



Sikorsky Archives News

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

S-65

The S-65 (H-53) heavy lift helicopter was launched in 1962 with the U.S. Marines CH-53A for combat assault mis-

sions. The U.S. Navy RH-53 minesweeping and U.S. Air force HH-53 combat air rescue versions quickly followed. The German

military version CH-53G was introduced in 1972. Other military customer configurations followed. ✈



CH-53A



RH-53

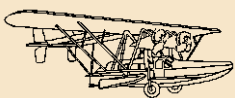


HH-53



CH-53G

IGOR I. SIKORSKY HISTORICAL ARCHIVES, INC.



Oct 2007

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

Newsletter © 2006. The Igor I. Sikorsky Historical Archives Inc. All rights reserved.

Sikorsky Helicopter Evolution Leading To The S-65



S-56 (H-37)



S-60



S-64 (CH-54)

The heavy lift helicopter technology developed by Sikorsky Aircraft on the S-56, S-60 and the turbine engine powered S-64 aircraft paved the way for the S-65. The commercial aircraft was designed to support short haul airline service, and carry 50 to 60 passengers up to 400 miles at speeds between 150 and 200 miles per hour.



The primary mission of the aircraft was for heavy assault transport, and was the largest and fastest helicopter of its type in the free world. The aircraft could transport 38 fully equipped troops, or 4 tons of cargo at speeds up to 200 miles per hour. The aircraft was qualified for emergency water landings.

In 1961, the U.S. Marine Corps issued a requirement for a heavy lift assault transport helicopter. Sikorsky was awarded a contract for the CH-53A in August of 1962. First flight of the CH-53A was October 15, 1964.

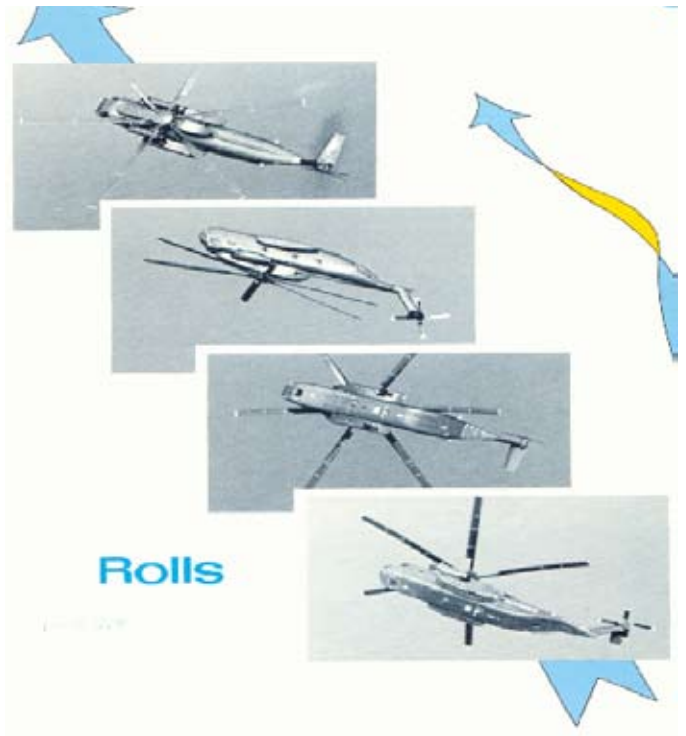
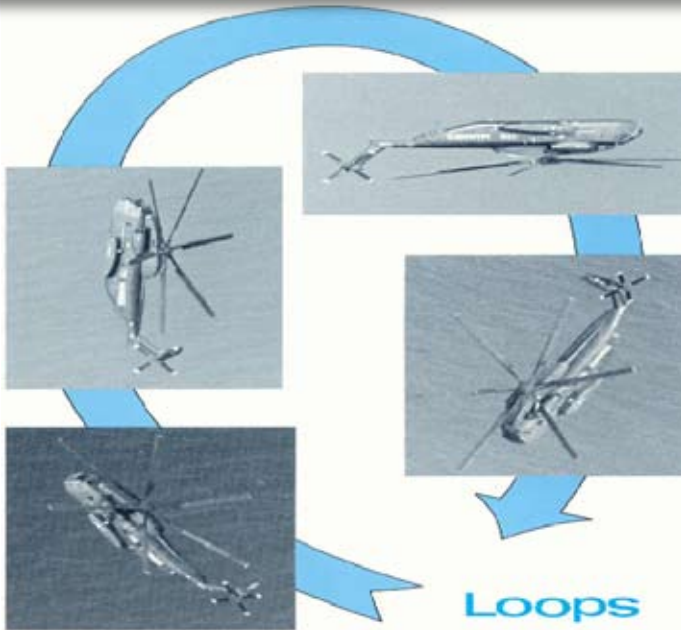


CH-53 Key Specifications, Performance and records:

- Two G.E. T-64-6 or -12 Engines
- Maximum Gross Weight: 50,000 pounds
- Range: over 230 nautical miles
- Rear loading ramp
- First trans Pacific ocean flight by helicopter
- First large helicopter to loop and roll
- First 6 bladed elastomeric main rotor head

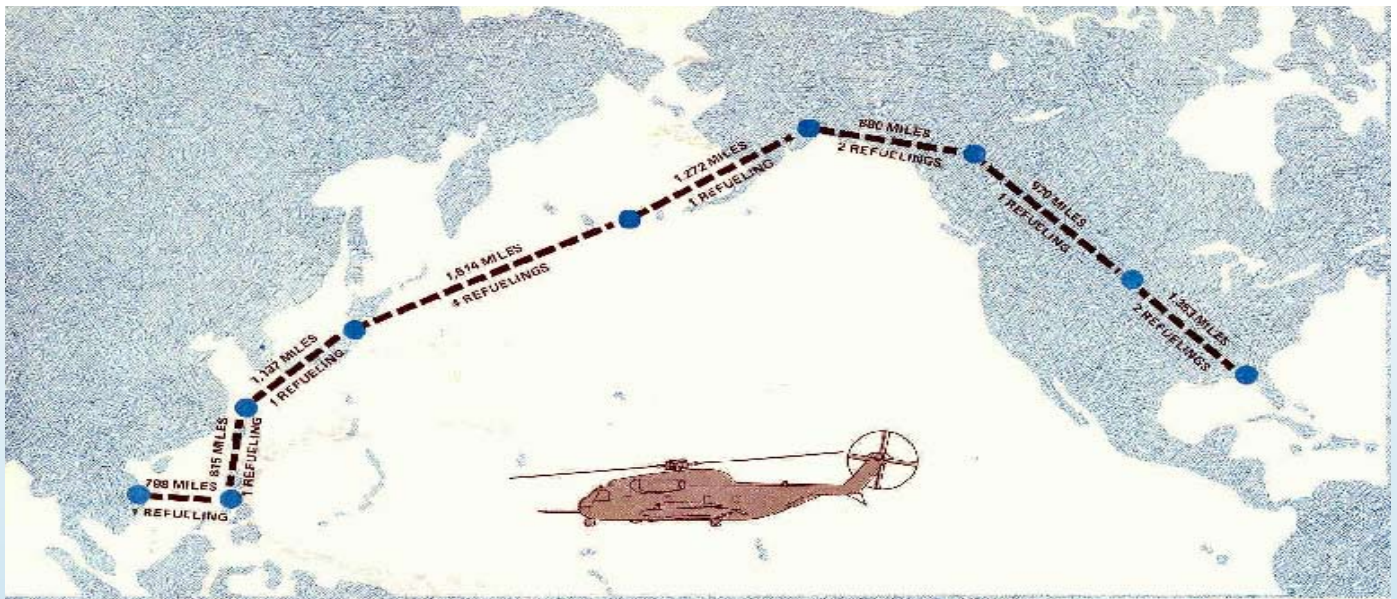


The agility and maneuverability of the CH-53A helicopter was demonstrated on Oct. 23, 1968 by USMC program manager LtCol. Robert Guay and, Sikorsky test pilot Byron Graham.



The Airforce HH-53C was the first heavy lift helicopter to fly a trans Pacific flight. The flight path and legs are shown below. Two U.S. Air Force Rescue helicopters

crossed the Pacific Ocean between August 15 and August 24, 1970. They were refueled in flight by HC-130N Tankers. ☺



TRANS PACIFIC FLIGHT PATH OF THE TWO AIR FORCE HH-53C HELICOPTERS

The H-53 A-G helicopters' maximum gross weight rating is 50,000 pounds. Basic aircraft systems are similar for all services, except for variations in mission equipment and systems requirements.



The U.S. Navy RH-53D used for minesweeping and naval missions had a towing capacity of 20,000 pounds. The first Navy mine counter measure squadron was used to clean up harbors in the Far East in 1971.



The U.S. Air Force HH-53's were used for search and rescue missions around the world.

The painting by Andy Whyte shown above portrays the exceptional rescue accomplished on January 13, 1989 of 32 personnel from a sinking Greek freighter, "Yarawonga", 500 miles from the coast of Ireland. The ship lost power and suffered severe structural damage to its hull, and was listing

uncontrollably in hurricane force winds up to 70 knots and 40 foot seas, and was on the verge of sinking. Upon receiving May Day distress calls, two CH-53D helicopters modified to the MH-53J Pavelow configuration, were dispatched from the U.S. Air Force rescue squadron stationed in Europe. After 10

hours of flying in near icing conditions, aerial refueling, hovering and rescuing the 32 personnel from a pitching and rolling deck, fighting rotor down wash and 50 knot winds, the two aircraft safely arrived at Shannon, Ireland. The crews were awarded air medals and the "Jolly Green Rescue Award". ☺

CH-53G Coproduction Program with West Germany:

During the 1960s, the German Heersflieger were operating the Sikorsky H-34 helicopters. In 1965, the German Department of Defense decided to upgrade their piston powered fleet to turbine versions, and evaluated the CH-47 Chinook vs the CH-53A Sea Stallion. They selected the CH-53A, as a better choice, and the CH-53G configuration was born.

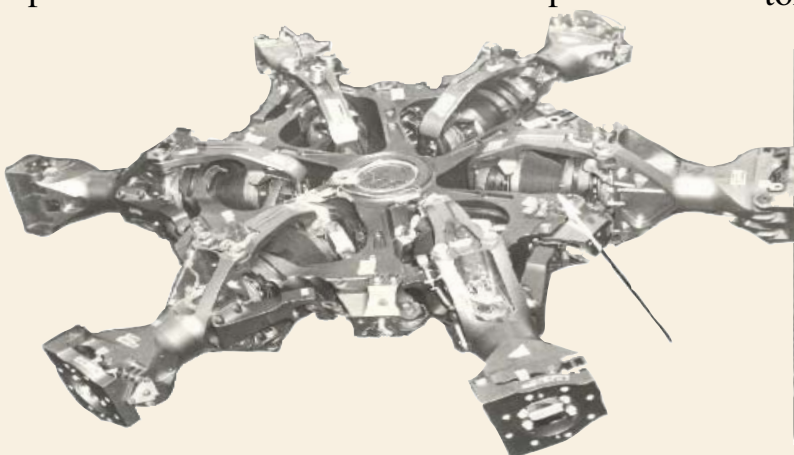
The first two CH-53D/G helicopters were built by Sikorsky Aircraft for the West German Federal Ministry of Defense. First flight occurred in March, 1969. The two CH-53D/G aircraft were used for flight tests at Sikorsky to insure the compatibility of German supplied communication and navigation equipment. The basic aircraft was the same as the U.S. Marine CH-53 and the U.S. Air Force HH-53. 110 aircraft were built in Germany under the co-production program. ☺

CH-53D Elastomeric Main Rotor Head:

Flight test of the first 6 bladed rotor head utilizing elastomeric bearings occurred in February 1972 on the CH-53D shown in the photo below. The arrow in the left photo.



shows one of the elastomeric bearings. The spherical elastomeric bearings are made of a sandwich of rubber and metal laminates, and requires no lubrication. This improvement in bearing technology set the way for future rotor system designs that followed. ☺



Evolution of the CH-53E Super Stallions:

The successful experience with the two engine H-53 series helicopters for combat assault, minesweeping, naval missions, search and rescue operations, plus the need for larger capacity vertical lift payloads, established the requirement for higher gross weight helicopters.

Sikorsky initiated a S-64B super flying crane program to be responsive to the Army Heavy Lift Helicopter (HLH) program, and the U.S. Navy/Marine requirements for a three engine aircraft. The three engine super crane program progressed to design and development of the dynamic systems. The S-64B program was discontinued, and replaced with the CH-53E Super Stallion program for the U.S. Navy and Marines. ☺



The CH-53E Basic improvements Include:

- Gross Weight over 70,000 pounds
- 3 GE-T-64 engines
- 7 main rotor blades
- Increased main and tail rotor diameters
- Growth transmission
- Canted tail pylon
- Strengthened airframe
- Improved flight controls



VH-53E Used for VIP Transportation

The success of the RH-53D helicopter in mine counter measure operation was the catalyst for the U.S. Navy to introduce the MH-53E Sea Dragon into its fleet.



The MH-53Es and CH-53Es increase their mission effectiveness with aerial refueling.



CH-53E Saluting the Statue of Liberty



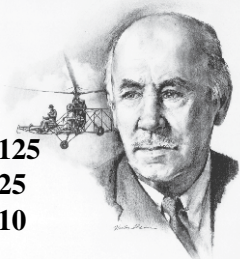
The Japanese Defense Force Procured the S-80M for naval operations in their country. The aircraft is a MH-53E with Japanese equipment. ☺



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) _____



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



“The work of a pioneer in science of technique often consists of finding a correct solution , or creating a working mechanism, based on laws that are not yet discovered”.

Igor I. Sikorsky

