



Sikorsky Archives News

Published by the Igor I. Sikorsky Historical Archives, Inc. M/S S578A, 6900 Main St., Stratford CT 06615

Evolution *of the* Sikorsky Skycrane



S-56

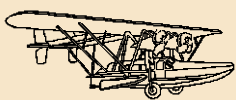


S-60



S-64

IGOR I. SIKORSKY HISTORICAL ARCHIVES, INC.



(203) 386-4356 | (203) 386-4218

July 2007

*Have a safe &
Happy 4th of July*

The S-60 Heavy Lift Crane Helicopter Was Developed Less Than 20 Years After Igor Sikorsky First Flew The VS-300.

The S-60 crane helicopter evolved from the S-56 heavy lift cargo/passenger cabin helicopter. The S-60 was a company-funded program to demonstrate the crane helicopter concept for external lift

operations. The advantages of the crane concept were unobstructed visibility of the cargo, larger cargo size not limited by cabin dimensions, greater payloads and lower production costs than cabin helicopters.



S-56 (H-37)



S-60

Both aircraft used the same Pratt & Whitney R-2800-50 piston engines, rotors and dynamic systems. The fuselage and landing gear were configured to the crane versions. The S-60 was never intended for production since turbine engines were contemplated for future crane

helicopters. First flight of the S-60 occurred on March 25, 1959, 12 months from start. The S-60 accumulated 333 flight hours in a wide variety of tests and demonstrations over a two year period. The aircraft was eventually donated to the New England Air Museum.



Igor Sikorsky was a hands-on design, development and test engineer in addition to being a self taught pilot. He was an advocate of testing what you envision, create and believe in.

The individuals seated under the S-60 in a people carrying platform are I.I. Sikorsky; C.Echeveria, Prog. Mgr; J.P. W. Vest, Engr.V.P; R.L. Smith, Proj. Eng.

Birth Of The S-64 Turbine Engine Powered Skycrane

As a result of the successful development and demonstration of the flying crane concept with the S-60 helicopter, Sikorsky decided to build a turbine engine powered crane with company funds. The S-64 was developed with two Pratt & Whitney JFTD-12 turbine engines. First flight was on May 9,

1962. U.S. Army and German government customers were the first to order the S-64A (CH-54A) crane helicopter. The FAA approved Type Certificate was issued July 30, 1965. Product improvements upgraded the S-64 (CH-54) Skycrane for the following payload capabilities for commercial and military usage:

<u>MODEL</u>	<u>MAXIMUM GROSS WEIGHT-LBS.</u>	<u>EXTERNAL PAYLOAD-LBS</u>
S-64A (CH-54A)	38,000	16,000 (8 TON)
S-64E	42,000	20,000 (10 TON)
S-64F	47,000	25,000 (12 ½ TON)



The variations in the lift capabilities of the skycrane is shown in the photos above. The CH-54A in the lower left photo is lifting one of ten 59 foot, 15,000 pound steel sections into place over a bridge in South







Vietnam, which was destroyed by the Viet Cong. The bridge was rebuilt and reopened to truck convoys within five weeks. Without the use of the CH-54A, this construction would have taken up to six months. ☺

The U.S. Army Named Its Ch-54 Helicopter “Tarhe” (Pronounced Tar’-he) In Honor Of A Noted Wyandot Indian Chief Of The Porcupine Clan In Ohio.

Chief Tarhe was born in Detroit in 1742 and died in Cranetown, Ohio in 1818. He was called Le Chef Grue by the French, and known by the English as Chief Crane. He was well known and respected by the settlers of the Ohio region. He fought on the side of the United States during the conflicts which

occurred in the late 1700s. Chief Tarhe remained faithful to the American cause, and was well known to the settlers in Ohio as a venerable, intelligent and upright man. General Harrison designated Chief Crane as the noblest of all the Indian Chiefs in the region. ☺

The U.S. Army designated the CH-54 the Tarhe because it was:

-  The helicopter with the largest payload in its inventory.
-  Chief Tarhe was known for great leadership and endurance.
-  The helicopter was a flying crane honoring the name of the Indian Chief.
-  Chief Tarhe was known for holding the Indian tribes together through negotiation rather than engaging in battles.
-  The crane bird has long legs and a passive disposition rather than an aggressive nature.
-  The CH-54’s mission was logistic support rather than aggressive attack.



Sikorsky designated the S-64 Helicopter as the Skycrane



CH-54 Skycranes in Vietnam completed numerous aircraft recoveries

During their first two years in operation, the Skycranes recovered 357 downed allied aircraft valued at almost \$200 million. This is equal to

approximately 100 times the cost of a single CH-54 helicopter. The variety of recovered aircraft are shown in the following photos:



CH-47 Chinook



F-4 Phantom



A-1 Skyraider



HH-3E



H-37

The CH-54 Skycrane utilized all purpose cargo and personnel pods, which were carried under the aircraft structure and capable of transporting troops, litters,

portable field hospitals and command posts. A door in front was provided in the people pod for in-flight access between cockpit and pod.



The Army retired its CH-54s after 30 years of military service

Following the end of the Southeast Asia conflict, the U.S. Army started to transfer CH-54As to the Army National Guard aviation companies. The CH-54 Skycrane was retired from military service, and replaced with the CH-47C version of the

Chinook, which was capable of lifting external loads equivalent to their CH-54A Tarhes. The CH-47Cs had the advantage of a cabin for additional versatility to meet the various Army missions. 🇺🇸

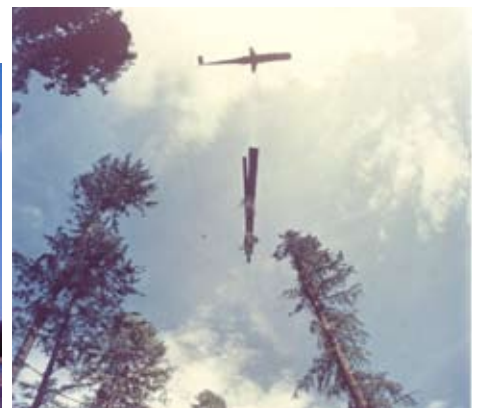
Erickson Air-Crane Company purchased the Type Certificate and manufacturing rights for the S-64 in 1992

Erickson Air-Crane Inc. has become a world leader in heavy lift industrial construction. Erickson Air-crane procured a number of Army CH-54 aircraft when they were put on the military surplus market. One of their air-crane was used to erect a 335 foot 300 ton communications mast atop the CN Tower in Toronto, Canada. The \$40 million tower soars 1,815 feet into the sky above Canada's

second largest city as shown below in the 2 photos on the left. An Erickson Air-Crane was used to lift and replace the Statue of Freedom from the dome of the U.S. Capitol in 1993 for a complete facelift and refurbishment as shown below in the 2 photos on the right. The photos show the Erickson Air-Crane ballet in the sky. The photos below are courtesy of Erickson Air-Crane Company in Oregon.



The versatility of the Sikorsky Skycrane in Alaska ski operation, construction, logging, container ship offloading, and offshore oil support is shown in the following photos:



The S-64B Super Skycrane design program was initiated in the 1970s for the U.S. Army, Navy and Marine evaluation.

The design effort evaluated various configurations from 25 to 50 ton payload capability. The aircraft were powered by three turbine engines, and

incorporated separate troop carrying sections in the crane super structure as shown in the following design illustrations:



The super skycrane program was replaced with the development of the Navy/Marine CH-53E heavy lift cabin transport helicopter shown in the photos below.

The three engine power drive system configuration of the S-64B design was incorporated into the CH-53E Super Stallion and Sea Dragon shown below.



Igor Sikorsky's vision of 100,000 pounds and above gross weight helicopters is close to reality today. The new Navy/Sikorsky CH-53K upgrade program

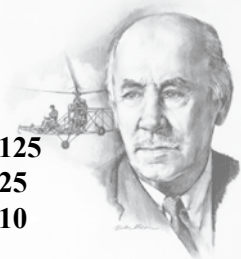
to 82,000 pounds, in addition to future envisioned programs such as the heavy lift versions of the Sikorsky X2 will make his vision a reality. 🚁



Join *the* Sikorsky Archives

Igor I. Sikorsky Historical Archives Inc.

MS S 578A
6900 Main Street
Stratford, CT 06615-9129



Life Membership \$125
3 Year Membership \$25
1 Year Membership \$10

Please send a check or money order (do not send cash)
payable to The Igor I. Sikorsky Historical Archives, Inc.

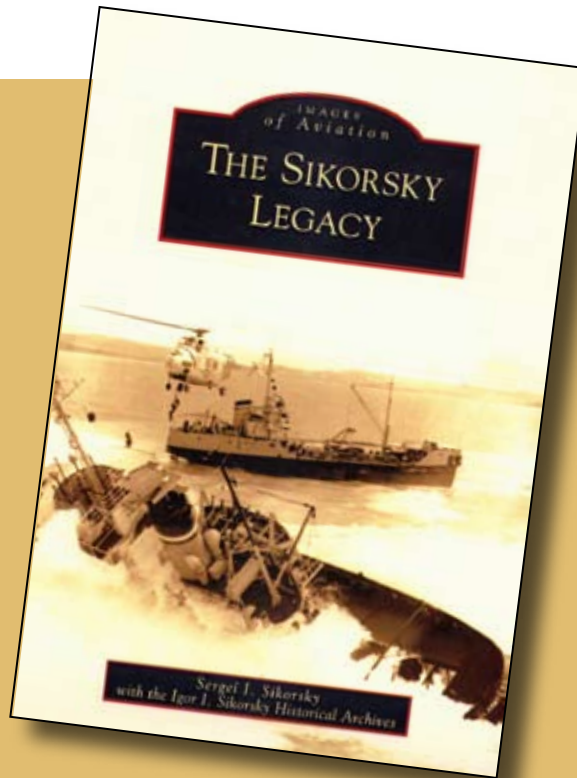
Name _____

Address _____

City _____

State _____ Zip _____

Phone Number(s) _____



The Sikorsky Legacy Is A New Book Written
By Sergei Sikorsky And The Sikorsky Historical
Archives, And Is Available For Sale At National
Book Stores Or At The Archives For \$20.00.



Newsletter designed and edited by
Lee Jacobson, Edgar A. Guzmán and John M. Kowalonek

“The work of the individual still remains
the spark that moves mankind ahead.”—
Igor Sikorsky



M/S S578 6900 Main Street, Stratford CT 06615

IGOR I. SIKORSKY HISTORICAL ARCHIVES, INC.



Visit us at Sikorskyarchives.com