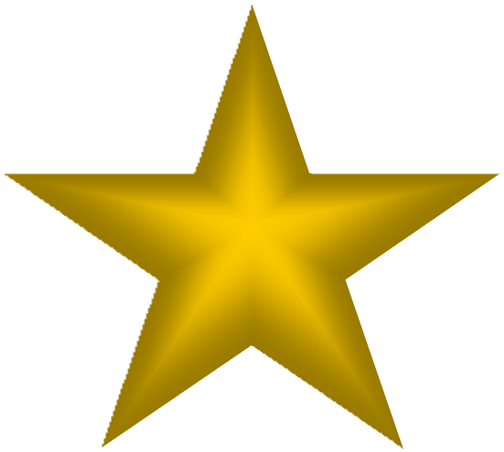
Stafford AIR & SPACE MUSEUM



Star Tour Guide

Follow the stars
through the museum
to experience the evolution of
air and space exploration!

Smithsonian Affiliate

Thanks for visiting the museum!

1. Lunar Sample (Moon Rock):

Inside this acrylic encapsulation is a small fragment of an ACTUAL MOON ROCK gathered by the Apollo 17 astronauts from the Taurus-Littrow area of the moon in December 1972. This piece was presented by NASA to General Stafford for his pioneering work as a Gemini and Apollo astronaut. (Actual artifact)

2. Space Medal of Honor:

The Congressional Space Medal of Honor is the highest civilian honor presented by the United States to astronauts that have distinguished themselves to the heights order. In 1993, through authorization by the U.S. Congress, President George H.W. Bush present General Stafford this Medal of Honor for …"feats of extraordinary accomplishment" for service to the United States and to mankind. (Actual artifact)

3. Wright Flyer:

On December 17, 1903, the Wright Brothers achieved the first successful flight of a heavier-than-air, engine powered aircraft at Kitty Hawk, North Carolina. This is one of the few flyable replicas of that aircraft. (Full-scale, flyable replica)

4. Wright Flyer Fragments

Known as the holy grail of aerospace artifacts, this fabric swatch and propeller fragment, are pieces from the original 1903 Wright Flyer that flew to the moon with Neil Armstrong on the historic Apollo 11 mission. Neil Armstrong carried these significant pieces in his Personal Preference Kit or (PPK). Each astronaut was given a (PPK) to carry mementos on their missions, and it was fitting that the first man to walk on the moon carry these special pieces from the first successful powered flight.

5. Blèriot XI:

The first aircraft to cross the English Channel. Louis Blèriot's feat in 1909 altered the concept that island nations, like England, could only be invaded from the seas. This was proven out just five years later as aircraft development expanded the scope of World War I, and proved no nation was immune to attack. (Full-scale replica)

6. Curtiss Pusher:

One of the first airplanes to be built in quantity. It was also the aircraft type which made the first takeoff and landing from the deck of a ship. (Full-scale flyable replica)

7. Sopwith Pup:

One of the first operational fighter aircraft, the "Pup" served the British well on the Western Front during the first two years of World War I. One of the first aircraft to use a mechanically synchronized machine gun that allowed it to fire between the blades of a rotating propeller. (Actual artifact)

8. "Spirit of St. Louis":

Charles Lindbergh became one of the most famous figures of the 20th Century when he became the first person to fly a solo, nonstop flight across the Atlantic Ocean in his custom-built Ryan NYP aircraft named for his financial backers from St. Louis, Missouri. (Full-Scale Replica)

9. V-2 Rocket Engine:

This is one of the only remaining ACTUAL V-2 rocket engines left in existence. Developed by Nazi Germany during World War II, the V-2 is considered as one of the greatest leaps forward in rocket technology, and is considered the world's first operational ballistic missile. Captured by the U.S. at the end of the war, the V-2 technology established the foundation for America's space program and its future journey to landing man on the moon in 1969. (Actual artifact)

10. The Dr. Thomas & Mary Stafford Theater:

Named for Tom Stafford's parents, this small theater presents a short ten minute showing of the hilarious film "The Wrong Brothers," which details the trial and error engineering methods used during the early days of aircraft development. This film won the 1954 Academy Award for best short documentary.

11. Goddard Rocket:

An American, Dr. Robert Goddard, developed and launched the first successful liquid-fueled rocket in 1926. His invention would open the door to make space flight possible. (Full-scale replica)

12. Rockets of the World:

Showcasing all of the man-rated rockets of the "Space Race" and many of the current satellite boosters used by the world's nations, each of the models in this rare collection are all in the same 1/72nd scale to show relative size comparisons.

13. F-1 Rocket Engine:

The F-1 is the largest and most powerful rocket engine ever built. Five of these powered the giant Saturn V moon rocket. On liftoff, these engines generated more than 176 million horsepower, and each engine burned a swimming pool amount of fuel each second. (Actual flight-ready artifact)

14. J-2 Rocket Engine:

Five J-2 rocket engines powered the second stage of the Saturn V moon rocket, and one powered the third stage. A single J-2 also powered the second stage of the Saturn I-B rocket. The J-2 was the first, large, hydrogen fueled engine, and first to be able to be restarted multiple times during flight. An uprated version of this engine will be used on the new Heavy Lift Vehicle being developed by NASA. (Actual, flight-ready artifact)

15. Soviet NK-33 Rocket Engine:

The Soviet-built NK-33 rocket engine was the highest performing liquid oxygen/kerosene engine ever built. It was designed to power the giant N-1 moon rocket - the Soviet competitor to the American Saturn V rocket. Our museum is the only place you can see an American F-1 engine and a Soviet NK-33 engine together on display. Only 3 NK-33 engines are on display in the entire world. (Actual Flight-Ready Engine)

16. Mission Control Console:

This is one of the actual control consoles from the historic Mission Control at the Johnson Space Center in Houston. This console was used from the early Gemini missions in 1965 through the Apollo moon landings, Skylab, Apollo-Soyuz, and the early Shuttle program. More than twenty graduates of Southwestern Oklahoma State University located here in Weatherford worked in Mission Control during these early space missions. (Actual used artifact)

17. Gemini Spacecraft:

(Orbital configuration) This is a complete Gemini spacecraft, as it would have appeared in Earth orbit. At the end of their space mission, and just before the two-man crew started their fiery reentry back through the atmosphere, the two large white colored equipment modules on the back of the craft were blown off to expose the rear heat-shield, and the front half of the nose was jettisoned to allow the parachutes to come out. (Full-scale, high fidelity replica)

18. Gemini 6A Spacecraft

This is the ACTUAL FLOWN Gemini VI spacecraft flown by astronauts Tom Stafford & Wally Schirra when they performed the very first rendezvous in space with another spacecraft (Gemini 7) on December 15, 1965. The mission accomplished by this spacecraft is considered as one of the most significant events in manned space history, for without rendezvous, a future lunar landing would have been impossible. (Actual flown artifact)

19. Apollo 10 Space Suit:

This is the ACTUAL flown space suit worn by Tom Stafford when he commanded the historic Apollo 10 mission to the moon in May, 1969. Wearing this space suit during reentry, Stafford and his fellow crewmates, Gene Cernan and John Young, set the record for the fastest speed a human had ever achieved – 24,791 mph – a record that will not be broken until someone returns from a trip to Mars. (Actual flown artifact)

20. Apollo Command & Service Module:

This is a full-scale, high-fidelity replica of an Apollo Command & Service Module (CSM) spacecraft. The Apollo CSM served as the "mother-ship" of all Apollo, Skylab and Apollo-Soyuz missions, including all of the lunar landing flights. The astronauts rode in the conical-shaped front end of the spacecraft called the COMMAND MODULE (CM) during launch and reentry. Because it had a protective heat-shield, it was the only section of the 36-story tall Saturn V launch vehicle that could return to Earth. The large cylinder section behind the Command Module is the SERVICE MODULE, that supplies oxygen, water, electrical power, communication, and propulsion for the spacecraft, and is jettisoned just before reentry.

21. Lunar Module:

The Apollo 11 Lunar Module (LM) "Eagle" was the first crewed vehicle to land on the Moon. It carried two astronauts, Commander Neil A. Armstrong and LM pilot Edwin E. "Buzz" Aldrin, Jr., the first men to walk on the Moon. At launch, the lunar module sat directly beneath the command and service module with legs folded, inside the spacecraft-to-LM adapter. (Full-scale, high fidelity replica)

22. Titan II Rocket:

The Titan II rocket served two important purposes for the United States. It was originally developed by the Air Force as an Intercontinental Ballistic Missile (ICBM) with the capability of carrying large nuclear warheads. NASA then determined that it would be the perfect booster to launch their Gemini manned spacecraft. Tom Stafford rode two of these rockets into space aboard his Gemini 6 and 9 missions in 1965 and 1966. This is one of the few actual Titan II missiles still in existence. This specific rocket spent most of its life inside an underground, hardened missile silo in Kansas tipped with a huge nuclear warhead. (Actual flight-ready artifact)

23. Mark 6 Nuclear Warhead:

This is an actual deactivated Mark 6 warhead of the type that tipped the Titan II ICBM rocket, as seen to your right. This warhead contained one of the largest thermonuclear warheads ever built by the U.S. Its yield was equivalent to more than 600 times the explosive power of the atomic bomb dropped on Hiroshima, Japan. (Actual flight-ready, but disarmed, artifact)

24. Hubble Space Telescope:

Since its launch in 1990, the Hubble Space Telescope has been described as the greatest astronomical tool ever developed since Galileo's original invention of the telescope. Launched into Earth-orbit by the Space Shuttle, and still working after nearly a quarter of a century, this giant telescope continues to send back photos of the universe with unprecedented quality. (1/15th scale model)

25. Shuttle Solid Rocket Booster Segment:

This is an actual, flown segment of a Space Shuttle Solid Rocket Booster (SRB) that was flown into space seven times, recovered, and reconditioned for flight. Because of the extreme pressures and temperatures this unit had to endure during launch, there are no seams in the cylinder. It was machined out of a solid block of carbon steel. (Actual flown artifact)

26. Space Shuttle Main Engine:

This is an actual flown Space Shuttle Main Engine (SSME) that helped power the orbiter into space on seven different missions. The SSME was the first large liquid fueled rocket engine designed to be reused, and able to be throttled to different power levels. These requirements made this engine the most sophisticated and complex rocket engine ever developed. (Actual flown artifact)

27. Gemini Space Suit:

This is Tom Stafford's actual Gemini space suit used during the preparation for his Gemini 6 and 9 space missions. (Actual flight-ready artifact)

28. Astronaut Maneuvering Unit:

This is the actual flight back-up unit of the Astronaut Maneuvering Unit (AMU) that was to be worn by space walking astronaut Gene Cernan during the Gemini 9 mission in 1966. The Commander of the mission, Tom Stafford, had to cut Cernan's EVA short because of major problems encountered by Cernan that nearly cost him his life. The original AMU was not returned to Earth. (Actual artifact

29. Spacelab Pallet:

The Spacelab Pallet is a U-shaped platform for mounting instrumentation, large instruments, experiments requiring exposure to space, and instruments requiring a large field of view, such as telescopes. The pallet has several hard points for mounting heavy equipment. The pallet was used to transport hardware such as the Canadarm which played a key role in station assembly and maintenance. This spacelab pallet flew three times in space. (Actual, Flown Artifact)

30. "Crawler Shoe":

The Space Shuttle, Saturn V and I-B rockets were carried the three miles to their launch pads aboard a giant "crawler." This is one of the actual links out of one of the crawler's motorized treads, and indicates how huge the rockets and crawler were. Each of these crawler "shoes" weighs one ton – 2,000 pounds. (Actual artifact)

31. Fixed-Base Shuttle Simulator:

This is the actual Space Shuttle Fixed-Base Simulator that was located at NASA's Johnson Space Center in Houston for more than 30 years during the Space Shuttle Program. All 135 Shuttle crews did their primary fixed-base training in this simulator. The two sections displayed here would normally be hooked together to form the Shuttle's main Flight Deck (or cockpit).

32. Lunar Module Cockpit:

This is a full-scale replica of a lunar module forward cockpit. This unit will soon be restored to an interactive exhibit. Visitors will be able to pilot the Apollo Lunar Module (LM) while standing in the cockpit that accurately represents the forward cabin of the actual historic LM.

Out For Restoration

33. Lunar Module Checklist:

This is one of the actual flown checklists used by Apollo 10 Commander Tom Stafford to pilot the first Lunar Module to the moon. In May 1969 the flag was also flown to the moon on the Apollo 10 Lunar Module. (Actual flown artifacts)

34. Apollo-Soyuz Docking Ring:

The Apollo-Soyuz mission in 1975, commanded by Tom Stafford, was the first international space flight. The mission required two very dissimilar spacecraft – the American Apollo and the Russian Soyuz – to rendezvous and dock together in orbit. This required special docking rings to be designed for both spacecraft that would properly fit together. This is the actual flight backup docking unit for the ASTP mission that would have been mated to the Soyuz spacecraft. (Actual flight-ready artifact)

35. Bell X-1

On October 14, 1947, the experimental Bell X-1 rocket plane became the first aircraft to punch through the sound barrier - one of aviation's greatest technological obstacles. Air Force Captain Chuck Yeager piloted the historic flight and named the aircraft "Glamourous Glennis" in honor of his wife. (Full-scale, high-fidelity replica)

36. F-86 "Sabre" Fighter:

America's first swept-wing jet fighter aircraft, the North American F-86, gained fame during the Korean War as the outstanding fighter of its day. One of the many aircraft to be flown by Tom Stafford during his military career, it was also one of his most favorite to fly. (Actual artifact)

37. MIG-21R "Fishbed" Fighter:

The Soviet MIG-21 was the most produced jet fighter aircraft in history. It served as the front-line fighter for nearly all of the Soviet-bloc countries during the Cold War. This specific "Fishbed" was flown by General Stafford during his tenure as Commander of the USAF Flight Test Center, Groom Lake, and "Area 51". (Actual artifact)

38. T-38 "Talon" Trainer:

Tom Stafford was the Project Test Pilot for the Northrop T-38, the world's first supersonic training aircraft. So successful has been the design of the "Talon" that even after nearly a half century of flying, in continues to be America's primary advanced jet fighter training aircraft, and has been further cleared to fly until 2030. The T-38 has also been NASA's primary supersonic training aircraft for astronauts since the early 1960's. (Actual artifact)

39. "Little Boy" Bomb:

This is a full-scale replica of the "Little Boy" Bomb, the first nuclear weapon used in warfare. "Little Boy" was the codename for the type of atomic bomb dropped on the Japanese city of Hiroshima on August 6, 1945, during World War II. According to figures published in 1945, 66,000 people were killed as a direct result of the Hiroshima blast, and 69,000 were injured to varying degrees. Of those deaths, 20,000 were members of the Imperial Japanese Army. (Full-Scale, High Fidelity Replica)

40. B-61 Thermonuclear Bomb:

The B-61 is one of this country's current air-dropped nuclear weapons. Light enough to be carried by fighter aircraft, such as the F-16 seen in front of you, the bomb has the distinctive capability of having its explosive power altered by the pilot prior to being dropped by simply turning a dial from low power to high yield. At full power, the B-61 can generate more than 22 times the power of the bomb dropped on Hiroshima. (Actual flight-ready, but disarmed, artifact)

41. F-16 "Fighting Falcon":

Partially developed under the direction of General Tom Stafford, the F-16 aircraft still serves as one of America's front-line fighter aircraft. It is able to pull more than 9-g maneuvers, and can reach a top speed of Mach 2+. (Actual artifact)