations Bahamas, Turks, and Caicos. Coast Guard crews flying from forward operating locations also inserted, extracted, and resupplied enforcement teams around Central America. CGAS Clearwater, Florida, close to the action, retired the last HH-3Fs in May 1994.

Jayhawk Generations

Sikorsky chose not to bid the 10,500 lb S-76 in the Coast Guard Short Range Recovery helicopter competition in 1979. However, Coast Guard plans for a new Medium Range Recovery helicopter coincided with a Navy requirement for a new Strike Rescue and Special Warfare Support Helicopter. Sikorsky and the Navy developed the HH-60H (S-70B-5) from the sub-hunting Seahawk, and Coast Guard officials ordered the derivative HH-60J on September 29, 1986. Sikorsky News in March 1989 showed the first Jayhawk in final assembly at Stratford. The 22,000 lb HH-60J with weather radar and other Coast Guard equipment was delivered in March 1990.

The S-70 (HH-60J) Jayhawk became the Coast Guard Medium Range Recovery helicopter in 1990. (Igor I. Sikorsky Historical Archives)

The Jayhawk has up to seven hours endurance with external fuel. On the night of 28 October, 1991, an Elizabeth City HH-60J crew commanded by Lt. Paul Lange flew into Hurricane Grace on a distress call from the sailing vessel Anne Kristina about 300 nm east of Cape Henry, Virginia. The Jayhawk crew refueled on the aircraft carrier USS America conducting sea trials 100 nm offshore and arrived on the rescue scene to execute an automatic precision approach to coupled hover. They located the sinking schooner with night vision goggles, dropped a rescue swimmer in 40 ft seas, and hovered in 60 kt winds and driving rain to hoist nine sailors from the Atlantic.

Sikorsky delivered the last of 42 HH-60Js to the Coast Guard in 1996. Aging airframes, obsolescent avionics, and the armed Airborne Use of Force mission after 9/11 led the Aviation Logistics Center at E-City to rebuild the Jayhawk fleet to MH-60T standards with digital “glass” cockpits, night visionics, and other improvements.

On October 29, 2012, during Superstorm Sandy, an MH-60T piloted by LCdr. Steven Cerveny rescued sailors from the sinking HMS Bounty about 90 miles southeast of North Carolina’s

Outer Banks. The Coast Guard crew flew in darkness, 60 knot winds, and driving rain to execute an instrument descent to the debris field of the ship. The rescue swimmer jumped into 30-ft seas to hoist one survivor. The helicopter crew found the remaining survivors in two life rafts and rescued four more sailors in high winds. Forced to withdraw with fuel low, they called in another MH-60T to recover the remaining nine survivors.

Coast Guard Commandant Admiral Karl Schultz recently notified Sikorsky President Dan Schultz that the Jayhawk fleet had logged its 10,000th save in September 2019 when MH-60Ts responded to Hurricane Dorian. Admiral Schultz concluded, “My guiding prinicples are ‘Ready, Relevant, Responsive,’ and the H-60 Jayhawk has helped the Coast Guard men and women uphold these tenets for nearly 30 years. Thank you for your dedication to our Coast Guard and our Nation.”

Jayhawk Saves by Coast Guard Air Station

Clearwater, Florida - 3,165
Elizabeth City, North Carolina - 1,349
Sitka, Alaska - 1,165
Kodiak, Alaska - 1,093
Cape Cod, Massachusetts - 1,049
Aviation Training Center Mobile, Alabama - 983
San Diego, California - 461
Columbia River, Oregon - 432
Houston, Texas - 338
Traverse City, Michigan – 29

Jayhawks are in high demand and recently replaced Short Range Recovery Helicopters at Traverse City, Michigan. A Jayhawk crew from Traverse City rescued four sailors from a disabled boat on Lake Huron in October. The MH-60T flew about 100 miles from its home Air Station to locate the vessel in poor visibility off Rogers City. It deployed a rescue swimmer to hoist the crew amid 35 mph winds and 15 ft waves, a rescue that took more than an hour on-scene.

An MH-60T Service Life Extension Program aims to keep the Medium Range Recovery fleet operational through the mid-2030s to coincide with the Department of Defense Future Vertical Lift initiative. The Coast Guard is studying whether to replace hard-flown MH-60Ts by converting low-time Seahawks (Sikorsky S-70B-4s) to Jayhawks or to keep the helicopters flying with parts from retired Navy aircraft.

MH-60T modernization rebuilt the Jayhawk with digital avionics and night vision electro-optics. (DoD)

Coast Guard 6043 was the first MH-60T with parts of Coast Guard Jayhawk and Navy Seahawk helicopters. The so-called Frankenhawk joined the fleet in 2009.

The Coast Guard calculates its 45 Jayhawks today have the highest average flight hours of any H-60 fleet in the world. Since 2005, the Aviation Logistics Center at E-City has converted six retired Navy SH-60F Seahawks into MH-60T Jayhawks to replenish and grow the Coast Guard fleet. HH-60J-to-MH-60T conversions concluded in August 2016, but demand for Jayhawk capabilities is high. MH-60Ts from Air Station Clearwater, Florida deployed to the Bahamas in September 2019 for search and rescue and relief missions after Hurricane Dorian.

By August 2018, the U.S. Navy had transferred 55 SH-60Fs to the Coast Guard. The service plans to compare the cost of additional conversions to the value of a Service Life Extension Program (SLEP) harvesting SH-60F structures. The notional SLEP aims to match remaining MH-60T service life with production of a marinized Future Vertical Lift (FVL) aircraft to replace both Medium and Short Range Recovery helicopters.

The ultimate shape of FVL Coast Guard vertical lift is to be determined. Sikorsky is flying X2 technologies today for a new generation of fast compound helicopters applicable to all the US armed services, including Coast Guard life savers.

Jayhawk performance helps technicians maintain Aids To Navigation. (USCG)

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Prepared by Frank Colucci and John Bulakowski with graphic art and layout by Jodi Buckley.

"Stories of helicopter rescues would fill volumes, and the number of lives saved is steadily increasing. I, personally, would like to express my deepest respect and admiration for the gallant pilots and helicopter crews who perform these flights. Their actions, representing considerable skill and courage, equal the most heroic of battlefield achievements. It would be right to say that the helicopter's role in saving lives represents one of the most glorious pages in the history of human flight."

Igor Sikorsky – The Story of the Winged-S

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