Test of

Westland / Sikorsky SH-3 Sea King (S-61)

Produced by Virtavia

The Sikorsky SH-3 Sea King is a twin engined, five bladed, heavy helicopter originally built by Sikorsky, but also built on license by Westland, Agusta and Mitsubishi. It was introduced in 1961 where it served the US Navy as the first ASW (anti-submarine warfare) helicopter, but was later more known as a SAR (search and rescue) helicopter.

The helicopter is still today in service in many countries, and up until 2010 it was also still in service in Denmark, but was here replaced by the more modern Westland EH-101 Merlin. The sea King was also built as civilian versions which were designated as the S-61L and S-61N. The original Sikorsky version was equipped with two General Electric T58 turboshaft engines each with 1350Hk but Westland chose a different engine – the Rolls-Royce Gnome turboshaft. Also the American president has a Sea King designated as Marina One.

<u>Specs</u>

- Produced by Sikorsky/Westland
- First Flight March 11th 1959
- Introduction 1961
- Role ASW/SAR/Utility helicopter
- Status A few still in service
- Primary Users
 - US Navy
 - o Italian Navy
 - o Brazilian Navy
 - o Japan Maritime Self Defense



This helicopter I got directly from Virtavia, and as usual the download was very fast – super connection to / from Virtavias server, so it did not take a long time to download which I of cause appreciate a lot. The installation of the helicopter was also quick and easy as you know it from Virtavia products. Just follow the install wizard and that is all you have to do, so this was indeed very user friendly which I think is very important.

After installation I opened FSX to check if I could find the Sea King and if the installation wizard had done the job correctly – of cause it had. The helicopter was perfectly placed into the folder of Virtavia Products, and I could also see that you with this add-on actually receive several liveries. I think I counted 21 liveries which are very good, and all the mini pictures are showing the specific helicopter versions and not just one picture to show them all. Also included was a 21 pages manual – very nice indeed.

First I started by viewing the helicopter from the outside. Again Virtavia has made a superb model with high quality textures, a lot of details and animations and overall an add-on of perfection. The finish is superb and the result is stunning, and it didn't even impact my frames. When the engines are off and the rotor are at a standstill you can even see the rotor

blades bending downward at the tips, due to the weight and length of them – this was very nice to discover and for me very important detail. All versions were made to perfection and I will have to rate the model and exterior as a level in the high end for sure. I continued the external views and looked at the gear. When the gear is raised a small part of the gear is still visible and this is also important because this is also how it looks in real life. I also like the fact that Virtavia has animated the "tail" wheel to turn when you turn the helicopter during taxi – again a nice detail.



I have seen the Sea King almost on a daily basis at my home, because I lived very close to the military airport where these helicopters were stationed. I have also been inside a Sea King multiple times, so I know this helicopter quite well and have to say it has a special place in my heart – it remind me of the time where I was younger.

After checking out the helicopter from the outside I decided to go inside. Here I just thought that I would find a virtual cockpit, but very quickly discovered, of cause the virtual cockpit, but also a very well made "cabin" or cargo area. This I had not expected so this was indeed a super nice surprise and I was actually quite stunned by the level of detail and energy put into this. Very good quality in textures and a huge number of details – it was just like being there again – it was just as I remembered it to be.

After this surprise I went into the virtual cockpit. You need to remember that this is an old helicopter, so the instrumentation is different then what people normally are used to see today. You have a quite simple virtual cockpit with many analogue instruments (before the use of glass cockpits) and Virtavia has made this cockpit with the looks as used. I like that very much and for me it is very important to have a virtual cockpit that really looks like to real deal, and where you could feel the realism – this was very nicely made in this Sea King.

You find a lot of animated buttons, controls and instruments. The virtual cockpit is made with very good texture quality, great depth and a very nice finish. When sitting in the pilot seat you do feel like being in a real Sea King. You can also from the cockpit see the main rotor blades spinning and I also noticed that when looking at the Sea King from e.g. tower view with weather sat on fair = with cumulus clouds, I could still see the rotor blades spinning. This I have had some issues with in FSX – but this primarily with freeware add-ons, where the rotor blades were wiped out by the clouds – so this was again a nice surprise.

The sound set included in the package is very good – both internally and externally and e.g. gear etc. It is very realistic with its very distinct roaring sound of the two engines and these 5 huge rotor blades spinning. You can really hear that this is defiantly a huge helicopter with a lot of power.



My first test flight was from Herning Airport (EKHG), Denmark using VIDANdesigns Herning X scenery. This is the actual airport that I myself flew from for more than 10 years and I have here seen the Sea King on multiple occasions. On this flight I wanted to test ground handling, take-off, flight and landing. I started at the parking area in front of the tower and started taxiing to the active runway (that day it was 27) – to taxi this helicopter was absolutely no problem. You can turn the helicopter on a nickel and it reacts quickly on your control inputs. One thing I started wondering about was, that I didn't need to apply any additional throttle / pitch to start the taxi, just simply move the stick forward was enough. I have not been able to verify if that is entirely accurate, but when looking at real Sea Kings and their rotation on the rotor at idle, I could imagine that it could be accurate – at least when taxiing on concrete.

When I got the the active runway I started my take-off slowly. I lifted off the ground and held the helicopter at an altitude at about 5', then slowly turning 360 degrees and keeping the altitude and position over the runway, just to get a feeling of the helicopter and see how fast it reacted on control inputs. This is indeed a huge helicopter and I would think that it was a bit slow on the controls, but that was not the case. It was quick and actually not that difficult to control. I have several times tried the default EH-101 Merlin, and that one had given me some problems, but this helicopter was very different. Nice and easy to control.

After a few minutes at the altitude of 5' I started to climb and gain airspeed. I climbed to 1500' and turned right to course 350 and toured the area around the airport making both quick and slow turns – testing the "rudder" function in the tail rotor and climb/decent with airspeed of 0 = hovering. This is really a helicopter that has a superb reaction time – not as you might think of a helicopter this size. It turns quick and easily and is in general very easy to fly. Of cause if you are not use to fly helicopters, then don't start with this one. I would say that if you can fly the EH-101 Merlin, than this helicopter would be no problem – maybe just spend one hour of getting familiar with it.

This helicopter is the first helicopter ever built with the capability to land on water, which you can very easily see on the body of the helicopter - it is shaped much like a boat. This capability I of cause had to check, so I sat the course for the lake

at Sunds. I flew over the lake and slowly decended to 5' and started hovering – then I slowly landed on the lake and YES – the capability is indeed also included in this helicopter – This was great!

I tried this a couple of times before I sat the course for the airport again to make an approach and landing. I decided not to land on the runway and taxi to parking, but instead try to land at the parking. This would of cause be more difficult because I now had to set the helicopter down very precisely instead of just on a huge runway. It was a challenge yes, but just remember to take everything slowly and not get overexcited – then it turned out to be quite easy. The helicopter is very easy to control, and hovers very well so this I managed to do in the first try. This was really an experience with great success.



On my second test flight I wanted to make as a hospital transport flight. This was a typical mission for the Danish Sea Kings and I thought it could be fun. I started out from home base which was Karup AFB (EKKA), Denmark and flew to a fictive car crash near the city of Aarhus on the eastern coast of Jutland – Here I landed near the accident, got the injured person onboard and took off with the course for Copenhagen. Normally the helicopter would land of the roof of the

Copenhagen hospital, but this I haven't a scenery for, so I landed on the grass next to the hospital. After getting the injured person out of the helicopter, I again took-off and sat the course for home base.

On the flight back I generated a fictive distress call, and now sat up a new mission as a SAR (Search and Rescue mission) – this was also one of the missions that was very common for the Danish Sea Kings. This mission took me to the waters between Jutland and Funen where a boat had capsized. Now I had to hover only a few feet above sea level and very close to the boat to pick up the sailors. When that was done I sat course for the hospital in Aarhus and landed on the grass next to the entrance – hereafter I took off and flew back to home base.

This second test flight was incredible – it was much fun to fly this helicopter on similar missions as the real Sea Kings. This could be an idea for possible missions for this helicopter, if someone would be interested in creating them.



I decided to make a third test flight in a remote part of Denmark – I took off from Kangerlussuaq (BGSF) Airport, Greenland – alias Søndre Strømfjord, and toured the scenic land shapes below. The flight was to get a better feeling with the helicopter when flying in different weather conditions. I now tested take-offs, flights and landings with weather conditions as thunderstorm with wind on severe, rainy weather, low visibility and also flight at night. The helicopter is huge and heavy and therefore the different weather conditions didn't have a huge impact on the reaction and flying characteristics, but I have to say it was a challenge to land in a thunderstorm with the wind on severe. I was not able the first many times to land at a parking spot with this weather setting, but after a while with success on landing on the runway, I finally got the helicopter perfectly down on the parking spot. This was very cool and indeed a challenge, but when you finally master the spot landing in a thunderstorm, you get a truly nice feeling inside of you.

This Sea King is absolutely worth a try and I believe that simmers on all levels will be able to fly it. I think this is the very best Sea King ever made for flightsimulator and I of cause recommend it. I have now flown it for about 10-12 hours and this is most defiantly a helicopter that I will keep on using. I know that I might be a little colored by the fact that I have a personal link to this specific helicopter, but never the less this was an absolute delight to fly and I thank Virtavia for this very beautiful and superb helicopter.

Overall you here have a helicopter of high quality in regards to details, accuracy, sound, modeling and finish. A superb virtual cockpit with a very detailed back area and a very accurate model with a sound set that matches the helicopter. I did not check out sound files on youtube for this helicopter, because I have heard it on almost a daily basis in real life, and I

must say that Virtavia has done a really superb job. I rate this helicopter 5/5-stars and will be looking forward for additional add-ons from Virtavia. The quality you get here are as a standard much better than average, so I would never hesitate buying add-ons from Virtavia. I have now tried several add-ons, and they are all better than average.



Rays Aviation





US military

XHSS-2	The only prototype of the H-3 Sea King
YHSS-2	Pre-production S-61 aircraft, seven built for the U.S. Navy re-designated YSH-3A in 1962
SH-3A	Anti-submarine warfare helicopter for the U.S. Navy; 245 built. Originally designated HSS-2
HH-3A	Combat search and rescue helicopter for the U.S. Navy. 12 converted from SH-3A
CH-3A	Military transport version for the U.S. Air Force; three converted from SH-3As into CH- 3A configuration; they later became CH-3Bs NH-3A (S-61F) Experimental high speed compound helicopter, with extensive streamlining, no floats, short wings carrying two turbojet engines for extra speed; one converted from SH-3A. Later modified with a tail rotor able to rotate 90° to serve as a pusher propeller
RH-3A	Minesweeper helicopter for the U.S. Navy. Nine converted from SH-3A aircraft
VH-3A	VIP transport helicopter for the U.S. Army and Marine Corps; originally designated HSS-2Z. Eight built, plus two SH-3A (STAKE) conversions rebuilt from damaged helicopters (one YHSS-2 and one SH-3A). One (Army operated) was given to Egypt in 1972 and one (also Army operated) crashed at Walker Key, Bahamas in 1973. The rest were returned to the U.S. Navy (HC-6) in 1975–76 and replaced by the VH-3D. At least two have subsequently been placed in museums.
CH-3B	Military transport helicopter for the U.S. Air Force.
SH-3D	(S-61B) (HSS-2A) Anti-submarine warfare helicopter for the U.S. Navy. 73 built and two conversions from SH-3A
VH-3D	VIP transport helicopter for the U.S. Army (until 30 June 1976) and the U.S. Marine Corps
SH-3G	Cargo, utility transport helicopter for the U.S. Navy. 105 conversions from SH-3A and SH-3D
SH-3H	(HSS-2B) Anti-submarine warfare helicopter for the U.S. Navy
SH-3H	AEW Airborne early warning version for the Spanish navy
UH-3H	Cargo, utility transport version for the U.S. Navy

Sikorsky designations

S-61	Company designation for the Sea King
S-61A	Export version for the Royal Danish Air Force. Wider pontoons without flotation bags, a 530 liter center tank instead of a dipping sonar and no automatic powered folding system.
S-61A-4	Nuri Military transport, search and rescue helicopter for the Royal Malaysion Air Force. It can seat up to 31 combat troops. 38 built
S-61A/AH	Utility helicopter for survey work and search and rescue in the Antarctic
S-61B	Export version of the SH-3 anti-submarine warfare helicopter for the Japanese Maritime Self Defense Force.
S-61D-3	Export version for the Brazilian Navy
S-61D-4	Export version for the Argentine Navy
S-61NR	Search and rescue version for the Argentine Air Force
S-61V	Company designation for the VH-3A. One built for Indonesia.
S-61L/N	Civil versions of the Sea King.
S-61R	The S-61R served in the US Air Force as the CH-3C/E Sea King and the HH-3E Jolly Green Giant, and with the US Coast Guard and the Italian Air Force as the HH-3F Sea King (more commonly referred to by the nickname "Pelican")

United Aircraft of Canada

- CH-124 Anti-submarine warfare helicopter for the Royal Canadian Navy (41 assembled by United Aircraft of Canada)
- CH-124A The Sea King Improvement Program (SKIP) added modernized avionics as well as improved safety features
- CH-124B Alternate version of the CH-124A without a dipping sonar but formerly with a MAD sensor and additional storage for deployable stores. In 2006, the five aircraft of this variant were converted to support the Standing Contingency Task Force (SCTF), and were modified with additional troop seats, and frequency agile radios. Plans to add fast-rope capability, EAPSNIPS (Engine Air Particle Separator / Snow & Ice Particle Separator) did not come to fruition
- CH-124B2 Six CH-124B's were upgraded to the CH-124B2 standard in 1991–1992. The revised CH-124B2 retained the sonobuoy processing gear to passively detect submarines but, the aircraft was now also fitted with a towed-array sonar to supplement the ship's sonar. Since anti-submarine warfare is no longer a major priority within the Canadian Forces, the CH-124B2 were refitted again to become improvised troop carriers for the newly formed Standing Contingency Task Force
- CH-124C One CH-124 operated by the Helicopter Operational Test and Evaluation Facility located at CFB Shearwater. Used for testing new gear, and when not testing new gear, it is deployable to any Canadian Forces ship requiring a helicopter
- CH-124U Unofficial designation for four CH-124s that were modified for passenger/freight transport. One crashed in 1973, and the survivors were later refitted to become CH-124A's

Agusta

AS-61	Company designation for the H-3 Sea King built under license in Italy by Agusta.
AS-61A-1	Italian export model for the Royal Malaysian Air Force
AS-61A-4	Military transport, search and rescue helicopter
AS-61N-1	Silver License built model of the S-61N, with a shortened cabin
AS-61VIP	VIP transport helicopter
ASH-3A	(SH-3G) Utility transport helicopter
ASH-3D	Anti-submarine warfare helicopter. Flown by the Italian, Brazilian, Iranian, Peruvian, and Argentinian navies
ASH-3TS	VIP, executive transport mission helicopter. Also known as the ASH-3D/TS
ASH-3H	Anti-submarine warfare helicopter

Mitsubishi

S-61A	License-built version of the S-61A as Search-and-Rescue and Utility helicopters for the Japan Maritime Self Defence Force - 18 built
HSS-2	License-built version of the S-61B as an Anti-submarine warfare helicopter for the Japan Maritime Self Defence Force - 55 built
HSS-2A	License-built version of the S-61B(SH-3D) as an Anti-submarine warfare helicopter for the Japan Maritime Self Defence Force - 28 built
HSS-2B	License-built version of the S-61B(SH-3H) as an Anti-submarine warfare helicopter for the Japan Maritime Self Defence Force - 23 built

General characteristics

- Crew: 4 (2 pilots, 2 ASW systems operators)
- Capacity: 3 passengers
- Length: 54 ft 9 in (16.7 m)
- Rotor diameter: 62 ft (19 m)
- Height: 16 ft 10 in (5.13 m)
- Disc area: ft² (m²)
- Empty Weight: 11,865 lb (5,382 kg)
- Loaded weight: 18,626 lb (8,449 kg)
- Max. takeoff weight: 22,050 lb (10,000 kg)
- Powerplants: 2 × General Electric T58-GE-10 turboshafts, 1,400 shp (kW) each

Performance

- Maximum speed: 166 mph (267 km/h)
- Range: 621 mi (1,000 km)
- Service Ceiling: 14,700 ft (4,481 m)
- Rate of climb: 1,310-2,220 ft/min (400-670 m/min)

Variants

- S-61L Non-amphibious civil transport version. It can seat up to 30 passengers (13 Built)
- S-61L Mk II Improved version of the S-61L helicopter, equipped with cargo bins
- S-61N Amphibious civil transport version
- S-61N Mk II Improved version of the S-61N helicopter
- S-61 P (Payloader) Stripped down machine optimised for aerial crane work; features the fixed undercarriage of the S-61L, but with an empty weight almost 900 kg (2000 lb) less than the standard S-61N.
- S-61 Shortsky Shortened conversion of the S-61L and S-61N, designed to increase single engine performance and external payload.
- S-61T Triton S-61 modernized upgrade by Sikorsky and Carson; initial models converted were S-61