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Self Guided Tour of The Aviation Hall of Fame & Museum of New Jersey

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Edited by Shea Oakley
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The human desire to fly has a long history. Human flight began in the United States in 1793, over 200 years ago with the balloon and more than 100 years ago with the fixed wing heavier-than-air aircraft flown by the Wright Brothers on December 17, 1903.

Welcome to The Aviation Hall of Fame & Museum of NJ (AHOFNJ), which is the official Aviation Museum of New Jersey, and is dedicated to the preservation and presentation of the Garden State's distinguished aerospace heritage covering the historic events and technological advances made by

New Jersey's air and space pioneers and heroes whose achievements have spanned more than 200 years.

Our Museum offers visitors an opportunity to view historic aircraft, engines, air and space artifacts, photographs, and an extensive collection of models. It will provide you with a rewarding experience and the opportunity to learn more about the many historic events that took place in NJ. At the same time you will be introduced to New Jersey's aviation pioneers and heroes, men and women who met the challenges of flight head on.

The Tour

Museum Entrance
The display case, located in the entrance, contains models of military aircraft.

There are more than 400 models on exhibit throughout the Museum. Many of the models you will see are unique. For example, the Hindenburg dirigible was custom built to scale at a cost of $10,000 and came to our Museum as a donation. Some of the commercial aircraft you see on display were built to the manufacturer's specification for display in ticket offices or other locations of importance to the company.

On the second floor in the Airport Room, you can also see a Diorama of Newark Liberty International Airport, also built to scale. [Site-map]

Hallway

Artwork depicting early New Jersey pioneers.

The first man to fly in America was Jean Pierre Blanchard. He flew in his balloon from Philadelphia in January, 1793. He was airborne for 46 minutes and landed 15 miles away in Deptford, NJ. The same trip by land would normally take up to 4 hours and included crossing the Delaware River.

Another early balloonist, Charles Durant, flew a hydrogen filled balloon from Manhattan to Perth Amboy, NJ, on September 9, 1830. More than 20,000 spectators cheered him along the way.

Lucretia Bradley became the first American woman to fly solo, in a gas filled balloon, on January 24, 1855 from Easton, PA, to Still Valley, NJ.

In June, 1863, Dr. Solomon Andrews flew a dirigible balloon of his own design, the first airship of its kind. Three years later, he flew across NJ from Perth Amboy to Astoria, Queens.

Frank and Joe Boland of Rahway, NJ designed and built the first fixed wing aircraft in NJ in 1909, unique for its “tail-less” configuration. [Site-map]

Raymond R. Wells Sky Room

The first stop on your self-guided tour is our 60 seat theater where you will experience the saga of New Jersey’s aerospace history from our informative nine-minute film

“Flight”. The film introduces our Museum and some of the pioneers, heroes, and events that have a connection with New Jersey. [Site-map]

· Models suspended from the ceiling in this room include: Front to back:
. A PBY Catalina Flying Boat
· Leonardo da Vinci’s dreams of flight model (detail on wall).
· The F-104 a U.S. Air Force jet fighter used during the 60s and 70s.
· The Boeing 777 passenger airliner.
· The World War II B-24 “Liberator” bomber.
· A communications satellite.
· The Lockheed Vega flown across the Atlantic by Amelia Earhart (in red).
· A U.S. Army Air Force Douglas C-47 from WWII
. A U.S. Army Blackhawk Helicopter
· At the door is a display commemorating Orville and Wilbur Wright and their successful flights in December, 1903.

Upon completion of the movie, proceed straight past the rest rooms and gift shop toward the elevator. Turn left into The Great Room. Tour exhibits clockwise. [Site-map]

The Great Room

Here, history comes alive with air and space equipment, artifacts, photographs, multimedia displays, hands-on exhibits and interactive simulators. [Site-map]

Exhibit GR-1

“The Golden Age of Aviation”

Display case: Contains memorabilia regarding “Lucky Lindy” Charles A. Lindbergh.
Wall: Photos of long distance flight pioneers C. Lindbergh, C. Chamberlin and R. Byrd

The Great Trans-Atlantic Competition

By 1927, there were many attempts being made to fly across the Atlantic Ocean from NY to Paris in quest of a $25,000 prize offered by hotelier Raymond Orteig and the instant fame that would come to whomever achieved it first. In 1927 the competitors were: Richard E. Byrd in a Fokker C-2, a tri-motor monoplane, with the Wright J-5 Whirlwind engines (a J-5

engine is located at the Curtiss-Wright exhibit.) The plane was named “The America”. (photo on wall) The Wright-Bellanca aircraft was a single engine monoplane named "Columbia" (see model in display case) to be piloted by NJ born Clarence Chamberlin and Charles Levine, a financier.

Another challenger was 25 year-old Charles Lindbergh in the Ryan monoplane, “The Spirit of St. Louis,” (model suspended) an aircraft built to his specifications in San Diego that also used a N.J.- built J-5 Whirlwind engine.

On April 12, Chamberlin and Bert Acosta with 451 gallons of gas and flying at an altitude of 2,000 ft. flew for 51 hours, 11 minutes non-stop to prove the Whirlwind's endurance and the capacity to fly from NY to Paris.

Lindbergh flew his aircraft to Teterboro Airport for final preparation of his engine by Wright Aeronautical personnel. Then, on May 20, 1927, Charles Lindbergh took off from Roosevelt Field, L.I. and after 33.5 hours landed at Le Bourget Airport outside Paris. He became “the hero of the age,” receiving, among other honors, a ticker-tape parade in NYC upon his return to America.

Chamberlin and Levine then flew their Wright-Bellanca plane "Columbia" from Roosevelt Field on June 5th and landed June 6th near the village of Mansfelt, Germany. They had flown 42 hours and 45 minutes and flew 295 miles further than Lindbergh.

With Admiral Byrd, and Noville, Acosta and Balchen, the Fokker C-2 “America” flew from Roosevelt Field on June 29th and arrived 42 hours later on July 1 at 2 am safely ditching the aircraft just off a beach in France.
[Site-map]

Exhibit GR-2,
“The First to Fly”

An interactive display about the Wright Brothers.

The first flight was on December 17, 1903 at Kitty Hawk, NC, by Orville and lasted 12 seconds covering a distance of 120 feet. There were a total of four flights that day with the final flight by Wilbur lasting 59 seconds and traveling 284 yards. [Site-map]

Exhibit GR-3
"Chamberlin's Journey"
Chamberlin was presented this glass globe sculpture by the Czechoslovakian government after his flight to Germany. [Site-map]

"Lighter-Than-Air"

Exhibit GR-4

Naval Air Station Lakehurst

Its history began as a munitions-testing site for the Imperial Russian Army in 1916. It was then named by the United States Army as Camp Kendrick during World War I. The United States Navy purchased the property in 1921 for use as an airship station and renamed it Naval Air Station Lakehurst. In 1920, the United States Navy established airship bases at Cape May and

Lakehurst, NJ. The first rigid airship, the USS Shenandoah, was begun in 1921. [Site-map]

The Hindenburg Disaster

On May 6, 1937, the German dirigible “Hindenburg”, arriving at Lakehurst, NJ, was approaching its docking mast. Suddenly, as it was being guided into its anchor position, it burst into flames.

Miraculously, 35 of the 97 passengers and crew survived the disaster, but the destruction of the “Hindenburg” brought the short-lived era of the great passenger airships to an end.

Previously, in 1936, the Hindenburg made a total of 10 round-trip Atlantic crossings during the summer. The flight to the U.S. averaged 65 hours and the return trip to Germany took 52 hours with a boost from prevailing winds. The Hindenburg bested by a full day and a half the time of the liner Queen Mary. The Hindenburg was 803 ft. in length, had four engines and accommodations for 50 passengers. It had to use hydrogen which was highly flammable because the U.S. would not sell helium, an inert gas, to the German government, due to Hitler's on-going threat in Europe.

• See actual fragments from the ill-fated German Zeppelin, “Hindenburg”

The disaster was the subject of spectacular newsreel coverage, photographs, and Herbert Morrison's recorded radio eyewitness report from the landing field, which was broadcast the next day. The incident shattered public confidence in the giant, passenger-carrying dirigibles and effectively marked the end of the rigid airship.

The non-rigid blimp made a comeback during WWII in use as an anti-submarine weapon. More than 100 blimps were put to use to combat enemy submarines off our coast. During World War II, and continuing into the early 1960's, anti-submarine patrol blimps were operated from Lakehurst.
[Site-map]

Hot-air Balloon Basket
Exhibit GR-5
[Site-map]

Exhibit GR-6

"Early NJ Aircraft and Engine Manufacturers"

Curtiss Wright Corporation *(display case)*

In the late 1930s, with early indications that a war was on the horizon, the Curtiss-Wright Corp. in Paterson, the Bendix Corp. at Teterboro, and the Luscombe Airplane Corp. in West Trenton, expanded their facilities at a tremendous rate to produce the aircraft engines and instruments needed to supply allied forces and eventually our own military.

On July 14, 1940, Curtiss-Wright opened a new plant in Paterson. A single row Wright Cyclone 9 cylinder engine (R-1820) initially required 5,000 man hours, 37,000 manufacturing operations and 5,500 parts. Eventually other factories were opened in Fair Lawn, Caldwell, and Clifton. Men and women soon were able to assemble a complete engine in 25 minutes.

From 1940 to 1945, Curtiss-Wright produced 281,164 engines, 146,468 propellers and 29,269 planes. It was the second largest manufacturer in the U.S. [Site-map]

Fokker Aircraft (wall)

During World War I, Tony Fokker designed the Red Baron's plane and perfected the synchronized machine gun firing through a propeller.

After the war he came to NJ and set up operations at Teterboro and lived in Hasbrouck Heights. His Tri Motor was made famous by Richard E. Byrd's flight over the North Pole in 1926 and the South Pole in 1929. Dozens of Fokker Tri Motor aircraft were manufactured at Teterboro for airline use.

Other pioneering companies include:
Lawrence: The 2 cylinder Lawrence aircraft engine (forerunner of the famous Wright Aeronautical J-5 Whirlwind – model on display floor);

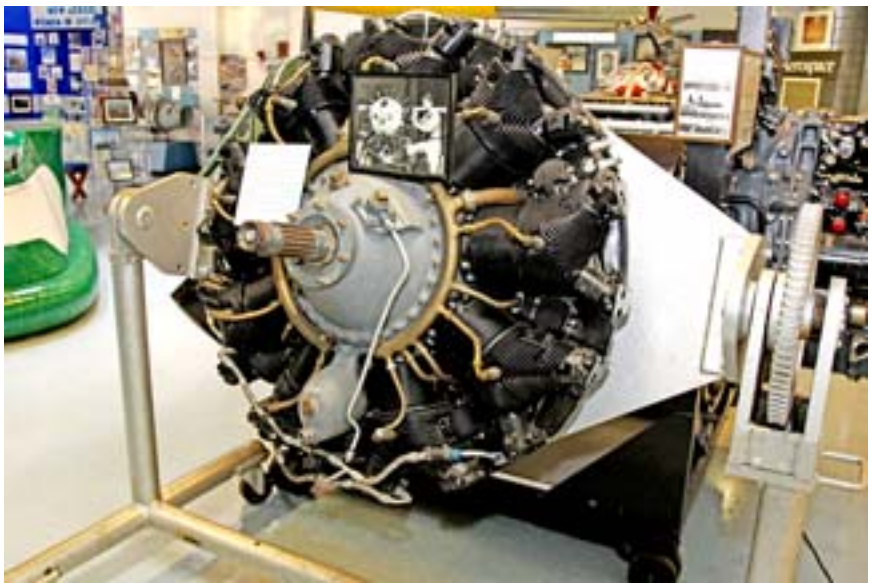
Lenape: The 3- cylinder engine was produced by the Lenape Engine Company of Matawan, N.J. In 1938, it powered a piper cub airplane that flew from Newark Airport to Miami in 63 hours and 55 minutes. [Site-map]

Exhibit GR-7

Curtiss Wright Engines

Examine the engines produced by Wright Aeronautical and Curtiss-Wright Corp.

Curtiss Wright R-1820 Cyclone 9 Cylinder Engine powered the B-17 Flying Fortress and the C-47 (also known as the DC-3) during WWII.
[Site-map]



Wright Aeronautical J-5 Whirlwind engine was used

in the competition to fly across the Atlantic in 1927. It was the most popular engine of its day.
[Site-map]

Exhibit GR-8

Arthur Godfrey

Radio and television entertainer Arthur Godfrey learned to fly in the 1930s. He strongly promoted to his middle-class fans affordable vacation in Hawaii and Miami Beach, Florida, formerly enclaves for the wealthy.
In January 1954, Godfrey buzzed the control tower of Teterboro Airport in his DC-3. His license was suspended for six months.
[Site-map]

Exhibit GR-9

Barling NBL-1 Six Engine Bomber

This bomber was built by the Wittemann Brothers for the US Army. It was built at Teterboro in 1922. At that time it was the largest plane in the world.
[Site-map]

Exhibit GR-10

Helicopters

[Site-map]

Exhibit GR-11

Bendix

Cockpit avionics maker Bendix Corporation was adjacent to Teterboro Airport on Route 46. For a few years, Teterboro Airport was renamed Bendix Airport. In 1943, voters changed the name back to Teterboro Airport.

Display Case of Instrumentation built by Bendix [Site-map]

Exhibit GR-12

"Parachute Pioneer"

Switlik Corporation

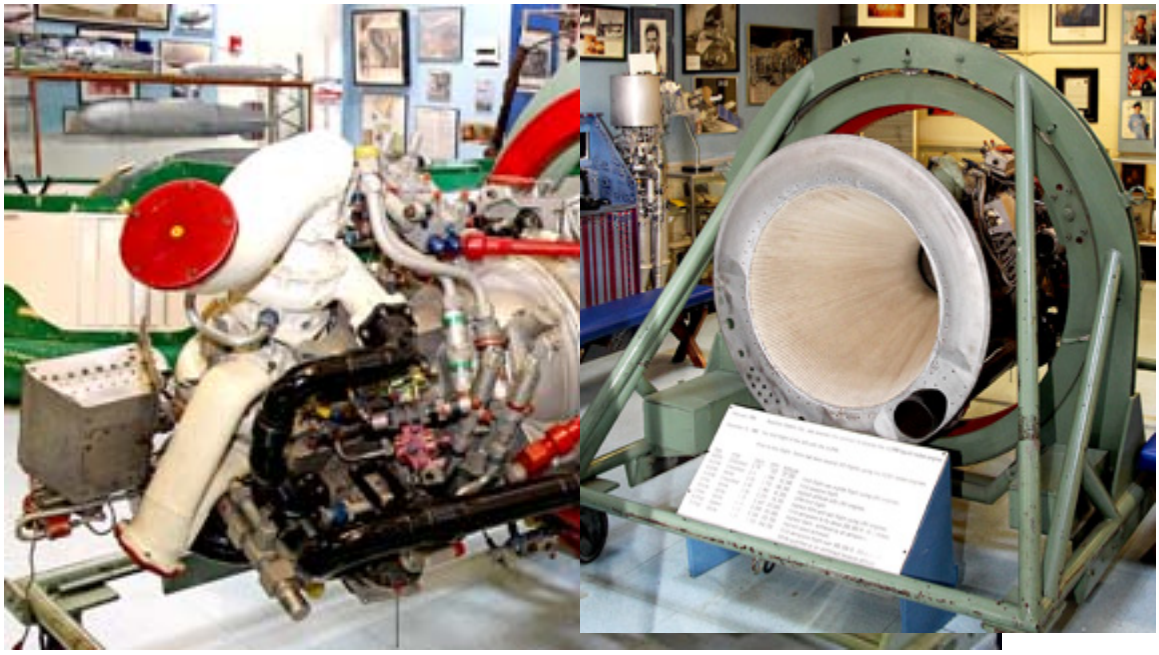
Stanley Switlik founded a company called the Canvas Leather Specialty Co. based in Trenton, NJ in 1920. By 1924, the company was making safety belts for aircraft and the following year began producing parachutes. The name was then changed to Switlik Parachute Co. Switlik, in partnership with Amelia Earhart's husband, George Palmer Putnam, developed the first U.S. parachute tower which was designed to train parachutists.

In 1940, the first paratroopers were trained at a Switlik facility in Windsor, N.J. In 1947, with Boeing Co., Switlik designed and produced the first parachutes for missile recovery.

Known for D-Day Decoy as seen in the movies "The Longest Day"

(See the actual decoy above)

The paradummy drop over Normandy Operation Titanic is probably the best known operation of its kind. In the early hours of the morning of June 6, 1944, a force of 40 Hudsons, Halifaxes and Stirlings dropped a total of 500 dummies in four separate locations along the coastal interior. Window, rifle fire simulators and two teams of Special Air Service soldiers carrying recordings of loud battle noise were also dropped to reinforce the deception and divert German troops away from the Allies' actual drop zones. The dummies were nicknamed Rupert and were fabricated with sack cloth/burlap representations of a human figure stuffed with straw or sand and not the highly elaborate and lifelike rubber dummies suggested in some accounts and portrayed in the film The Longest Day. They were equipped with an explosive charge that burned away the cloth after landing to prevent the immediate discovery of their true nature. [Site-map]



XLR-99 Rocket Engine for X-15

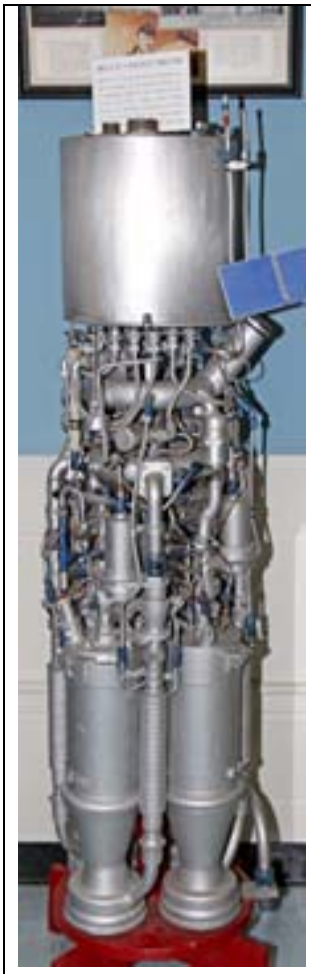
Exhibit GR-13

Reaction Motors

(Aircraft and rocket engines built in NJ.)

Reaction Motors, Inc. of Denville, NJ. Reaction Motors, Inc. (RMI) was incorporated on December 16, 1941, nine days after the attack on Pearl

Harbor. Its sole asset was one liquid fuel rocket motor. RMI was formed by four rocket enthusiasts: Lovell Lawrence, Jr., Franklin Pierce, John Shesta and James Wyld. They won a number of military contracts and developed more powerful engines during the war years. [Site-map]



Rocket Engine for Bell X-1

Captain Charles "Chuck" Yeager

On October 14, 1947, Chuck Yeager in the Bell X-1 was released from a B-29 mother craft at 35,000 feet. With the powerful 6,000 lb. thrust, liquid oxygen-alcohol rocket engine developed by Reaction Motors, Inc. of Denville, NJ, Yeager proceeded to break the sound barrier.

In 1959, they developed the XLR-99 rocket engine that would power the X-15. On June 15, 1962, pilot Joe Walker flew at 4,104 mph. Then on July 17,

1962, Major R.M. White flew to an altitude of 313,750 feet, the first aircraft flight above 300,000 ft. (59.6 miles). That achievement qualified White as an astronaut because he exceeded 50 miles into the atmosphere. In 1963, Walker reached 354,200 ft (67 miles) thanks to the engineers of Reaction Motors. In May, 1958, Reaction Motors was merged with Thiokol Corporation. [Site-map]

Exhibit GR-14
“How a Jet Works”

Demonstration of the J-65 jet engine. To see it operate, press the “PUSH BUTTON” on the lower left side.

How a jet engine works: The engine produces its own pressurized gas, and it does this by kerosene or jet fuel. The heat that comes from burning the fuel expands air, and the high-speed rush of this hot air spins the turbine.

The purpose of the fan is to dramatically increase the amount of air moving through the engine, and therefore increase the engine's **thrust**. When you look into the engine of a commercial jet at the airport, what you see is this fan at the front of the engine. It is huge -- on the order of 10 feet in diameter on big jets, so it can move a lot of air. The air that the fan moves is called "**bypass air**" because it bypasses the turbine portion of the engine and moves straight through to the back of the nacelle at high speed to provide thrust. [Site-map]

Aerospace

Exhibit GR-15

Manned Space Exploration

Major contributions were made by astronauts from New Jersey. These include Wally Schirra, Jr., Buzz Aldrin, Jr. Rusty Schweikart, Terry Hart, Kate Sullivan, Mark Polansky, George Zamka, Garrett Reismann, Robert Cenker, and “space twins” Mark and Scott Kelly.

The Astronauts

Walter M. Schirra, Jr., from Oradell, NJ, was a Navy Commander, a Naval Academy graduate, and one of the original seven American astronauts. Schirra flew 90 combat missions over Korea in an F-84, and then became a test pilot. He accumulated more than 4,000 hours of flying time, with 3,300 in jet aircraft. On October 3, 1962, he flew the fifth manned Mercury spacecraft into orbit. Sigma 7 stayed up for 9 hours and 13 minutes. On December 15-16, 1965, he made his second journey into space as command pilot of the Gemini 6 flight. He also served as commander of Apollo 7 in October 1968. He is the only astronaut to fly in the Mercury, Gemini, and Apollo Programs.

On November 11, 1966, **Edwin "Buzz" Aldrin, Jr.** of Montclair, NJ and James Lovell were launched in Gemini 12. It was the last of the Gemini missions and was a four-day journey. The Gemini 12 made the first fully

automatic, controlled re-entry into the earth's atmosphere and splashed down 2.5 miles from the recovery ship, USS Wasp.

In 1969, he became the second man on the moon during the Apollo 11 mission. He and Neil Armstrong walked on the Sea of Tranquility for over 2 hours.

After graduating from the U.S. Military Academy in 1951, Aldrin flew 66 combat missions in F-86's and shot down two MIG-I5's over Korea.

His father was a pioneer aviator who organized and directed the Standard Oil's Flight Dept. for many years and managed Newark Airport during the Second World War.

Russell "Rusty" Schweikart, from Neptune, NJ, was the Lunar Module Pilot on the ten-day voyage of Apollo 9, March 3-13, 1969. During the mission, he became the first astronaut to test the Portable Life Support system that would later be used by astronauts who walked on the moon. On the 5th day of the flight, McDivitt and Schweikart took man's first flight in the Lunar Module, the spider-like vehicle that would land men on the moon. They undocked from the Command Module and flew more than 100 miles away. Then, relying on radar, they maneuvered back to a smooth rendezvous and link-up with the Command Module. Schweikart was a civilian and left NASA in 1977.

Terry J Hart is from Long Valley, NJ. He qualified as an F-106 pilot in the Air Force Reserve in 1969, and then joined the Air National Guard in 1973. In January 1978, he was selected as an astronaut. He was a member of the five-man crew aboard space shuttle flight 41-C on April 6, 1984. Hart made space history when he used a 50 foot robot arm to pluck the crippled Solar Max satellite from orbit. Repairs were made and all functions were restored. After his space flight, he resigned from NASA and returned to Bell Labs as a supervisor of the Military and Space Applications Division.

On October 11, 1984, **Kathryn Sullivan**, a native of Paterson, NJ, became the first American woman to walk in space. On shuttle flight 41-G, aboard Challenger, she and astronaut David Leestma performed an in-space

simulation of refueling another spacecraft in orbit. They spent 3 hours and 27 minutes in the Challenger's open cargo bay as they floated weightlessly 130 miles above the earth.

In 1972, **Robert Cenker** joined RCA's Astro-Electronic Division in NJ as an engineer working in advanced stabilization and control. Previously, he spent time in the design and development of communications satellites. In 1985, he was selected by NASA to serve as the prime payload specialist on Space Shuttle Mission 61-C. Cenker was aboard the shuttle Columbia when it was launched January 12, 1986. He deployed the RCA Satcom Ku-Band-l satellite and performed many experiments. He has two degrees in aerospace engineering from Penn State Univ. and an electrical engineering degree from Rutgers Univ. He lives in E. Windsor, NJ. [Site-map]

QUIZ
How many Apollo missions actually landed on the moon?

Six missions: #11, 12, 14, 15, 16, 17. Apollo 13 was made famous by the Tom Hanks Movie, “Apollo 13”. The famous quote “Houston, we’ve had a problem” originated on that mission.

Launched: April 11, 1970 -- Splashdown: April 17, 1970

Mission: Third attempted lunar landing. At 55 hours, 54 minutes, and 53 seconds into the mission, a cryogenic tank filled with super cold fuels explodes, causing a loss of breathable oxygen and power in the command-service module. The crew transferred from the damaged Command Module and survived in the LM until just a few hours before splashdown, when they return to the command module and reentered the atmosphere. [Site-map]

Exhibit GR-16

Saturn V SIVB Instrument Unit (to your left)

The ST-124-M Inertial Platform, a device used for measuring acceleration and attitude of the Saturn V launch vehicle was donated to the Museum by its manufacturer Honeywell Corporation. [Site-map]

Space Today

The Space Shuttle

The Space Shuttle was a reusable spacecraft operated by the U.S. National Aeronautics and Space Administration (NASA) for human spaceflight missions from 1981 to 2011. The system combined solid rocket boosters (also re-usable), an external fuel tank and the orbital spacecraft.

The first of four orbital test flights occurred in 1981 leading to operational flights beginning in 1982, all launched from the Kennedy Space Center, Florida. The system was retired from service in 2011 after 135 missions. On July 8, 2011, Space Shuttle Atlantis was launched on the 135th and final mission. The program ended after Atlantis landed at the Kennedy Space Center on July 21, 2011.

Enterprise was a prototype orbiter used for atmospheric testing during development in the 1970s, and lacked engines and a complete heat shield. Five space-worthy orbiters were built—two (Challenger and Columbia) were destroyed during in-flight accidents and three others (Atlantis, Discovery and Endeavour) have been retired and put on display in Washington, Florida and California. [Site-map]

International Space Station

The International Space Station (ISS) is a habitable spacecraft in low Earth orbit. It follows the Salyut, Almaz, Skylab and Mir as the ninth space station to be inhabited. The ISS is a modular structure whose first component was launched in 1998. It has since grown to become the largest and most expensive craft ever built. Like many artificial satellites, the station can be seen from Earth with the naked eye.

The station has been continuously occupied for over 12 years, having exceeded the previous record of almost 10 years (or 3,644 days) held by Mir, in 2010. The station is currently serviced by Soyuz spacecraft, Progress spacecraft, the Automated Transfer Vehicle, the H-II Transfer Vehicle and the “Space-X Dragon.” It has been visited by astronauts and cosmonauts from 15 different nations.

The ISS program is a joint project between five participating space agencies, the American NASA, the Russian RKA, the Japanese JAXA, the European ESA, and the Canadian CSA. [Site-map]

Satellites

Space Exploration

Space exploration satellites are not really satellites at all; they are properly known as space probes. A satellite is defined as something that's orbiting something else, but space probes instead travel deep into the solar system and beyond. However, they are similar to orbiting satellites in design and function.

On their journey, space probes send back detailed pictures and other data from faraway planets, comets and asteroids. Space probes are responsible for many of astronomy's most important achievements. Jupiter's rings, for example, were discovered by a space probe. Space probes must be built to be very durable because it takes so long for them to reach their destinations. [Site-map]

Commercial Applications

Telecommunications, GPS, military, weather, science, seismic, deep water and archeological studies are greatly enhanced by satellite technology.

Great Room Center Exhibits

Exhibit GRC-1

Women in Aviation

In 1929, Amelia Earhart and other women aviators of the time promoted a Women's Air Derby, a cross country competition

run in conjunction with the National Air Races held in Cleveland, Ohio. The race was open to women holding a pilot's license with a minimum of 100 hours of solo flying time. Immediately after the first Derby, Earhart and 25 other licensed women pilots met at Curtiss Field in Valley Stream, Long Island, NY to form an association. It was called The Ninety Nines for the number of charter members who had joined. Since that time, The Ninety Nines has greatly increased its membership and now have chapters throughout the world.

The Northern New Jersey Chapter of the Ninety-Nines designed and operate the Women in Aviation Exhibit for the Museum. [Site-map]

Exhibit GRC-2

America's first hover craft

(In the center of The Great Room)

In late December, 1959, Charles Fletcher, a U. S. naval Officer and aeronautical engineer from Sparta, NJ, successfully operated his new creation, the Glide-Mobile. He hoped to interest the military in his invention for use as a flying jeep.

The air-car could travel at 50 mph. Fletcher worked for Reaction Motors in Denville where he made major contributions to the development of the X-15 rocket engine and other projects. [Site-map]

Overhead Gallery

(Left to Right)

Exhibit GROG-1

B-25 Mitchell

An American twin engine bomber manufactured by North American Aviation was named after General Billy Mitchell, a pioneer of U.S. military aviation. Nearly 10,000 B-25s were built. Its first flight was on August 19, 1940. The B-25 was introduced in 1941 for the U.S. Army Air Force.

The B-25 became famous as the bomber used by Col. Jimmy Doolittle in a daring attack on April 18, 1942, against the Japanese mainland 4 months after the attack on Pearl Harbor. [Site-map]

Exhibit GROG-2

F4U Corsair

A carrier-capable fighter designed and manufactured by Chance-Vought Corp. and later licensed to Goodyear. The Corsair first flew on May 29, 1940, and entered service in December, 1942. The Corsair joined the fleet and went aboard U.S. aircraft carriers in late 1944.

The Corsair was often used to support ground troops in the Pacific War and in Korea. It was an excellent fighter-bomber. The F4U was made popular on the TV program “Black Sheep Squadron” about the exploits of Major “Pappy” Boyington who received credit for 28 kills during WWII. [Site-map]

Exhibit GROG-3

The Mars Observer

The Mars Observer spacecraft, also known as the Mars Geoscience/Climatology Orbiter, was a 1,018-kilogram (2,244 lb) robotic space probe launched by NASA on September 25, 1992 to study the Martian surface, atmosphere, climate and magnetic field. During the interplanetary cruise phase, communication with the spacecraft was lost on August 21, 1993, 3 days prior to orbital insertion. Attempts to re-establish communication with the spacecraft were unsuccessful. [Site-map]

Exhibit GROG-4

Tiros Weather Satellite

Overhead is TIROS, or the Television Infrared Observation Satellite. This is a ground-test example of one of a series of early weather satellites launched into polar orbit by NASA, beginning

with TIROS-1 in 1960. TIROS was the first satellite that was capable of remote sensing of the Earth. [Site-map]

Exhibit GROG-5

Scorpion Experimental Helicopter

Derived from an original design by Mr. B.J. Schramm, the Schramm Javelin evolved into the Schramm Scorpion, both of which were developed by the Schramm Aircraft Company. [Site-map]

Exhibit GROG-6

Switlik D-Day Paratrooper Dummies

Above your head is an example of a NJ-made device that helped America win the war against Hitler in Europe. Visit GR-12 for full details

and story about Switlik Corp. and Stanley Switlik, parachute pioneer. [Site-map]

Exhibit GROG-7

Rocket Powered Mail Plane "Gloria II"

Soaring high above the Great Room is the 16-foot rocket-plane "Gloria II". In February 1936, 700 spectators watched as famed pioneer rocket scientist Dr. Willy Lee ignited the engine in the tail of the Guggenheim School of Aeronautics designed un-manned mail aircraft. On this second and only successful flight, the Gloria II rocketed several hundred yards across and over the ice of frozen Greenwood Lake, New York, landing on the Hewitt, New Jersey side of the lake. In doing so it claimed the title of the first rocket-powered airplane in America to fly mail from one state to another. The cargo: 6,149 first day covers specially created for the event and carried in a fireproof mail-sack. [Site-map]

Exhibit GROG-8

Curtiss Wright Ramjet

The ram jet is essentially a

supersonic power plant which functions most efficiently at speeds from Mach 2 to Mach 5 and 100,000 feet altitude. It is basically a simple engine; no moving parts are required in the actual generation of thrust, but is requires highly compact and accurate mechanism to control its flight. Because it depends on high speed for the compression of air, the ram jet must get an assist before it can start, either by drop from a fast-flying plane or by rocket boosters. [Site-map]

Upon completion of the tour of The Great Room,
Continue past the elevator. Turn Left. Please Enter the Hall of Fame.

HOF-1

Hall of Fame

The AHOF remembers all the men and women who were born or who lived in NJ or who achieved something great in aviation in the Garden State. Currently there are over 166 well known pioneers and heroes being honored in this room. They include Amelia Earhart, Charles Lindbergh, Thomas McGuire, Buzz Aldrin and Wally Schirra just to name a few. A brief biography is written on each plaque. The men and women, whose outstanding aeronautical achievements have brought worldwide recognition to New Jersey, are enshrined here. Note the newspaper headlines, paintings and models. [Site-map]

Upon leaving The Hall of Fame,

Exit and turn right, at the next room. Enter the Dehmel Room.

Exhibit DR-1

Dehmel Room

Center exhibit:

This is the world's first electronic flight simulator built by legendary Curtiss-Wright Corporation. The Curtiss-Wright electronic trainer was designed by Richard Dehmel and donated to the museum after his death, along with funds to build the Museum's new wing.

In 1943, Richard C. Dehmel licensed Curtiss -Wright Corp. to produce flight training devices under his patents. The simulators were the first of their kind, and after five years of research they went into production. By 1951, an electronics division was formed and a modern plant for producing the simulators for military and civilian use was opened in Carlstadt, NJ. The plant also produced engine and propeller controls, guided missiles and related devices.

In the first full year of operation, the value of the Electronics Flight Simulator was proven during 13,000 hours of simulator time in which Pan American World Airways trained 125 crews plus 85 Military Air Transport crews. Use of the simulator enabled Pan Am to reduce crew training costs by 60% and cut in-flight training time from 21 to 8 hours per crew. Our example was used by Eastern Air Lines. [Site-map]

Exhibit DR-2

Barnstormers then and now

The term barnstorming comes from an earlier American tradition of rural political campaigns. Barnstorming was a popular form of entertainment in the 1920s in which stunt pilots would perform tricks with airplanes, either individually or in groups called a flying circus. Barnstorming was the first major form of civil aviation in the history of flight.

The term barnstormer was also applied to pilots who flew throughout the country selling airplane rides, usually operating from a farmer's field for a day or two before moving on. "Barnstorming season" ran from early spring. The famed Gates Flying Circus was based at Teterboro Airport during this period. [Site-map]

Exhibit DR-3

The Tuskegee Airmen

This special group of aviators was known as the Red-tailed Angels. In April, 1941, the War Dept. announced that it would establish an air unit at the Alabama Institute where black airmen would be trained. In July, 1941 the first class of 12 cadets was initiated. Nearly all of the 2,000 black airmen who fought in WWII were graduates of Tuskegee. [Site-map]

Exhibit DR-4

Flying Aces

Our display represents flying aces of NJ from both WWI, WWII and Korea.

Thomas Buchanan McGuire Jr. (August 1, 1920–January 7, 1945) was the second highest scoring American ace during World War II. His memory has been preserved by the naming of McGuire Air Force Base in Burlington County, New Jersey. McGuire was born in Ridgewood, NJ. McGuire's skill at maneuvering the large twin-engine P-38 was legendary, and he would become one of the top scoring pilots in US Air Force history. [Site-map]

Exhibit DR-5

Flying Tigers

The 1st American Volunteer Group (AVG) of the Chinese Air Force in 1941–1942, famously nicknamed the Flying Tigers, was composed of pilots from the United States Army (USAAF), Navy (USN), and Marine Corps (USMC), recruited under presidential sanction and commanded by Claire Lee Chennault. The ground crew and headquarters staff were likewise mostly recruited from the U.S. military, along with some civilians.

The group consisted of three fighter squadrons with about 20 aircraft each. It trained in Burma before the American entry into World War II with the mission of defending China against Japanese force.

The Tigers' shark-faced fighters remain among the most recognizable of any individual combat aircraft of World War II, and they demonstrated innovative tactical victories when the news in the U.S. was filled with little more than stories of defeat at the hands of the Japanese forces.
The plane they flew was the Curtiss Wright P-40 “War Hawk”. (Every P-40 was built in Buffalo NY.) The Flying Tigers were disbanded in 1942 and crews were reassigned back into the U.S. military. [Site-map]

Exhibit DR-6

The Enola Gay (B-29)

The Enola Gay was the name of the B-29 that dropped the first atomic bomb over Hiroshima on August 6, 1945. The co-pilot, Robert A. Lewis, was from Ridgefield Park, NJ. [Site-map]

Exiting the Dehmel Room, make a left turn, then right.
Please take the elevator to the second floor.
Make a right upon exiting the elevator.

Facing Elevator
Display of the Golden Age of Aviation – Early Birds

Balcony

Tour clockwise

Exhibit BA-1

B-52 Ejection Seat

The B-52G aircraft is a heavy bomber equipped with six crew stations. Each crew station has its escape hatch and ejection seat. [Site-map]

Exhibit BA-2

“Little Cut Up”

Sit in the cockpit of our “Little Cut Up” airplane and make the control surfaces move on the wings and tail. The "Little Cut-up" is for young people to sit in, and is used to demonstrate the ailerons, elevators, and rudder and the effect they have on the flight path of an aircraft. The “Little Cut Up” was made from actual “cut-up” aircraft parts. [Site-map]

From the balcony, enjoy the aerial view of The Great Room.

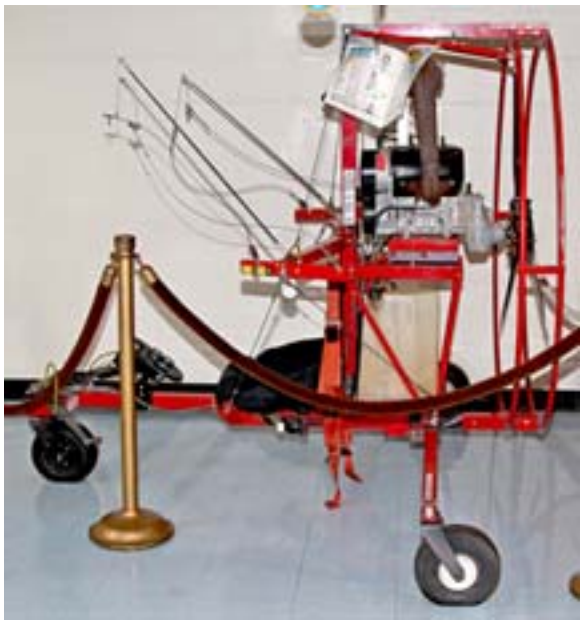


Exhibit BA-3

“Para-Plane”

NJ designed para-plane is a parachute with motor, passenger seat, controls, and wheels slung beneath.. Airspeed is typically about 25-35 mph. Typical operating heights are between 500 and 1,500 feet, and can be flown for about 3 hours. A single-seater typically costs about $10,000. [Site-map]

Exhibit BA-4

The US Postal Service

In 1916, Alan Hawley flew from NY to Washington, DC carrying a heavy bundle of newspapers representing the mail. It was viewed more as a publicity stunt, but the idea did not completely die. In 1918, the U.S. Post Office Department and the U.S. Army joined forces to establish an air mail service between N.Y. and Washington, DC.

Airfields were established at Belmont Park, NY, in North Philadelphia, and in Washington, DC. The flights began in May, 1918, using Army pilots. Weather was a major obstacle. Finally in August, the Post Office Department received 6 new JR-1B's. The prototype of the plane was designed by Charles Healy Day. The JR-1B sold for $13,500 with the front cockpit used as a mail compartment On August 18, 1918, the mail service began between Bay Way, NJ, and Washington, DC. New routes were established as far west as Chicago.

In 1923, The Post Office Department established a new airport terminus on a farm operated by John R. Hadley, Sr., in Piscataway Township, NJ. The new airmail route to Cleveland and Chicago had a refueling stop in

Bellefonte, PA. The challenge was to fly over the Allegheny Mountains and its unpredictable weather patterns with no radio communication and only a simple compass for navigation. [Site-map]

Exhibit BA-5

Richard E. Byrd Exhibit

Rear Admiral Richard Evelyn Byrd, Jr., USN (25 October 1888 – 11 March 1957) was a naval officer who specialized in feats of exploration. He was a pioneering American aviator, polar explorer, and organizer of polar logistics. Aircraft flights, in which he served as a navigator and expedition leader, crossed the Atlantic Ocean, part of the Arctic Ocean, and a segment of the Antarctic Plateau. Byrd claimed that his expeditions had been the first to reach the North Pole (1926) and the South Pole (1929) by air. His South Pole claim is generally supported by a consensus of those who have examined the evidence. Byrd was a recipient of the Medal of Honor, the highest honor for heroism given by the United States.

His aircraft used the NJ built Wright Aeronautical JP-5 Whirlwind engine. Note additional background during the Great Trans Atlantic Competition display at the entrance of the Great Room. [Site-map]

Exhibits BA-6 “World War I in the Air”

Aircraft on ceiling: On the right is a “model of the “Red Baron” Fokker and, to the left, another WI German fighter plane.

Exit the balcony past the elevator

SCRL-1

Silvio Cavalier Research Library

Our Library began in 1989. This Library contains over 3,500 books and over 300 videos on aviation and space

history. Over 1,200 entries of Curtiss Wright files have been cataloged. There are 8 file cabinets with mostly technical information about engines, propellers, etc., and annual reports going back to 1929. The Smithsonian has the official files. Curtiss Wright files for AHOF were collected from the public. Many manuals are in storage. Access is by appointment only.

During the summers of 1934 and 1935 Silvio Cavalier conducted his banner touring/advertising operation over the New Jersey shore. In 1940, he was hired by Eddie Rickenbacker as a pilot with Eastern Airlines and stayed with the airline for 28 years. Our Research Library was named after this pioneer. [Site-map]

At entrance to the Airport Room

Exhibit AR-1
"Radar Set"
On display is an actual early 1950's radar unit (Radio Detection and Ranging).

Airport Room

Exhibit AR-2

Newark Liberty International Airport

Our Museum offers a pictorial presentation of Newark Airport from its inception on October 1, 1928, to the present. This display illustrates the advances of commercial aviation, i.e., type aircraft flown and the growth and advances that have taken place at Newark Liberty International Airport in 80+ years.

Note the diorama of Newark airport.

[Site-map]

Exhibit AR-3

People's Express Exhibit

People Express Airlines, stylized as PEOPLExpress, also known as People Express Travel, was a U.S. no-frills airline that operated from 1981 to 1987,

when it merged into Continental Airlines. The airline's headquarters was in the North Terminal of Newark International Airport in Newark, New Jersey. [Site-map]

Exhibit AR-4

Teterboro Airport

In 1905, Charles Wittemann and his brother Adolph founded the C & A Wittemann Co., one of the earliest aircraft manufacturing plants in the world on Staten Island. After several expansions, it became apparent that a larger area was needed and so the move was made to the Newark area, near today's location of the international airport. Orders continued to pour in. The demand was great for Army and Navy training planes and accelerated even further with WWI. Further expansion was necessary.

At the end of 1916, a new location was found that has become Teterboro Airport. The land belonged to Mr. Walter Teter of Montclair, NJ. A sod airstrip was cleared, and at the end of 1916, the Wittemanns' made the land purchase deal thru Henry Hollister, Mr. Teter's manager. The Wittemanns' moved from Newark to Teterboro immediately

In 1940, NJ land developer Fred Wehran purchased Teterboro Airport, a 300 acre tract, from the Riser Land Company for about $450,000. To develop it, he borrowed $1 million from Standard Oil of NJ (EXXON) giving them exclusive rights to sell its fuel at Teterboro.

The Brewster Construction Co., based in Bogota, paved the runways and built the hangers and other buildings. Wehran's vision was to develop Teterboro into the busiest Air Freight Terminal because of its proximity to NYC. His project was delayed because of WWII. After the war he was able to continue with his plan. In 1949, he sold the airport to the Port Authority of NY & NJ for $3 million. [Site-map]

Exhibit AR-5

The Bendix Beacon

This fully restored and operational anti-collision beacon was mounted on the roof of the historic Bendix Building for many decades, possibly dating back to the opening of the factory by the Bendix Aviation Corporation in 1938. The purpose of the light was to provide a visual reference for pilots nearing Teterboro Airport in order to avoid the building while on final approach to land. [Site-map]

Exit the Airport Room, make a left, and then right to the elevator. Go to First Floor. Make a left; go down the hallway past the Hall of Fame and Dehmel Room. Exit door to the outdoor display area. Tour counterclockwise.

Back Yard

Exhibit BY-1

Convair 880 Jetliner Cockpit

The Convair 880 was a jet airliner produced by the Convair division of General Dynamics. It was intended for use on medium range routes while the larger Convair 990 was intended for use on longer range routes like the Boeing 707 and Douglas DC-8. Only 65 Convair 880s were produced over the lifetime of the production run from 1959 to 1962, and General Dynamics eventually withdrew from the airliner market after considering the 880 (and later 990) project a failure.

The forward fuselage of former TWA Convair 880 N803TW (MSN 3) is being restored here at the Aviation Hall of Fame and Museum of New Jersey for display. [Site-map]

Exhibit BY-2

Martin 202 airliner from the 1950's

The Martin 202 was one of the first post-war airliners.

The twin-engine piston aircraft was intended to be a replacement for the DC-3 which had been the first modern airliner. Its first flight was in November, 1946 and it was later certified in August 1947. Total production was 47 aircraft. The aircraft had a non-pressurized cabin.

TWA and Northwest were its initial customers but eventually sold their Martin 202's to California Central and Pioneer Airlines. Later Allegheny Airlines acquired a total of 18. After Allegheny, this aircraft was used for private charter service, for the Herman's Hermits rock band, etc. This is the only Martin 202 to survive. [Site-map]

Exhibit BY-3

Lunch area

Exhibit BY-4

Bell AH-1 Cobra

Our attack helicopter flew actual combat missions during the Vietnam War. The type's first flight was September 7, 1965 and was then introduced in 1967. Of the 1,110 AH-1's delivered from 1967 to 1973, approximately 300 were lost to combat and accidents.

The two-bladed, single engine AH-1 was the backbone of the Army's attack helicopter fleet used in the Tet offensive in 1968 through the end of the Vietnam War. It provided fire support for ground forces. A notable feature was that the pilot's helmet was synchronized with the gun turret. [Site-map]

Exhibit BY-5

Walters Airport Rescue & Firefighting Vehicle

1994 Walters CT4 Aircraft Fire Fighting Rescue Truck with a 1,000 g.p.m. pump, 1,500-gallon tank, 150-gallon foam tank (3% AFFF), carrying 150 ft. of 2-inch hose, 150 ft. of booster hose, an 800 g.p.m. roof-mounted stang gun. This was the purpose-built airport fire truck used by NJ's Morristown Municipal Airport. [Site-map]

Exhibit BY-6

Bell 47

One of the first practical helicopters. Design of the Bell 47 began in the 1930s, but a decade passed before a prototype was

completed in 1945. In 1946, the Bell 47 became the first helicopter to be approved for civilian use. By the time production stopped in 1973, over 6,000 Bell 47s in several different models had been produced. Bell 47s are still used throughout the world.

The most well-known use of Bell 47s came during the Korean War, when the helicopters were used by the United States Army MASH (Mobile Army Surgical Hospital) to evacuate wounded soldiers from the battlefield. Scenes of the Bell 47 being used for medical evacuations were often shown on the television series "M*A*S*H*. [Site-map]

Exhibit BY-7

Grumman OV-1A Mohawk

(Nicknamed Whispering Death
By Vietcong)

The Grumman OV-1 Mohawk is an armed military observation and attack aircraft, designed for battlefield surveillance and light strike capabilities. It is of twin turboprop configuration, and carried two crewmembers with side by side seating. The Mohawk was intended to operate from short, unimproved runways in support of Army ground forces.

The Mohawk's mission also included observation, artillery spotting, air control, emergency resupply, naval target spotting, liaison, and radiological monitoring.

There are examples of each Mohawk variant still airworthy, and they continue to see active service in Argentina. Over its production run, 375 Mohawks of all types were built. [Site-map]

Return to the Main entrance and exit

Exhibit BY-8

Lockheed LASA-60 Bush Plane

The AL-60 was a light civil utility aircraft of the late 1950s and early 1960s, originally designed by Al Mooney in the United States. After the company decided not to build the aircraft in the US, it was manufactured, under license from Lockheed, in small quantities in Mexico where it was called the "Santa Maria" and a few were assembled in Argentina (Santa Isabel, Córdoba, by Aviones Lockheed-Kaiser Argentina but a new factory was never built), and under license in Italy. [Site-map]

Coast Guard HH 52A Helicopter

With a range of 474 miles at 109 mph, the HH-52 allowed the USCG to quickly get to rescue calls at greater distances than ever before. Sikorsky HH-52 Seaguard helicopters were the workhorse helicopters for the United States Coast Guard from 1963 to 1989. Credited with 15,000 lives saved, the HH-52A is the most successful search and rescue helicopter in the world. Our particular HH52A #1455, became famous in 1980 when, during the "Mariel/Boatlift" where it was involved in saving nearly 30 Cuban refugees after their boat sank in the Straights of Florida.

Of the 99 Sikorsky HH-52A Seaguard helicopters delivered to the United States Coast Guard, 17 are preserved in museums, with one still actively flying at air shows. Recently refurbished, this aircraft is part of the standing exhibit at the NJ Aviation Hall of Fame. [Site-map]

Gift Shop

Don't forget to visit the gift shop, brimming with aviation related gifts,

books and mementos for you, and your family and friends.

Finally, if you enjoyed your visit, please tell your friends and family about our Museum. Please watch for our aviation fly-in air expo, Wings & Wheels, held each year in June which is comprised of both historic and modern aircraft, and classic cars for all to visit up close. [Site-map]

Join NJAHOF

Memberships are available. Please inquire at the office. For information on the benefits of joining the NJ Aviation Hall of Fame please check our web site at www.njahof.org for full membership information.

End of Tour

On behalf of the AHOF family of benefactors, trustees, volunteers and employees, thank you for visiting our Museum. We hope that you have found this tour exciting and informative. [Site-map]
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About The Aviation Hall of Fame and Museum of New Jersey

In April, 1972, seven civic leaders met in the Office of Mr. Donald G. Borg, publisher of The Bergen Evening Record (now The Bergen Record), to explore the possibility of organizing an aviation hall of fame to honor men and women who played a part in the unparalleled history of Teterboro Airport.

The Museum's founding fathers were: Attorneys Horace F. Banta and John J. Breslin, Jr.; banker Edward Jesser, Jr.; realtor Alexander Summer; industrialist Fairleigh Dickinson, Jr., Donald Borg and airline publicist, H.V. Pat Reilly. This group unanimously agreed that one of the main purposes of the NJAHOF would be to honor all those individuals who contributed to the fame and development of Teterboro Airport.

Later this purpose was expanded to include the preservation of the entire State of New Jersey’s contribution to the history of human flight. [Site-map]

AHOF History of Growth
The physical evolution of the Aviation Hall of Fame of NJ 1975-2011

Three years after the chartering of the Aviation Hall of Fame in 1972 our first public facility was opened atop the old Teterboro control tower astride the Atlantic Aviation hangar. Our offices and exhibit areas took up the two highest floors.

In 1980 the museum signed a lease with the Airport for the use of a 1.23 acre plot of land on the East side of the field. This land became the site of what were called the “Phase 1” and “Phase 2” building plan. The first phase was the construction of a modestly sized “Education Center” to supplement the public facilities already in existence in the old tower. Ground breaking for the structure took place in the spring of 1984 and it was finished and officially opened in March of 1985 with 1,600 sq. ft. of space. The educational center was initially only open on a part time basis because of the “split nature” of the physical operation at that time.

In 1987 the museum received a $250,000 donation from the Wehran family to enable the construction of Phase 2 but initial work was delayed by a three year ban on building at the airport imposed by the NJ Department of Environmental Protection (NJDEP).

In the fall of 1991 the NJDEP approved the expansion plans. Needed additional fund raising efforts bore fruit in early 1994 with another $250,000 donation, this time from the Dehmel family. Ground was finally broken in September of 1996 for the 7200 sq. ft. “Dehmel Wing” attached to the existing Wehran Educational Center. By September 1997 it was completed and opened to the public. At that time the museum vacated the last of its office space in the old control tower.

This configuration, on 53,758 sq. ft. or 1.23 acres of land, is where we stand today. [Site-map]

AHOF Events (visit our web site, www.njahof.org)

Open Cockpit Day
Held five times a year, we have Open Cockpit Day during which you and your family can sit in the pilot's seat of the airplanes and helicopter cockpits in our display. In addition, the control cab of our Walters Fire Truck is open to the public.

Tours • Parties • Weddings • Night at the Museum
We offer group tours for schools, scouts, etc. as well as birthday parties, corporate events, weddings, sleep-overs, etc.

Santa Flies into Teterboro
In early December, Santa will fly over our Museum in a helicopter and then visit with the children.

Dare-to-Fly Programs
Minimum 15 students: $20 per student.
This popular program introduces basic aerodynamic theory and includes the museum tour. Taught by experienced pilots and educators, the participants design and build their own gliders from raw materials and hold a flight competition. This comprehensive four-hour program is designed for 8 to 15-year old groups. [Site-map]

Lectures
AHOF provides facilities for guest lecturers. Recently, in

celebration of the ongoing 40th Anniversaries of the historic moon flights, space historian and Educator, Joe Lennox, gave presentations on the Apollo missions at the NJ Aviation Hall of Fame. His hour and a half multimedia presentations provide a full and detailed summary of how missions into outer space are conducted. His Apollo memorabilia included circuit boards, heat shield and parachute material, microphone pick up tubes from helmets, etc.

Lennox shows pages from his personal scrap book, including international press clippings and ads that companies ran congratulating the astronauts. He displays Apollo collectables such as stamps, medals, records, calendars, puzzles, etc. His program concludes with a question and answer period. [Site-map]

Wings and Wheels
AHOFNJ sponsors the annual Wings & Wheels Expo at Teterboro Airport. This spectacular two-day event held in June includes contemporary and military aircraft, unique antique aircraft, cars, military vehicles, etc. Check our website for the exact date and information. [Site-map]

Annual Induction Dinner
AHOF hosts an annual dinner to induct into the Hall of Fame, those who have made significant contributions to the progress of Aviation and Aerospace in New Jersey.

Salute to Veterans

AHOF sponsors a regional Salute to Veterans program during November, around Veteran's Day.

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This Self Guided Tour has been funded by a generous contribution from Signature Flight Support, BBA Aviation, Teterboro Airport.

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