

## Hangar Happenings for January and February 2021

Rotorheads,

Hope that your 2021 has been going well. Good things have been happening at the museum. Despite the occasional wet weather, we made progress on several projects, both inside and outside of the hangar. Inside the hangar work was done on the Huey, the 46, the De Lackner, the HRP and the Helipod as well as a few aircraft related projects. Meanwhile, on the outside, some great infrastructure work was taking place. All this while, in the age of COVID, tours took place along with a cool historical nugget. So, check out this issue to see what's been happening.

In aircraft projects, major work was done on the **De Lackner DL-125 Cloud Buster**. A new side window frame was built, the rear windows worked on and the instrument panel restored. Additionally, in the cockpit, the fuel tank had to be removed to continue corrosion work in the lower part of the cockpit and the forward fuselage. The fuel tank sits right behind the right pilot seat. We put the Plexiglas oven, shown in the last HH issue, to work. With the oven we were able to heat up a sheet of Plexiglas so it would easily bend over a prebuilt form. In the rear of the fuselage, the engine fuel valve was removed to be worked on as well as the firewall and some fuselage frames that needed repair. At the very end of the fuselage, work continued to correct corrosion on the rear transmission framework assembly.

The **Boeing Vertol HH-46 Sea Knight** saw several jobs taking place to fix leaks and wiring. The radio wiring was further researched to continue work on building a new radio wiring harness. A harness is the expression we use for a lot of wires bundled together for a particular electrical job or jobs. In this case the radio harness has a lot more than just one, two or three wires. It's more



**New left side window frame**



**Instrument panel restored**



**Fuel tank removed**



**Engine firewall removed**



**Reviewing radio wiring specs**



**Oven forming cockpit window**



**New cockpit windows in place**



**Fuselage frames repaired**

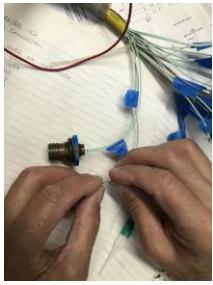


**Fuselage corrosion removal**



**Building a new wiring harness**





Setting wires



Testing oil pressure switch

like about 50 wires and each wire must be individually traced and crimped into its correct place in the multi-pin connector. The process is time and patience intensive, taking concentration and a steady hand. In

the arena of leaks, always a problem in aircraft with lots of moving parts, we needed to correct an oil leak and a fuel leak. The oil leak was in a pressure transmitter for the rear transmission. The transmitter was removed, fixed and reinstalled. The fuel leak is with the APP (Auxiliary Powerplant, pronounced ape), also known as the APU (Auxiliary Power Unit) and still in work. The APP is a small turbine engine located in the very end of the fuselage. It powers a hydraulic pump and an AC generator to pressurize the aircraft hydraulic system and energize the electrical system for ground operations. For example, the APP needs to be started to fold and unfold the rotor blades. Finally, work was done on a spare rotor positioning motor to practice upcoming work on the actual rotor positioning motor. The rotor positioning motor is a small hydraulic motor on the aft transmission used to put the blades in the proper position to fold.



Removing APP fuel control



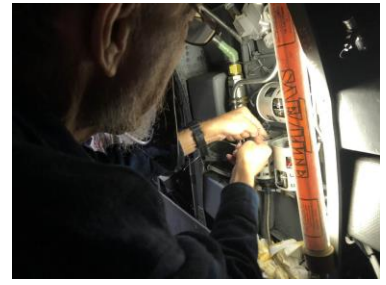
Working on APP fuel control



HH-1N Ground handling wheels



Measuring for tail lettering



Installing H-46 pressure switch



H-46 oil pressure switches



Working on H-46 APP



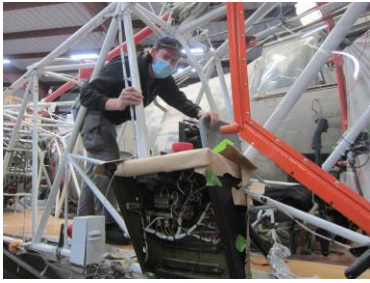
H-46 rotor positioning motor



HH-1N NAVY decal applied

some 20 years later. We found a new picture to include with the **Helipod** display making it a little more informative.





**Checking HRP wiring**



**Air & Space 18A arrives**



**H-53E tail rotor display**



**Eagle project discussion**



**New storage space**

An exciting event this time was the arrival of a new display. The **Air & Space 18A** autogyro was picked up and brought back to the museum. A trailer had to be modified to accommodate the wider wheelbase. This modification entailed a cross trailer trough with wheel pads at each end. The pads were manufactured in our machine shop and the whole affair securely bolted to the trailer deck. Right now, the aircraft is parked in a side hanger where it can be cleaned and made ready to move into the museum hangar. In other projects in the museum, the tail rotor display was enhanced. The main attraction here is a **CH-53E Tail Rotor** display. Four tail rotor blades were attached to a central hub and hung at the same height and angle that they would be on the actual helicopter. Since we did not have an actual 53E tail rotor hub, we made a central device that the blades could be attached to at the proper separation. We then blew up a photograph of an actual hub mounted it on board and put it over the artificial hub we had made. It looks pretty realistic from the ground level. Below the blade, at eye-height, there is a large picture with the words "you are here" and an arrow pointing to where you are standing to give a better perspective on the size and location of the 53's tail rotor.

Infrastructure work included finishing the outside covered garage/storage area, expanding a hangar storage area and cleaning an English Wheel Roller. Finishing the outside garage/storage will be part of a **Boy Scout Eagle Project**. This will be the third BS Eagle project that we have accommodated. This period just saw meeting to discuss the project



**New Helipod picture**



**18A trailer wheel pad**



**H-53E "you are here" picture**



**Cleaning out end hangar**



**Hangar construction**



**Hangar work**

specifics. The work will be accomplished in the next one or two Happenings. The endcap hangar was



**Wheel roller**

beefed up and strengthened to accommodate an **engine and rotor blade storage area**. The area was also improved with better lighting and inside access. We received a new addition to our machine shop ability with the arrival of an **English Wheel Roller**. The wheel roller required a bit of cleaning. It is a machine which will allow us to make compound metal curves for restoration and repairs.



**Visiting Magni Gyro M-16**

Even during this time of COVID, occasional tours take place. The Boy Scouts came through and a few other small groups. We also have many off airport aircraft coming by for touch and goes and hover practice, both fixed and rotary-wing.



**Huey long line work**

There's a couple of relatable historical notes this time to both San Diego and the Museum. On February 10 of 1955 the Bell Helicopters XV-3 Convertiplane was unveiled at their Hurst, Texas factory. The XV-3 was a tilt rotor and the granddaddy of the V-22 and CV-22 Osprey tilt rotors based at MCAS Miramar and NAS North Island here in San Diego. The XV-3 accumulated 125 flight hours in 250 flights achieving 110 full transitions between 1955 and 1966. Its program data was played forward into the XV-15 in 1977, the V-22 in 1989 and the V-280 Valor in 2017. Then on February 23 of 1955 Bell Helicopter won an Army competition for the first production turbine-powered utility helicopter the XH-40. The XH-40 was designated the HU-1 and then later the UH-1 Iroquois, the Huey. The Huey is a family of helicopters adapted from the Bell Model 204 and 205. The Huey may be the most produced helicopter design in history, from the H-1A to the H-1Y probably tens of thousands of aircraft have been produced. I don't have numbers on this, but just during the Vietnam War more alone than 7000 airframes were made.



**Bell XH-40/HU-1 Huey**



**Bell UH-1Y Venom**



**Boy Scout tour at the NOTAR**



**Tour at the Kamov Ka-26**



**Bell XV-3 Convertiplane**

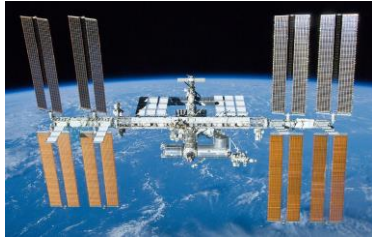


**Bell V-280 Valor**



**Mars helicopter Ingenuity**





**International Space Station**



**SpaceX Crew Dragon**

The final treat I have for you in this issue is an update on the Mars helicopter Ingenuity. That update is in the first two video links below. The third is a special treat that I'm revisiting for you, which I originally sent to you in 2014. It's a tour of the International Space Station (ISS) by Navy Captain Sunita "Sunny" Williams. Sunny may be one of the most remarkable women in aviation history. Sunny is a graduate of the Naval Academy and the Naval Test Pilot School and flew the CH-46D as a Navy fleet pilot, in which she was trained here at NAS North Island. She became a NASA astronaut, flying as Flight Engineer on Expedition 32 then as Commander of Expedition 33 to the International Space Station. In 2018

She held the record for the most space walks and the longest spacewalk for a female astronaut and was the first person to run a marathon in space, running the Boston Marathon in 2007 while aboard the ISS. In 2018 she was selected to lead a team of 9 NASA astronauts to augment crews for the SpaceX Crew Dragon and Boeing Starliner manned space flight programs.



**Capt. Williams, USN**



**Boeing Starliner**

So, get your shots then man or woman up your vehicle of choice and get to the Museum. There you can check out our Huey, our tilt rotor model displays and the first, and last, rotary-wing space vehicle. Until then, stay safe because we want to see you here.

Chip out

[NASA Ingenuity Mars Helicopter Prepares for 1st Flight \(asdnews.com\)](https://www.asdnews.com)

[MARS Helicopter Ingenuity is Ready to Fly on Mars. This is What Happens Next - YouTube](#)

[Departing Space Station Commander Provides Tour of Orbital Laboratory - YouTube](#)