August 2024

Corey J Beitler's

"Distelfink Airlines"

An Online Aviation Newsletter

Geneseo Airshow "The Greatest Show On Turf"

Airbus Helicopters H130 (Eurocopter EC130)

1942 How To Identify Warplanes: Friend Or Enemy Booklet

John Jenkins Designs 1/30 Scale Airco DH.2

Space Shuttle Discovery

Pilatus PC-12

Hallmark CallAir A-2 Keepsake Christmas Ornament

A 1929 Waco CSO Straightwing belonging to the National Warplane Museum in flight at the museum's Geneseo Airshow last month. Before being donated to the museum, this colorful biplane was privately owned and operated and carried passengers, including newlyweds, on air tours over Niagara Falls and Western New York cities such as Buffalo, Syracuse, and Utica.

FROM THE EDITOR'S DESK

Geneseo Airshow, PC-12, Airco DH.2 Model, Shuttle Discovery, Hallmark Ornament

Greetings Everyone:

Welcome to the August edition of "Distelfink Airlines", and at 48 pages, the longest edition of the newsletter ever produced! It has been a hot summer here in Pennsylvania and the surrounding region and the airshow season is in full swing for me and my aviation photojournalism efforts. August will bring some great opportunities for some unique airshows and aviation events.

The featured content for this edition of "Distelfink Airlines" is a photo feature about the Geneseo Airshow held in mid-July. Nicknamed "The Greatest Show On Turf", this airshow held in Western New York is one of the largest airshows held in the United States to take place on a grass airstrip. This was my first time traveling to this event in a few years, and it did not disappoint, with a huge variety of restored World War II aircraft in attendance and some great civilian performers in the form of Rob Holland, Trevor Rafferty, and John "Skipper" Hyle performing. The U.S. Air Force F-22 Raptor Demonstration also performed at the event, and Capt. Samuel "Razz" Larson, the F-22 demonstration pilot, put on a phenomenal show in the Raptor for the airshow crowd. The Geneseo Airshow also had an excellent night engine run photo shoot event that featured several of the warbirds in attendance running their engines at night and under the lights. The featured content covers the daytime portion of the Geneseo Airshow. Due to space constraints in the newsletter, photos from the night engine run photo shoot were not featured in this edition. I may run them later this year. I want to thank the National Warplane Museum for organizing such a great airshow and Mike Killian for putting so much effort into organizing and running such a great night photo shoot. After my experience at Geneseo this year, I am already making plans to attend this airshow again in 2025!

Also in this edition of the newsletter, the "Aircraft of Special Interest" section features the Pilatus PC-12. This turboprop aircraft has proven immensely popular with operators due to its efficient design and versatility. The PC-12 has already been built in several variants, and demand for the turboprop continues to be strong both in the new and secondary markets.

The "Aircraft Models" section of the newsletter has a 1/30 scale Airco DH.2 model from the toy soldier manufacturer John Jenkins Designs. This company makes fantastic replicas of World War I aircraft, complete with authentic rigging and weathering. The DH.2 is one of the company's best models with regard to detail and is a great representation of an early World War I aircraft.

For something a little different this time around, the "Aircraft Of The National Air and Space Museum" section features the Space Shuttle Discovery. Discovery spent more time in space than any of the other space shuttles and is the centerpiece of the James S. McDonnell Space Hangar in the National Air and Space Museum's Steven F. Udvar-Hazy Center.

Finally, the "One Last Thing" has the new Hallmark "Sky's The Limit" Keepsake Christmas ornament for 2024! This year, the aircraft chosen is the unusual CallAir A-2 utility and agricultural aircraft. This is the 28th year of this series of historic American aircraft Christmas ornaments.

Thank you again for supporting my aviation photojournalism efforts and "Distelfink Airlines" this year. Please feel free to share the newsletter with whoever you wish and invite them to join the newsletter's official social media pages listed below.

Regards,
-Corey

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What's Inside:

Airbus Helicopters H130 (Eurocopter EC130)

An Airbus Helicopters H130 (Eurocopter EC130) operated by LifeNet of New York prepares to land at the National Warplane Museum's Geneseo Airshow in July. The H130/EC130 is one of the most successful single-engine helicopters in the emergency medical services industry. The helicopter's large cabin provides room for two stretchers, two emergency medical technicians, and an area for storing equipment such as baggage, oxygen bottles, and air compressors.

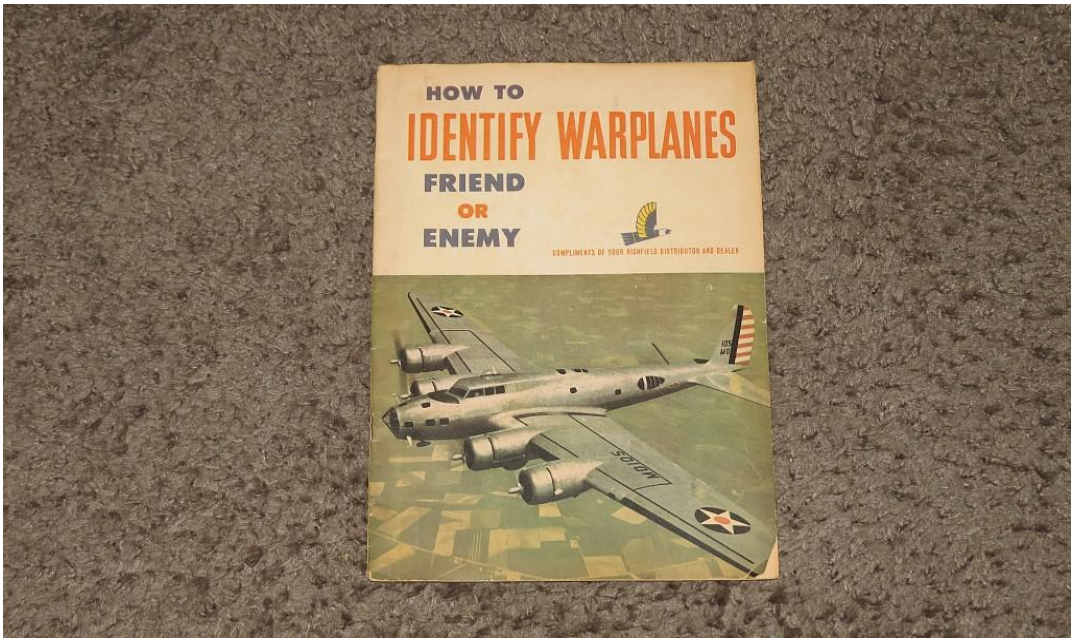
The Airbus Helicopters H130 (formerly Eurocopter EC130) is a single-engine light utility helicopter launched and produced by the Eurocopter Group, later rebranded as Airbus Helicopters. The EC130 was developed from the earlier Eurocopter AS350 Écureuil, with one of the primary changes being the incorporation of a Fenestron anti-torque device instead of a conventional tail rotor. The H130/EC130 is used by aerial tour operators, law enforcement agencies, and providers of emergency air medical services worldwide.

The design and development of the H130/EC130 began in the early 1980s as an improvement to the Aerospatiale AS350. The test program lasted several years, and a prototype AS350 Z was used for test flights with a Fenestron anti-torque device and modified air intake. The development of the rotorcraft continued into the 1990s, with Eurocopter making further changes to the design, such as a dual hydraulic system and a wider main cabin for more internal space. The EC130 was designed in consultation with several aerial tour operators, the customer the helicopter was designed for. The EC130 entered service with launch operator Blue Hawaiian Helicopters in 2001. Since entering operational service, over 700 H130/EC130s have been built by Eurocopter and Airbus Helicopters. In 2012, an upgraded variant, the EC130 T2, was introduced. The EC130 T2 has a more powerful engine, an improved air conditioning system, an active vibration control system, and a full-flat floor in the cabin.

The H130/EC130 is designed with numerous safety features, including flight data recorders, crash-worthy seats, and redundant flight control systems. The cockpit has straightforward instrumentation and features aids such as Vehicle and Engine Multifunction Displays (VEMD) to reduce pilot workload. The Turbomeca Arriel 2D turboshaft engine and the three-bladed Starflex main rotor improve the helicopter's fuel efficiency. The large cabin can accommodate seven seated passengers or two stretchers and two attending personnel.

This helicopter is a 2011 EC130 B4, an example of the initial EC130 production variant. It is owned by Air Methods Inc. and operated by LifeNet of New York. LifeNet of New York operates ten helicopters and one airplane and provides 24/7 air medical transport services throughout New York, Pennsylvania, Vermont, and Massachusetts.

1942 How To Identify Warplanes: Friend or Enemy Booklet



In 1942, the Richfield Oil Corporation published this booklet to help American civilians learn how to identify friendly and enemy aircraft by their insignias and shape. The 34-page publication was available through Richfield distributors and dealers. The booklet contained an aircraft insignia guide, three-view drawings of friendly and enemy aircraft with a description of their shape, and steps to take for civilians if there was an air raid by enemy aircraft.

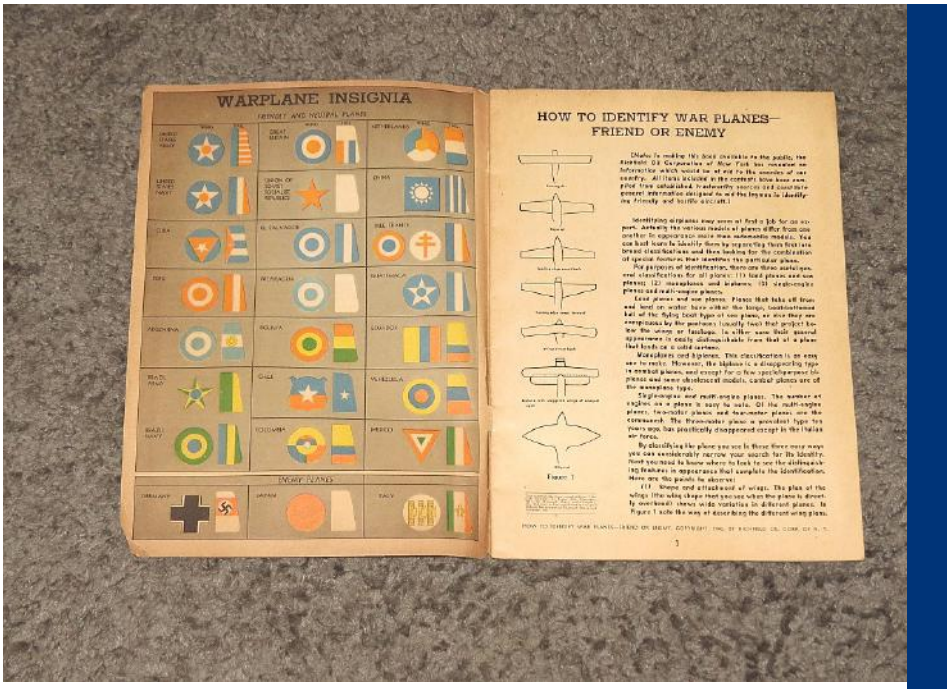
During World War II, several ways were developed to help both members of the military and the civilian population identify friendly and enemy aircraft and their markings. Initially, aircraft recognition guides were printed and given to military personnel. These recognition guides were soon joined by models. Another popular item was decks of playing cards with illustrations and names of friendly and enemy aircraft. Eventually, companies began to see the value in producing similar items for the civilian population. Some of these items served as valuable advertising publicity for the companies that distributed them.

The Richfield Oil Corporation was based in California and operated from 1905 to 1966 when it merged with Atlantic Refining Company to form Atlantic Richfield Company (ARCO). During World War II, the company had two of its oil tanks bombarded by the Japanese submarine *I-17* during the attack on the Ellwood oil field. This attack, which took place on February 23, 1942, was the first attack on the continental United States during World War II.

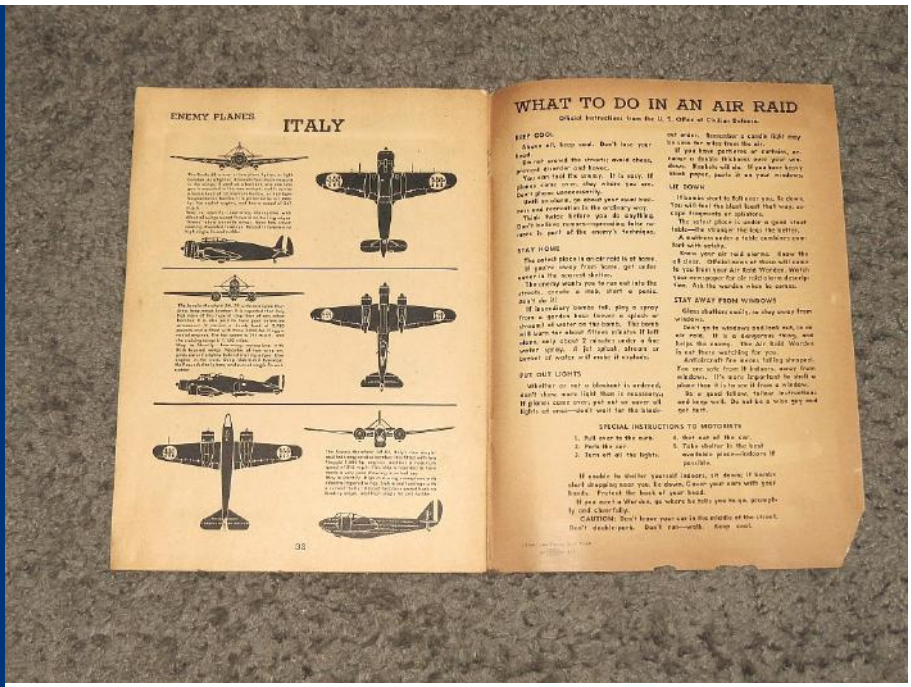
The Richfield Oil Corporation produced several advertising items to promote its brand name and business to customers. These advertising items included road maps, stickers, pins, pens and pencils, postcards, pamphlets, patches, and signs. In 1942, the company produced this booklet, *How to Identify Warplanes: Friend or Enemy.* The booklet was produced as compliments of the company and was distributed free at dealers and distributors that sold Richfield Oil Corporation gasoline and oil.

The 32-page booklet contains three-view drawings of military aircraft used by Allied and Axis nations during the war and some of their specifications. Also featured in the booklet is a guide to each of the insignias used on each country's military aircraft, techniques to spot aircraft, and even what to do should your community be the target of an enemy bombing raid. On the eye-catching cover is a rare color photograph of an early variant of the famous Boeing B-17 Flying Fortress bomber in flight.

These booklets were free handouts, were not printed on quality paper, and used simple bindings. As a result, many did not survive. This copy of this unique piece of World War II aviation history is from the editor's personal collection. It was in a neighbor's bundle of magazines that were going to be sent to the local recycling center.



The inside front cover contains a color guide showing all the insignias used by different nations on their military aircraft in early 1942. An interesting aspect of this guide is that it shows some not commonly known insignias of Allied nations from World War II, such as Mexico, Brazil, Peru, Bolivia, and Colombia.



The booklet contains three-view illustrations of common military aircraft from the Allied and Axis nations with a small description of how to identify each aircraft. The inside back cover has detailed instructions on what to do if there is an air raid, including special guidelines for motorists.

John Jenkins Designs 1/30 Scale Airco DH.2

John Jenkins Designs has created an incredibly well-detailed and accurate model of the Airco DH.2 in 1/30 scale. This model of the early World War I British fighter aircraft is painted in the colors of a machine operated by the No. 14 Squadron of the Royal Flying Corps in Palestine in 1917.

The Airco DH.2 is a single-seat, single-engine British biplane fighter aircraft that saw service during World War I. It was the second pusher aircraft designed by Geoffrey de Havilland and was based on his earlier DH.1 two-seat aircraft. Introduced in February 1816, the DH.2 was the first effectively armed British fighter aircraft. The DH.2 helped the Royal Flying Corps (RFC) successfully counter the German Fokker Eindecker fighter introduced in late 1915. The DH.2 served effectively as a fighter and escort aircraft for almost two years before being outclassed by newer German fighter aircraft.

Early combat operations in the First World War indicated the need for single-seat fighter aircraft with forward-firing armament. The German Fokker Eindecker, with its interrupter gear that allowed the forward-firing machine gun to fire through the rotating propeller, was a surprise to British and French pilots. This solution was not available to the British at this stage of the conflict. A pusher configuration aircraft was one answer, as the gun would not have to fire through the rotating propeller. Geoffrey de Havilland used the pusher configuration for the DH.2, a scaled-down version of his DH.1 two-seat aircraft.

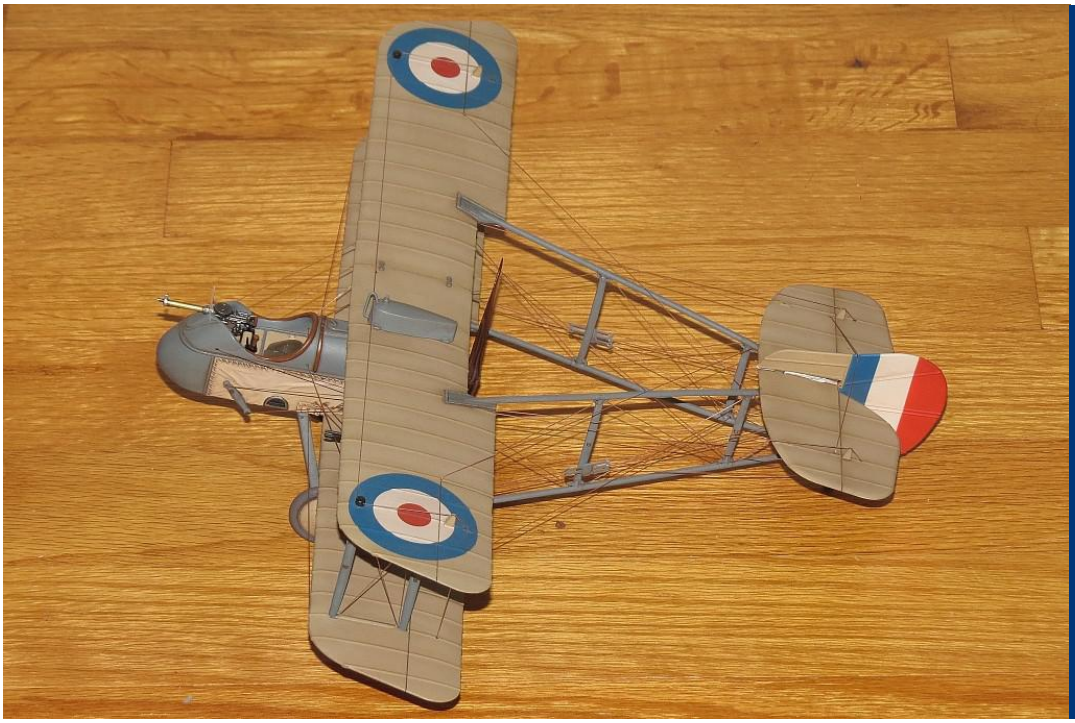
The DH.2 emerged as a compact two-bay biplane fighter in pusher configuration. The airframe was wooden and wire braced, covered by fabric in most areas except the nose nacelle and upper decking. Both sets of wings had ailerons, which were spring-loaded and returned to a neutral position automatically when the controls were released. Unusually, the windshield was mounted to the machine gun itself. The majority of the DH.2s built were powered by a 100-horsepower Gnôme Monosoupape nine-cylinder, air-cooled rotary engine. Later models of the DH.2 received the similarly configured but improved 110-horsepower Le Rhône 9J rotary engine. Different propellers were also used. Early DH.2s used a two-bladed propeller, while later DH.2s used a four-bladed propeller. A gravity-fuel system was used, with the fuel tank located on the upper central wing section either above or below the port wing. For armament, the DH.2 was equipped with a single .303 in Lewis machine gun mounted on a flexible mounting in front of the pilot.

The DH.2 flew for the first time in July 1915. The prototype was sent to France for operational trials in combat on the Western Front. This prototype was shot down, and its pilot was killed in August 1915. Despite this setback, the DH.2 was ordered into production. By year's end, several DH.2s were operating in France. The first RFC squadron completely equipped with the type was No. 24 Squadron, which arrived in France in early 1916.

The DH.2 proved to be an equal match for the German Fokker Eindecker. DH.2s were heavily used for air support during the Battle of the Somme. Training for RFC pilots was poor, and initially, the DH.2 had a high accident rate in service. As British pilots gained more experience with the type, the DH.2 gained a reputation for being easy to fly and highly maneuverable. With a maximum speed of 93 miles per hour and an endurance of 2 hours and 45 minutes, the DH.2 was faster and had a greater endurance than the Fokker Eindecker.

The major weakness of the Airco DH.2 was its armament. The Lewis machine gun had a limited supply of ammunition, and the drum magazines were difficult to change in the heat of aerial combat. The mounting the gun was attached to was also criticized for being loose and unstable. Although discouraged, several pilots tried mounting a second gun to their DH.2s. Pilots learned the best method to achieve aerial victories with the DH.2 was to point the aircraft, not the gun, at the target. A quick-release "clip" was developed to lock the gun in a fixed forward position. This "clip" was developed by British pilot Major Lanoe Hawker, who also improved the gunsights and added a ring sight for the DH.2.

The DH.2 equipped seven squadrons on the Western Front. In late 1916, the arrival of the new, more powerful German Halberstadt D.II and Albatros D.1 biplane fighters meant the DH.2 was outclassed. The DH.2 remained in service in France until June 1917, replaced by the newer French Nieuport 17 and British Airco DH.5 fighters. A few examples of the DH.2 remained in service in Macedonia and Palestine until late 1917. The DH.2 was used for training and secondary tasks until the end of the war. Distinguished pilots who flew the DH.2 included Victoria Cross recipient Lanoe Hawker, No. 32 Squadron Commander and Victoria Cross recipient Lionel Rees, and James McCudden, who became an ace flying the DH.2 and became the British Empire's fourth-ranking ace of the war. Other aces who scored all their kills flying DH.2s included Harry Wood, Sydney Cowan, Hubert Jones, and William Curphey.



The John Jenkins Designs 1/30 scale Airco DH.2 model has incredible detail, which brings the model to life when displayed on a desk or bookshelf or in a diorama. The model uses photo-etched metal parts to capture notable features of the aircraft, such as the rotary engine and the Lewis machine gun mounted to the nose. Subtle weathering, including simulated exhaust stains and dirt, gives the appearance of an aircraft used on regular operations and adds to the model's realism.

John Jenkins Designs did an outstanding job replicating the complex maze of bracing and control wires found on the Airco DH.2 on their model of this aircraft. These wires are thin and are tinted with a dark color, creating a scale appearance. Considering the labor and cost of adding these intricate bracing and control wires to the model, John Jenkins Designs went above and beyond what most manufacturers would have done to create a model of the DH.2 that is a miniature masterpiece.

The last DH.2 in operational service was a single example flying at RAF Turnhouse in 1919. Although over 450 examples of the DH.2 were built, no original examples exist today. Several airworthy replicas have been built as well as static display examples for museum display.

This 1/30 scale model of an Airco DH.2 is manufactured by John Jenkins Designs, a toy soldier company known for their excellent replicas of military aircraft, vehicles, figures, and diorama accessories. This model is part of the "Knight of the Skies" product line of World War I aircraft, figures, and diorama accessories. John Jenkins Designs manufactured the Airco DH.2 in two color schemes, one representing the aircraft flown by Major Lanoe Hawker when he was shot down by Manfred von Richthofen in November 1916, and this model, representing an aircraft operated in Palestine in 1917.

This model, product code ACE-34, represents an Airco DH.2 flown by No.14 Squadron when they operated in Palestine in 1917. The squadron was operating against the Ottoman Turks in this region. By this time, the DH.2 was obsolete as a fighter aircraft and no longer suitable for combat operations on the Western Front, but still usable in the Middle East, where it took time for more modern aircraft to reach the region. The model represents an early production DH.2, which had a two-bladed propeller instead of the four-bladed propeller found on later production aircraft. Unlike DH.2s operated in France, which had their wings painted green, DH.2s operating with No. 14 Squadron retained clear dope linen surfaces and had their metal surfaces painted a light gray as it was felt the pale tan color was more appropriate for the desert conditions.

The John Jenkins Designs Airco DH.2 is manufactured from mixed media materials, with resin, plastic, and metal being used throughout the model. The model is packaged in the standard plain white John Jenkins Designs cardboard box with foam inserts. These inserts are custom-cut to fit the model and protect it from any damage during shipping. The model arrives fully assembled and ready to display. Similar to most John Jenkins Designs aircraft models, there is a hole in the bottom of the model to allow the John Jenkins Designs acrylic display stands to be fitted to the aircraft to display it as if it were flying. Because of the shape of the DH.2, this John Jenkins Designs model comes with a longer screw and attachment post so it can use the John Jenkins Designs display stands. The standard screws that are included with the display stands will not fit this aircraft.

The John Jenkins Designs Airco DH.2 is a stunning model with an impressive amount of detail. The Lewis gun and engine are exceptionally well-detailed, with the engine turning with the propeller just as the rotary engine did on the real aircraft. John Jenkins Designs also did a fantastic job recreating the booms that attach the tail section to the rest of the airplane and the wrinkled fabric textures on the sides of the cockpit. Unique features of the DH.2, such as the fuel tank mounted on the top wing, are also replicated on the model. The model has impressive paint detail as well, with realistic weathering simulating dirt and debris throughout the aircraft.

Another excellent aspect of this model is the detail of the bracing and control wires. The real DH.2 had an extensive amount of wire bracing, and this is accurately reproduced on the model in amazing quality. For many manufacturers of model aircraft, replicating complex bracing wire is too costly and labor-intensive. John Jenkins Designs faithfully reproduced every bracing and control wire found on the real DH.2 on the model, using a tinted wire that creates an effective scale look. This bracing wire also makes the model extremely fragile, and great care should be used while handling it and cleaning it to be sure a wire is not snagged and broken by an errant hand or finger.

If there is any aspect of this model needing improvement, it is the cockpit. The cockpit, out in the front because of the shape and configuration of the aircraft, looks open without a pilot in it. Unfortunately, because of the shape of the cockpit, the half-bust pilot figures previously released by John Jenkins Designs for other aircraft in the Knights of the Skies series do not work well in this model. Most of these half-bust figures are too large to fit, and the lack of legs is visible when one of these pilots figures is used in the DH.2's cockpit. A seated pilot figure was promised for this aircraft by John Jenkins Designs but has not been released by the manufacturer to date.

The John Jenkins Designs Airco DH.2 is one of the best models in the manufacturer's excellent "Knights of the Skies" series of World War I aircraft models in 1/30 scale. The model is extremely well-detailed, and the company did a masterful job replicating its complex bracing and control wires. The paint quality and weathering on this model are absolutely flawless. The unique pusher configuration and shape of the DH.2 make it a conversation starter in any collection of World War I model airplanes.

With its exquisite detail, the John Jenkins Designs Airco DH.2 model is perfect for display in a diorama. In this diorama, the DH.2 is serviced by some British mechanics in preparation for its next mission. These mechanics and their equipment are previously released figures from the John Jenkins Designs "Knights of the Skies" series. Some crates and tarps from the toy soldier manufacturer Thomas Gunn Miniatures are also part of this scene. The half-bust pilot figure in the cockpit getting suited up for the next mission is from John Jenkins Designs.

Geneseo Airshow "The Greatest Show On Turf"

The annual airshow held by the National Warplane Museum at their home airfield near the Western New York town of Geneseo drew thousands of spectators to see aircraft from all eras of aviation history take to the skies.

Capt. Samuel "Razz" Larson flies a Lockheed Martin F-22 Raptor during a flight demonstration of the fifth-generation stealth fighter at the 2024 Geneseo Airshow held in July. The U.S. Air Force F-22 Raptor Demonstration Team was one of the headline acts of the airshow, which also featured flight performances from civilian aerobatic performers and restored World War II aircraft.

The 2024 Geneseo Airshow featured a wide variety of aircraft performing flight demonstrations. The Douglas C-47 Skytrain "Whiskey 7" is part of the National Warplane Museum's Aircraft Collection and a veteran of D-Day combat operations. The C-47 was the military transport variant of the Douglas DC-3 commercial airliner and one of the most important assets for the movement of men and materials for Allied forces during the war.

The National Warplane Museum, located in Geneseo, New York, held its annual Geneseo Airshow on July 12, 13, and 14. The airshow, held at the Geneseo Airport, a grass airfield just outside of the town of Genseso, is often referred to as "The Greatest Show On Turf". With a large selection of restored World War II aircraft in attendance and flying at the event each year, the airshow is one of the largest held on a grass airfield in the United States and is the museum's primary fundraising event. In addition to the airshow flight demonstrations, the event featured World War II reenactors and vehicles and access to the National Warplane Museum buildings and exhibits.

This year, the Geneseo Airshow featured several World War II aircraft in attendance, including a rare visit by a restored Supermarine Spitfire and Hawker Hurricane from Canada. The Hawker Hurricane Mk. XII and the Supermarine Spitfire Mk. IX are both part of the Vintage Wings of Canada/Michael U. Potter Collection of historic Canadian World War II aircraft. While the Spitfire flew a demonstration in the airshow, the Hurricane was unfortunately sidelined by mechanical issues. Also in attendance at the event was Thom Richard with his rare two-seat Curtiss TP-40 Warhawk "American Dream", and Scott Yoak with his beautifully restored North American P-51D Mustang "Quicksilver". The airshow also featured two D-Day veteran C-47 Skytrains flying, the National Warplane Museum's "Whiskey 7" and the Tunison Foundation's "Placid Lassie". Civilian aerobatic performers at the event included Rob Holland performing in his MX-S and Trevor Rafferty flying his Pitts Model 12 biplane. The Geneseo Airshow also included an appearance by the U.S. Air Force's F-22 Raptor Demonstration Team, with the F-22 flying in from the nearby Rochester International Airport.

Despite very warm summer temperatures and high humidity levels, the Geneseo Airshow was well-attended by aviation, military, and history enthusiasts of all ages, with the event setting an attendance record on Saturday. The following photographs showcase some of the airshow highlights of the National Warplane Museum's 2024 Geneseo Airshow.

Flying starts early in the day at the Geneseo Airshow and this year the first aircraft to fly were some reproduction World War I German fighter aircraft. This is a reproduction of one of World War I's most famous fighter aircraft, the Fokker Dr.I Triplane. The Dr.I saw widespread service in the spring of 1918. Although possessing astounding maneuverability and an exceptional rate of climb, the Dr.I suffered from wing failures. This destroyed the prospect of large production orders for the aircraft.

Another World War I reproduction German fighter flying in the Geneseo Airshow was this Fokker D.VII. The Fokker D.VII is considered by many aviation historians to be the best German fighter aircraft of World War I. Initially dismissed as a quality fighter by Allied pilots because of its boxlike appearance, the D.VII soon proved itself in combat. The D.VII could dive at high speeds without risk of structural failure and had docile maneuverability and a high rate of climb. Nearly 3,300 D.VIIs were produced during World War I.

The Geneseo Airshow is loved by aviation enthusiasts because of the scenic farm fields and wooded areas around the airfield, which allow photographers to capture the classic aircraft that attend the airshow in an unobstructed environment. The grass airstrip is always in good condition as well, allowing airshow operations throughout the weekend. This is a restored North American T-6G advanced trainer painted in U.S. Navy colors after landing at the airfield.

A casual viewer would think this is a Piper L-21 Super Cub, the military variant of the Piper PA-18 Super Cub light utility aircraft that was introduced by Piper Aircraft in 1949. However, this is actually a Wag-Aero Cuby Super Sport, a replica of the Piper Super Cub available in kit form to amateur homebuilders. This aircraft was built as a replica of an L-21B Super Cub. In addition to use with the U.S. military, over 500 L-21Bs were provided to other nations for use as utility and training aircraft.

The National Warplane Museum maintains several historic aircraft in airworthy condition, including this Aeronca L-16A "Champ". The L-16 was the military version of the Aeronca Champion light utility aircraft. Introduced in 1945, over 10,000 "Champs" were built. The L-16 was used in the liaison role by the U.S. Army during the Korean War. This aircraft started life as a civilian 7-AC Champ but was converted into an L-16A during its restoration, complete with the correct greenhouse canopy windows.

The de Havilland DH.82 Tiger Moth is a British biplane designed during the 1930s. The Tiger Moth served as a primary training aircraft for the Royal Air Force and the air forces of several other nations during World War II. Over 8,000 Tiger Moths were built from 1931 to 1944. This Tiger Moth is a restored DH.82C variant. This variant of the Tiger Moth was used in Canada and has a cockpit with sliding canopies and cockpit heaters for comfortable operation in the colder Canadian climate.

There were three restored DH.82 Tiger Moths at the Geneseo Airshow, and this beautifully restored example sports a camouflage paint scheme that would have been used in wartime. The Tiger Moth was the primary flight training aircraft for the Royal Air Force during World War II. Thousands of British pilots learned to fly using the Tiger Moth. The biplane was docile and forgiving during the initial phases of flight training but required skill and concentration when aerobatics were flown.

Another restored DH.82 Tiger Moth during its flight performance at the Geneseo Airshow on Saturday morning. The Tiger Moth remained in military service as a primary training aircraft in most nations until the early 1950s. Once they were retired from military service, thousands of these little biplanes were offered as surplus. Today, the Tiger Moth remains a popular recreational airplane and is still sometimes used as a training aircraft for pilots training to fly other types of tailwheel aircraft.

Throughout the Geneseo Airshow weekend, warbirds frequently depart the airfield to take part in air-to-air photo and media flights for the aviation photographers in attendance. This restored North American T-6 Texan was serving as a photo ship during some of these media flights. The North American, known as the AT-6 in U.S. Army Air Forces service, and later the T-6 in U.S. Air Force service, was an advanced training aircraft used during World War II and into the 1950s.

One of the prettiest airplanes flying in the airshow was this 1929 Waco CSO Straightwing, which is part of the National Warplane Museum's collection of aircraft. The Waco Aircraft Company (WACO) was located in Troy, Ohio and between 1920 and 1947 produced several aircraft designs. WACO airplanes were some of the best-selling airplanes in the United States in the 1930s. Production types manufactured by the company included open cockpit biplanes, cabin biplanes, and cabin sesquiplanes.

The Boeing Stearman is one of America's iconic airplanes. The Stearman was built as a primary trainer before and during World War II. During the war, the Stearman was used as a primary trainer by the U.S. Navy, U.S. Army Air Forces, U.S. Marine Corps, and the U.S. Coast Guard. The Stearman was also used by the Royal Canadian Air Force. Today, the Stearman is still a popular aircraft for use as a sport and pleasure airplane. This restored Stearman is painted in early-war U.S. Army Air Forces colors.

The Fairchild PT-26 Cornell was a development of the open cockpit PT-19 Cornell monoplane primary trainer built during World War II. The PT -26 was a variant of the PT-19 with a 200-horsepower Ranger engine and an enclosed cockpit for training in the winter climates of Canada. The PT-26, known by the Cornell in Canada, was used by the Royal Canadian Air Force for primary flight training under the British Commonwealth Training Plan. Over 1,500 Cornells were built for the RCAF during World War II.

One of the highlights of the 2024 Geneseo Airshow was the F-22 Raptor Demonstration flown by Capt. Samuel "Razz" Larson from the U.S. Air Force's F-22 Raptor Demonstration Team. As an added bonus to airshow spectators, the F-22 Demonstration was flown twice, once in the morning and again in the afternoon. The Saturday morning demonstration was especially entertaining as the humid air created several opportunities for photographers to capture the F-22 pulling vapor out of the air.

The Lockheed Martin F-22 Raptor is an all-weather stealth fighter aircraft used exclusively by the U.S. Air Force. The F-22 was designed as an air superiority fighter but also incorporates ground attack and electronic warfare capabilities. The F-22 was introduced into service with the U.S. Air Force in 2006. One of the important aspects of the F-22's stealth technology is the internal weapons bay used to carry missiles and bombs. Carrying these weapons internally hides their heat signatures.

The highlight of the Geneseo Airshow for many attendees is the World War II fighters being put through their paces by the experienced pilots at the event. One of the fighter aircraft in attendance this year was Thom Richard's rare Curtiss TP-40N Warhawk. The TP-40N was a two-seat training version of the famous P-40 Warhawk fighter and was built in small numbers during World War II. Thom Richard offers warbird experience flights in this aircraft when he is not performing in airshows.

Introduced in 1938, the P-40 Warhawk was one of the few capable fighters available to the Allies at the start of World War II. Although less maneuverable and slower than some Axis fighters, the P-40 made up for those shortcomings by being well-armed and well-suited to combat operations in a variety of climates. Variants of the P-40 were used in all theaters of operations. The P-40 was continuously improved until production ceased in 1944 after over 13,000 examples had been built.

For many aviation enthusiasts, no World War II airshow is complete without a restored North American P-51 Mustang in attendance and flying. The 2024 Geneseo Airshow was fortunate to have Scott Yoak attend with his restored P-51 Mustang "Quicksilver". Scott Yoak attends several airshows each year with "Quicksilver". Yoak performs an aerobatic demonstration with the P-51 that showcases the performance and maneuvering capabilities of one of World War II's most famous fighters.

Scott Yoak performs a roll with his restored North American P-51D Mustang "Quicksilver". Entering service in mid-1944, the P-51D variant finally provided the U.S. Army Air Forces with a fighter capable of escorting bomber formations all the way to Germany and back. In addition to its role as a long-range escort fighter, the P-51 was also used for ground attack and photo reconnaissance missions. The P-51, designated the F-51, also saw service in the Korean War in the ground-attack role.

Civilian performers at the 2024 Geneseo Airshow included Rob Holland, a ten-time U.S. National Aerobatic Champion A native of New England, Holland performed in airshows for nearly 20 years. Holland has also built time flying in many other roles, including as a banner towing pilot, ferry pilot, corporate pilot, flight instructor, and even operating his own aerobatic flight school. Holland has a reputation for professionalism and precision, and he and his MXS-RH aircraft are popular on the airshow circuit.

Rob Holland performs in his MXS-RH aerobatic aircraft during his performance at the 2024 Geneseo Airshow. The MXS-RH is a one-of-a-kind aerobatic aircraft based on the popular MXS aerobatic aircraft manufactured by MX Aircraft in North Carolina. The MXS-RH is constructed of carbon-fiber, weighs in at just 1,200 pounds, and is powered by a 380-horsepower Lycoming engine. The MXS-RH is capable of rolling nearly 500 degrees per second and pulling up to 16 positive and negative Gs.

Providing a look at the maneuvers and aerobatics learned during flight training in World War II was John "Skipper" Hyle in his Boeing Stearman Kaydet biplane. Hyle is no stranger to the Geneseo Airshow, performing an aerobatic routine at the event for several years in a restored North American Harvard advanced trainer. The Stearman was used by the U.S. Army Air Forces, U.S. Navy, U.S. Marine Corps, and even the U.S. Coast Guard for the primary flight training of thousands of pilots during World War II.

One of the highlights of the 2024 Geneseo Airshow was having two Douglas C-47 Skytrains in attendance that are veterans of D-Day combat operations. As part of the airshow, both C-47s flew and dropped paratroopers, simulating how a drop into combat would have looked during World War II. This C-47 is the National Warplane Museum's "Whiskey 7". "Whiskey 7" was the lead plane of the second wave of paratroopers on D-Day. This C-47 also participated in Operation Market Garden and Operation Varsity.

A paratrooper jumps from the Tunison Foundation's Douglas C-47 Skytrain "Placid Lassie" during the 2024 Geneseo Airshow. Paratroopers jumped from "Placid Lassie" and "Whiskey 7" during the airshow in a demonstration of how a paratrooper drop would have looked during D-Day. On June 6, 1944, "Placid Lassie" towed gliders carrying members of the 101st Airborne Division into combat. The C-47 also flew parachute drops and glider missions during Operation Market Garden.

"Placid Lassie" performing a photo pass on Saturday at the Geneseo Airshow. In addition to its service on D-Day and during Operation Market Garden, "Placid Lassie" also flew three missions during Operation Repulse, which was the airborne resupply of the besieged 101st Airborne Division at Bastogne during the Battle of the Bulge. Later, "Placid Lassie" dropped paratroopers from the 17th Airborne Division during Operation Varsity, the first crossing of the Rhine into Germany in March 1945.

Restored World War II bombers are always a favorite of aviation enthusiasts at any airshow. At the Geneseo Airshow, warbird collector Tom Duffy sent his restored B-25J Mitchell "Take-Off Time" to participate in the event. The North American B-25 Mitchell was one of the most widely used medium bombers of World War II. The B-25 was used in every theater of World War II and used by many of the Allied air forces. Produced in numerous variants, nearly 10,000 B-25s were built during World War II.

A highlight of "Take-Off Time's" flight demonstration at the 2024 Geneseo Airshow was a simulated bombing run on the airfield. For this bombing run, the "Take-Off Time" flight crew had watermelons on board that were dropped from the bomb bay when the B-25 approached the designated point on the airfield. Pyrotechnics on the airshow grounds provided a simulated explosion effect. During World War II, B-25s did conduct some similar low-level bombing raids against Japanese ships.

One of the notable fighters to attend the 2024 Geneseo Airshow was the Vintage Wings of Canada/Michael U. Potter Collection's Hawker Hurricane Mk. XII. Introduced in 1937, the Hurricane was one of the most important fighters for the Royal Air Force and the British Commonwealth countries in the early years of World War II. The Hurricane played a pivotal role in the Battle of Britain. The Hurricane served throughout the war as a fighter, fighter-bomber, and night fighter.

On Sunday at Geneseo, some pilots who have far to travel get an early start home and leave in the morning hours. This Piper Super Cub is heading home after spending some time at the airshow. Super Cubs are still popular as bush aircraft because of their ability to land on small runways. This Super Cub is equipped with larger tires called tundra tires. These tires provide more ground clearance and offer a smoother landing on grass and rough airstrips. This Super Cub also has an underside travel pod installed.

The Sunday edition of the Geneseo Airshow was the same as Saturday, with a few minor schedule changes and adding the U.S. Air Force Heritage Flight to the lineup. The morning hours before the flying began was an excellent opportunity to check out all of the aircraft at the event. Unlike most airshows, the aircraft flying in the airshow could be viewed up close by the spectators. This P-51D Mustang did not fly in the airshow but was parked on static display throughout the weekend.

The Beech C-45 Expeditor is a military variant of the civilian twin-engine Beech 18 transport and utility aircraft. During World War II, over 4,5000 Beech 18s were used in military service as light transports and bomber aircrew trainers, In World War II, over 90% of bomber aircrew, such as bombardiers, navigators and radio operators, trained in Beech 18s. "Canadian Queen" is a restored C-45F Expeditor III, a transport variant supplied to the Royal Canadian Air Force under Lend Lease.

The airshow once again opened on Sunday with a demonstration of World War I aircraft. Fortunately, light winds the entire weekend meant that both the Fokker Dr.I Triplane and the Fokker D.VII could fly. World War I fighter aircraft, even modern reproductions, do not fly well in strong winds due to their handling characteristics. During the Sunday morning demonstration, the two aircraft joined together for a little formation flying, showing off the design and size differences between the two fighters.

An aircraft that flew in the Sunday airshow that did not fly on Saturday was this restored Taylorcraft L-2 Grasshopper. The L-2 Grasshopper was an aircraft used by the U.S. Army Air Forces during World War II for observation and liaison duties. The L-2 was used for training in the United States for roles such as artillery spotting, and few served overseas. After the war, many L-2s were converted for civilian use and sold as surplus as the DCO-65. Several of these aircraft remain in airworthy condition.

Another airplane in the collection of the National Warplane Museum is this restored Vultee BT-13 Valiant basic trainer. Introduced in 1940, the BT-13 was used for basic flight training by the U.S. Army Air Forces, as well as the U.S. Navy and U.S. Marine Corps, where it was designated the SNV. The BT-13 was also used as a training aircraft by the air forces of several other countries, including Argentina, Brazil, Bolivia, and Colombia. Over 9,500 Valiants were built by Vultee before and during World War II.

The Vultee BT-13 Valiant was the aircraft used in the second phase of the three phases of U.S. military flight training during World War II (primary, basic, advanced). The BT-13 was heavier and faster than the Boeing PT-17 Stearman and Fairchild PT -19 Cornell and had a more powerful engine. The Valiant also required the student pilot to use a two-way radio to communicate with the ground, operate landing flaps, and use a controllable-pitch propeller (also known as a constant-speed propeller).

Although the PT-26 variants of the Fairchild PT-19 Cornell were built for the Royal Canadian Air Force, several restored aircraft are flown in U.S. Army Air Forces colors by warbird owners today. For some owners, the PT-26, with its enclosed canopy, is preferred over the PT-19 for comfort and protection when flying. The enclosed canopy for the PT-26 was also designed in such a way that it can be added to any PT-19 airframe with relative ease as it simply fits over the top of the original open cockpits.

The PT-26 variants of the PT-19 Cornell were built in large numbers for the Royal Canadian Air Force. Of the over 1,500 built, more than 800 examples were built by Fleet Aircraft in Canada, with the rest being constructed by Fairchild Aircraft in Hagerstown, Maryland. Fewer PT-19s and PT-26s survive than other training aircraft from World War II. This is because the wings of the Cornell were constructed of wood. Over time, moisture got into the wings, rotting the wooden structure.

The Beech Staggerwing is one of America's classic biplanes. Introduced in 1932, the Staggerwing featured an atypical negative wing stagger to improve pilot visibility. The Staggerwing featured retractable landing gear, an unusual feature at the time. The retractable landing gear, along with a streamlined design and powerful radial engine, helped the Staggerwing perform well. The Staggerwing also had a luxurious cabin trimmed in leather and mohair to appeal to corporate operators.

During World War II, the Staggerwing was used as a communications aircraft by the U.S. Army Air Forces, the Royal Air Force, and the Royal Navy. In British military service, the Staggerwing was designated the Mk. I Traveller. The British military acquired 107 Travellers through the Lend-Lease Program during World War II. This example was built in 1944 and served with the Royal Navy. After returning to the U.S. and passing through several owners, it was donated to the National Warplane Museum in 2007.

Another difference with the Sunday airshow at Geneseo from Saturday's event was the addition of the U.S. Air Force Heritage Flight. The U.S. Air Force Heritage Flight is a special formation demonstrating past and present U.S. Air Force airpower. At the Geneseo Airshow, Capt. Samuel "Razz" Larson in the F-22 Raptor teamed up with Jim Beasley Jr. in his restored World War II-era North American P-51D Mustang "Bald Eagle" to perform this popular commemorative formation flight.

Capt. Samuel "Razz" Larson and the Lockheed Martin F-22 Raptor put on a terrific demonstration at the Geneseo Airshow. The F-22 Raptor has a top speed of Mach 2.25, or 1,500 miles per hour, at high altitudes. The Pratt & Whitney F119-PW-100 augmented turbofans allow the F-22 to cruise at Mach 1.82, or 1,200 miles per hour, at high altitudes without using its afterburners. The engines are also fitted with thrust-vectoring exhaust nozzles giving the F-22 impressive maneuverability.

Another civilian aerobatic performer to fly in the Geneseo Airshow was Canadian Trevor Rafferty with his highly modified Pitts Model 12 aerobatic biplane. Rafferty is from Hamilton, Ontario, and is a successful airshow performer, international aerobatics competitor, and flight instructor. Rafferty uses the skills he has learned in trades he grew up performing to build his own aircraft for aerobatic competition. Building this Pitts Model 12 and modifying it for his airshow needs took Rafferty four years.

Trevor Rafferty in flight in his Pitts Model 12 biplane at the Geneseo Airshow. The Pitts Model 12 is a high-performance biplane and was one of the last aircraft designed by Curtis Pitts. Unusually, the Pitts Model 12 is designed around the Russian Vedeneyev M14P/PF radial engine. Since its introduction in 1996, 59 examples of the Pitts Model 12 have been completed and flown. Rafferty's Pitts Model 12 also has this colorful paint scheme that resembles barnstorming aircraft of the 1930s.

Representing World War II naval aircraft at the airshow was Louis Horschel with his Goodyear FG-1 Corsair. Initially designed by Chance Vought, the Corsair was conceived as a powerful naval fighter. To create high performance, Vought engineers attached the largest propeller available to the most powerful engine. To achieve propeller clearance, the Corsair had distinctive gull wings. Most of the over 12,000 Corsairs produced were license-built by Goodyear, with some built by Brewster.

After some modifications to the landing gear so the Corsair handled better when landing on aircraft carrier flight decks, the fighter served with the U.S. Navy in the later years of World War II. The Corsair's armament and speed made it superior to most Japanese fighter aircraft, and the type became one of the most famous naval fighters of the war. During World War II, New Zealand and Great Britain also operated Corsairs. Improved variants of the Corsair saw service during the Korean War.

The Canadian Harvard Association is a longtime supporter of the Geneseo Airshow. The team flies several vintage North American Harvard advanced training aircraft from World War II. The North American Harvard is the Canadian version of the North American AT-6/SNJ advanced training aircraft. During their short airshow flight demonstration, the Canadian Harvard Association pilots perform several formation flying maneuvers pilots would have learned during flight training in World War II.

Another highlight of the 2024 Geneseo Airshow was the appearance of the Vintage Wings of Canada/Michael U. Potter Collection Supermarine Spitfire Mk. IX. The Spitfire is remembered as one of the most famous British fighter aircraft of all time. With its elliptical wings, sleek fuselage, and powerful engine, the Spitfire was fast, maneuverable, and beloved by its pilots. The Spitfire was introduced into service with the Royal in 1938 and played a pivotal role in the Battle of Britain.

During World War II, the Spitfire was built in nearly 30 variants with differences in engines, armament, and wings. Over 22,000 Spitfires were built during the war, and the Spitfire was the only fighter aircraft to be in production before, during, and after the war, with later variants remaining in service until the mid-1950s. The Vintage Wings of Canada/Michael U. Potter Collection Spitfire Mk. IX is painted in the colors of Arnold Roseland, a Canadian pilot who was shot down and killed over Normandy in 1944.

One of the elements of the Geneseo Airshow that makes the event so attractive for aviation photographers to attend is the scenic grass airfield and surrounding farm fields and wooded areas. This scenery allows photographers to capture the aircraft taxiing, taking off, and landing without distracting background elements. Here, Dave Hadfield brings the Vintage Wings of Canada/Michael U. Potter Collection Supermarine Spitfire Mk. IX back to the parking area following its flight demonstration.

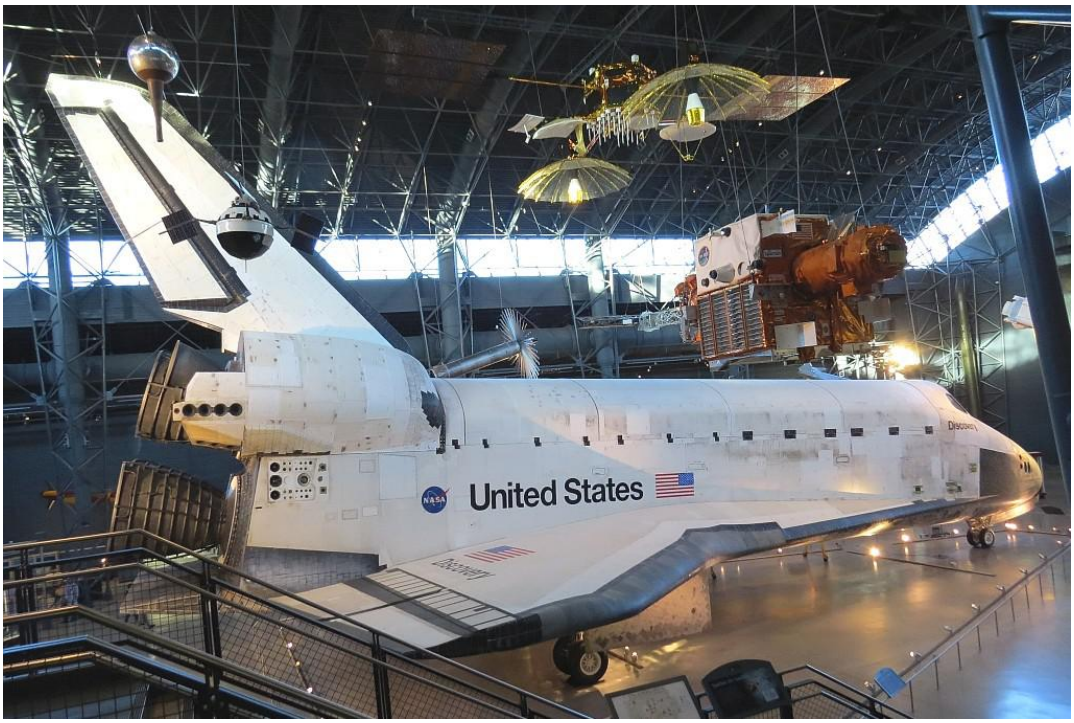
The National Warplane Museum's Douglas C-47 "Whiskey 7" rumbles into the sky during the Sunday edition of the Geneseo Airshow. "Whiskey 7" is the pride of the National Warplane Museum and promotes the museum and its aircraft preservation efforts by traveling to airshows and performing flyovers of local special events. In addition to these events, rides are offered by the museum aboard "Whiskey 7", allowing warbird enthusiasts the rare opportunity to fly aboard a D-Day veteran aircraft.

The Tunison Foundation's Douglas C-47 Skytrain "Placid Lassie" rumbles through the sky on Sunday at the Geneseo Airshow. After serving in World War II, "Placid Lassie" was sold as surplus and passed through several owners. "Placid Lassie" ended up derelict and parked at an airport in the United Kingdom in the early 2000s. "Placid Lassie" was found at the airport and restored by businessman James Lyle in 2010 . The Tunison Foundation began flying "Placid Lassie" on the airshow circuit in 2018.

As the Sunday airshow drew to a close along with the 2024 Geneseo Airshow, there was time for one more flight demonstration from Capt. Samuel "Razz" Larson and the U.S. Air Force F-22 Raptor Demonstration Team with the F-22 Raptor. Throughout the airshow weekend, Capt. Larson did a fantastic job demonstrating the maneuvering and combat capabilities of this fifth-generation stealth fighter to the spectators at the airshow. In this photo, Capt. Larson performs a final photo pass for the crowd.

The crew of Tom Duffy's North American B-25J Mitchell "Take-Off Time" performs a photo pass and activates the airshow smoke system on the restored bomber near the end of the Geneseo Airshow on Sunday afternoon. "Take-Off Time" is a regular sight at many airshows throughout the Mid-Atlantic and Northeast Regions of the United States. Earlier in 2024, the bomber made its annual appearance at the Mid-Atlantic Air Museum's World War II Weekend held in Reading, Pennsylvania.

Space Shuttle *Discovery*



The Space Shuttle Discovery on display in the National Air and Space Museum's Steven F. Udvar-Hazy Center in Chantilly, Virginia. The third orbiter built, Space Shuttle Discovery was considered to be the "Champion of the Fleet" for NASA's Space Shuttle Program. Discovery flew 39 Earth-orbit missions and traveled 150,000 miles in space. Notable flights for the orbiter included missions to dock with the Russian Mir space station and missions to launch and later repair the Hubble Space Telescope.

The Space Shuttle *Discovery* entered service in 1984 and was the champion of the shuttle fleet. *Discovery* flew on 39 Earth-orbit missions and spent a total of 365 days in space. Since *Discovery* flew every type of mission the Space Shuttle was designed to fly and tells the story of the 30-year history of the U.S. Space Shuttle Program from 1981 to 2011 and the impact it had on human spaceflight. *Discovery* is the centerpiece of the collection of spacecraft and other space artifacts on display in the James S. McDonnell Space Hangar in the National Air and Space Museum's Steven F. Udvar-Hazy Center.

The *Discovery* was the third of five orbiters to be built for the U.S. Space Shuttle program and the third to enter operational service, preceded by the *Columbia* and *Challenger*. The name *Discovery* was chosen to carry on a tradition of ships of exploration carrying that name, primarily the *HMS Discovery*, one of the ships commanded by Captain James Cook during his third and final voyage from 1776 to 1779.

As the third orbiter built, weight optimizations learned during the construction and testing of the orbiters *Enterprise*, *Columbia*, and *Challenger* were put into place on *Discovery*, making the spacecraft over 6,000 pounds lighter than the previously built shuttles. These weight optimizations included using quilted AFRSI blankets rather than white LRSI tiles on the fuselage and the use of graphite epoxy instead of aluminum for the payload bay doors and some of the wing spars and beams.

One curious aspect of *Discovery's* construction is that black heat-resistant tiles were installed below the corner pilot-side window on the orbiter. It is unknown if this was done intentionally to give *Discovery* a distinctive look or was a mistake during the construction process. This feature was nicknamed the "teardrop" by space shuttle enthusiasts. These tiles made *Discovery* instantly recognizable in pictures and videos of the orbiters.

The Space Shuttle *Discovery* entered service in 1984. *Discovery* flew its first shuttle mission, STS-41-D, from August 30 to September 5, 1984. *Discovery's* second mission, STS-51-A, lasted from November 8 to November 16, 1984. During this mission, *Discovery's* crew launched and rescued two communications satellites.

The Space Shuttle *Discovery* flew four more missions in 1985. During these missions, *Discovery* and its crews launched and rescued communications satellites and deployed a satellite for the Department of Defense. Tragedy struck the U.S. Space Shuttle Program in 1986 when the orbiter *Challenger* exploded during launch, killing the seven-person crew. As NASA and government officials investigated to learn what went wrong, future launches for *Discovery* and the rest of the space shuttle fleet were put on hold.

At the time of the *Challenger* disaster, the Department of Defense had expressed interest in launching space shuttle payloads from Vandenberg Air Force Base on the West Coast. These shuttle missions would have been dedicated to launching payloads, mostly in the form of spy satellites, for the U.S. Air Force. Had these plans gone ahead, *Discovery* would have been the shuttle dedicated to launching payloads for the U.S. Air Force and operating from the West Coast. This plan was canceled in the aftermath of the *Challenger* disaster due to logistical and budget considerations.

In 1988, *Discovery* was chosen for the mission to "Return To Flight" the U.S. Space Shuttle Program after the *Challenger* disaster. *Discovery* launched on STS-26 on September 29, 1988. NASA and government officials held their breath as the countdown ticked closer to zero. Thankfully, *Discovery* launched without incident, and eight and a half minutes later, eased into orbit above Earth while billions of people around the world breathed a collective sigh of relief. During the four-day mission, *Discovery* and its crew launched the TDRS-3 communications satellite.

Discovery went on to fly some of the most important missions of the U.S. Space Shuttle Program. In 1990, the *Discovery* and its crew launched the Hubble Space Telescope as part of STS-31. On STS-41, *Discovery* launched *Ulysses*, a robotic probe designed to study the Sun. In February 1994, *Discovery* completed the first docking mission with the Russian *Mir* space station. In 1995, the *Discovery* once again docked with the *Mir* space station. During this mission, NASA astronaut Eileen Collins became the first female space shuttle pilot.

In late 1995, *Discovery* entered a period of extended maintenance at Palmdale, California. During this maintenance period, the orbiter was fitted with a fifth set of cryogenic tanks and an external airlock to support missions to the International Space Station. This maintenance work took nine months to complete. After the work was completed, *Discovery* was transported back to Kennedy Space Center on the back of a specially modified Boeing 747.

Discovery returned to flight in 1997 and continued to be used for high-profile NASA shuttle missions. During STS -82 in 1997, *Discovery's* crew completed servicing of the Hubble Space Telescope. On STS-91 in June 1998, *Discovery* was the last space shuttle to visit *Mir* before the space station was decommissioned. History was made in 1998 during STS-95 when *Discovery* carried John Glenn into space for the second time. At 77 years of age, Glenn became the oldest man person to fly in space. In May of 1999, *Discovery* became the first space shuttle to dock with the International Space Station, and later that year, completed another mission to service the Hubble Space Telescope. *Discovery* flew the 100th space shuttle mission in October 2000. During STS-92, *Discovery's* crew assembled part of the International Space Station. On two missions in 2001, *Discovery* carried crew and supplies to the International Space Station.

In 2002, Discovery became the first orbiter in the fleet to undergo Orbiter Major Modification (OMM) at Kennedy Space Center. This work included upgrades and safety modifications. In 2003, the space shuttle *Columbia* disintegrated in the atmosphere during its return to Earth due to wing damage sustained during liftoff while *Discovery* was in this planned refit. This tragedy grounded the space shuttle fleet for the second time in its history while a government investigation was conducted and safety changes were made within NASA.

In 2005, *Discovery* was again the orbiter chosen for NASA's "Return to Flight" following the Columbia tragedy. On July 26, 2005, *Discovery* lifted off on STS-114 for a 13-day mission. During this mission, *Discovery* tested and evaluated new safety procedures and delivered supplies to the International Space Station.

After further concerns about foam debris damage from the external fuel tank on STS-114, *Discovery* completed a "Second Return to Flight" mission in 2006. During this mission, *Discovery's* crew tested new safety and repair techniques and delivered supplies to the International Space Station. In 2011, NASA decided to end the Space Shuttle Program and retire the fleet, mainly due to budgetary considerations. *Discovery* flew for the final time on February 24, 2011, on STS-133 and landed 12 days later. *Discovery* was the first of the three remaining orbiters to be retired. The Space Shuttle *Atlantis* flew the final shuttle mission, STS-135, in July 2011.

Discovery retired with an incredible record in spaceflight. *Discovery* was launched 39 times and traveled nearly 150 million miles in space. The orbiter spent 365 days in space and flew every type of mission the U.S Space Shuttle Program had been designed for, including satellite launch and repair, space station supply and construction, and scientific experiments. *Discovery* was also flown by the first female pilot, Eileen Collins, in 1995, and the first female commanders, Collins in 2005 and Pamela Melroy in 2006, as well as the first African American commander, Frederick Gregory in 1989. Because of its rich history, *Discovery* was selected by the Smithsonian Institution for inclusion in the National Air and Space Museum.

Today, the Space Shuttle *Discovery* is on display in the James S. McDonnell Space Hangar at the National Air and Space Museum's Steven F. Udvar-Hazy Center in Chantilly, Virginia. The orbiter looks small, but looks are deceiving. *Discovery* is 122 feet long, 58 feet tall, and has a wingspan of 78 feet. The 172,000-pound spacecraft is the centerpiece of the space hangar, which displays artifacts that tell the story of human spaceflight to museum visitors. Museum curators went to great lengths to preserve *Discovery* as it appeared after its final mission when it arrived at the museum in 2012. A close look at the orbiter reveals debris, dents, and dings. The scarring is all part of the violent process the *Discovery* went through during launch and traveling through the atmosphere. *Discovery* and her rich history of space exploration make the orbiter a must-see for museum visitors.

Pilatus PC-12 (1991)

The Pilatus PC-12 is a pressurized, single-engine, turboprop aircraft designed and manufactured by Pilatus Aircraft of Switzerland. The PC-12 was designed as a high-performance utility aircraft, incorporating a powerful turboprop engine and a large aft cargo door in its design. The PC-12 can operate from rough and unprepared airstrips. Due to its high performance and efficient design, the PC-12 has been utilized for several other roles. The PC-12 has been widely used as a corporate aircraft but is also used by small regional airlines, air-ambulance operators, and government agencies. Since entering service in 1994, the PC-12 has been continuously improved by Pilatus Aircraft in upgraded variants, with over 2,000 being delivered to operators worldwide. This PC-12 is operated by the medical laboratory company Quest Diagnostics.

Pilatus PC-12

Crew: 1 or 2

Passenger Capacity: 6 to 9 passengers

Length: 47 ft 3 in

Height: 14 ft

Wingspan: 53 ft 5 in

Wing Area: 277.8 sq ft

Powerplant: Pratt & Whitney Canada PT6A-67B/P turboprop (x1)

Range: 1,845 nmi

Cruise Speed: 308 mph

Maximum Speed: 330 mph

Empty/Maximum Takeoff Weights: 6,195 lb/10,450 lb

Service Ceiling: 30,000 ft

High-Performance Utility Aircraft

Variants

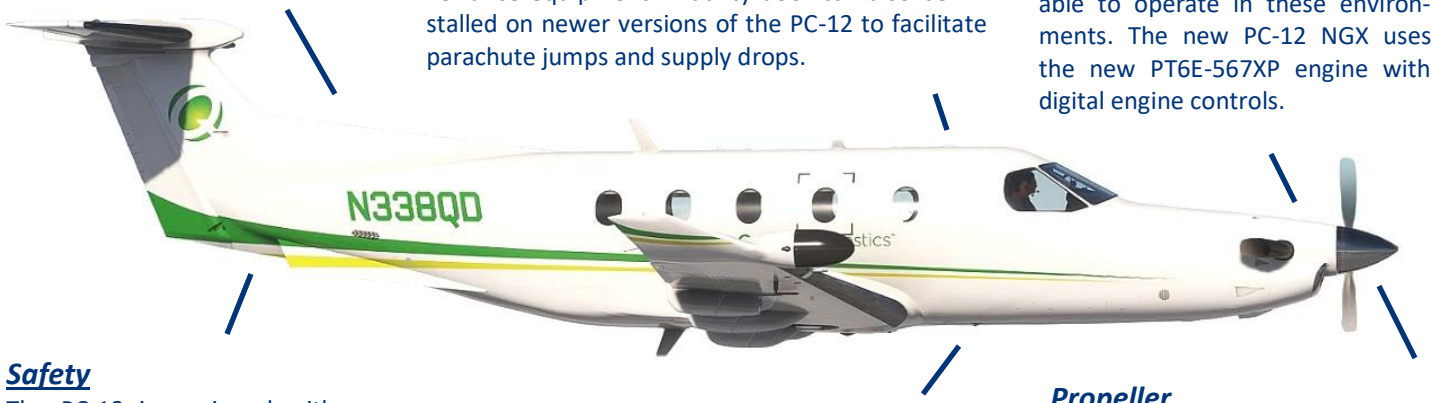
The initial production variant of the PC-12 entered service in 1994. The PC-12 NG (Next Generation), with updated avionics and the more powerful Pratt & Whitney Canada PT6A-67P engine, entered service in 2008. The newest variant of the PC-12 is the PC-12 NGX. This variant has updated seats, larger cabin windows, updated Honeywell avionics, a new seven-bladed propeller, and the new Pratt & Whitney Canada PT6E-67XP turboprop engine with full-authority digital engine control. The PC-12 NGX entered service in 2020.

Cabin

Typically, the cabin of the PC-12 can accommodate up to nine passengers and is equipped with a lavatory, refreshment center, and rear baggage area. The interior was designed in cooperation with BMW's Designworks division and uses leather, fine wood, and various textiles to create an environment that conveys comfort and luxury. Other passenger cabin configurations include business executive layouts, seating for six to eight passengers, a passenger-cargo layout with seating for four passengers, and an air ambulance layout with room for two stretchers and three medics. A large rear cargo door allows the interior to accommodate large items, including palletized cargo. Newer versions of the PC-12 have a more powerful electrical system, allowing the installation of power-consuming devices in the interior, such as medical and aerial surveillance equipment. A utility door can also be installed on newer versions of the PC-12 to facilitate parachute jumps and supply drops.

Powerplant

The PC-12 is powered by the reliable Pratt & Whitney Canada PT6A-67 turboprop engine. Early models of the PC-12 were powered by the PT6A-67B version of the engine, with the newer PC-12 NG (Next Generation) using the more powerful PT6A-67P. This new engine increased the PC-12's climb rate and cruise speed. The performance of the PT6A-67 engine gives the PC-12 the ability to operate in rugged environments such as the Canadian wilderness and Australian outback and use rough and unprepared airstrips. The PC-12 is one of the few pressurized turboprop aircraft to be able to operate in these environments. The new PC-12 NGX uses the new PT6E-567XP engine with digital engine controls.



Safety

The PC-12 is equipped with numerous safety features, including modern weather radar installed and dual angle of attack sensors in the wings to counteract spin and stall conditions. Pneumatic deicing systems are installed in the wings and empennage, with electrical deicing measures integrated into the windshield. Exhaust heat is used for intake deicing. For redundancy, the PC-12 has a complete dual-bus electrical system in addition to two batteries and a third emergency battery. The PC-12 is noted for its excellent handling characteristics, slow takeoff and landing speeds, and excellent short-field performance.

Cockpit

The cockpit of the PC-12 is designed for single or two-pilot operations. The cockpit is designed for ergonomic and aesthetic appeal, reducing workload and providing a high level of comfort for the crew. The avionics suite for the PC-12 was developed by Honeywell and consists of four 10-inch LCD screens, with two being used for primary flight display and two more being used as multifunction display. Newer models of the PC-12 have a glass cockpit with touch screens and improved avionics. Improvements to the avionics suite in newer PC-12 models include automatic pressurization control, full-authority digital engine control, auto throttle, and a low-speed propeller mode to reduce cabin noise. An engine monitoring system on newer PC-12 variants automatically measures engine parameters and produces warnings to aid with preventative maintenance.

Propeller

Early versions of the PC-12 incorporated a four-blade propeller manufactured by Hartzell propeller. The improved Next Generation (NG) variant of the PC-12 incorporated a five-bladed Scimitar Composite propeller from Hartzell. This propeller has swept tips and is seven pounds lighter thanks to the use of composite materials in its construction. The new propeller allows newer variants of the PC-12 to cruise faster, climb quicker, and reduce takeoff distance. Flyover and cabin noise are also reduced. The newest variant of the PC-12, the NGX, uses a seven-bladed propeller from MT Propellers.

Hallmark CallAir A-2 Keepsake Christmas Ornament

The CallAir A-2 is the 28th airplane featured in Hallmark's long-running "Sky's The Limit" series of Keepsake Christmas ornaments sculpted by Lynn Norton representing historic American aircraft. The A-2 was a variant of the CallAir Model A, a two-seat utility aircraft designed and built by Wyoming ranchers Reuel and Spencer Call in 1940. World War II delayed the start of production of the Model A until 1946.

For 28 years, Hallmark Cards Inc. has produced a series of Christmas ornaments replicating historic American aircraft as part of its Keepsake ornament product line. The "Sky's The Limit" series has featured many famous aircraft in ornament form since its debut in 1996, including the Wright Flyer, Charles Lindbergh's Ryan NYP *"The Spirit of St. Louis"* and the Lockheed Vega 5B Amelia Earhart used to fly solo across the Atlantic Ocean in 1932. In addition to famous American record-breaking aircraft, some obscure types are also featured in the series, such as the Harlow PJC-2 cabin monoplane designed by Max Harlow and his students as a class project in the mid-1930s. For 2024, the aircraft chosen for the "Sky's The Limit" ornament series is the CallAir A-2.

The CallAir Model A was a utility aircraft designed by the Call brothers, Reuel and Spencer, who were Wyoming ranchers. The aircraft was ready for production by 1940, but the start of World War II and the lack of strategic materials delayed the plans to produce the aircraft. In the interim, the Call brothers set up a company called the Call Aircraft Company and built a factory. The factory operated as an aircraft repair facility throughout the war. The Call Aircraft Company began production of the Model A in 1945. The production variant of the aircraft was designated the A-2 and was a two-seat braced low-wing monoplane with fabric-covered wooden wings and a fabric-covered welded steel tube fuselage. Further models of the aircraft were introduced with different engines. Sales of the Model A grew when the A-4 variant was introduced in 1954 and was sold as a purpose-built agricultural aircraft. The A-4 evolved into the improved A-5, which was the best-selling variant of the CallAir Model A-series with 83 examples built. Unfortunately, the Call Aircraft Company struggled to sell their aircraft against stiff competition from Cessna and Piper, as well as the flood of war-surplus general aviation aircraft in the market. In 1962, the assets of the Call Aircraft Company were sold at a public auction after just over 200 CallAir Model A-series aircraft had been built. A derivative of the Model A-series, the A-9, was a crop dusting and spraying aircraft produced by Intermountain Manufacturing Company (IMCO) and later Rockwell International from 1963 to 1984.

Hallmark's ornament replicates one of 16 CallAir A-2s built and is an excellent replica of this relatively obscure aircraft. The ornament faithfully captures the structural details of the A-2, such as the braced wings and distinctive fuselage shape, and is painted gold throughout with red and black striping. This ornament is now available at Hallmark.com and in Hallmark retail locations in the United States and Canada.

Distelfink Airlines

Est. 2013

ABOUT DISTELFINK AIRLINES

My late grandfather, John Brey, and I at the 2007 Geneseo Airshow. This was one of the few times that we had our photo taken together at an airshow.

The story of "Distelfink Airlines" begins in the early 1990s when my late grandfather, John Brey, began building and flying remote control model aircraft in his retirement. He enjoyed the hobby and quickly amassed a large fleet of model airplanes, which filled his garage and woodworking shop. He gave a name to his fleet of aircraft, "Distelfink Airlines". For the symbol of his fleet, he chose the Pennsylvania Dutch/German hex sign featuring the "Distelfink", a colorful bird that is a symbol of good luck and happiness. This hex sign and symbol is very common on Pennsylvania Dutch/German barns in Eastern Pennsylvania and is an important part of our local culture. He had custom "Distelfink" decals made for all his airplanes and had T-shirts made with "Distelfink Airlines" printed on them. It wasn't long before curious people began asking about "Distelfink Airlines" and what it was. My grandfather told anyone who asked that "Distelfink Airlines" was a new startup airline that was going to be offering service between the Lehigh Valley International Airport and Philadelphia International Airport with more routes to come soon.

In addition to flying his model airplanes, my grandfather enjoyed attending airshows and we traveled to airshows together for almost 20 years. He also enjoyed local aviation history and was particularly fascinated by the history of the Consolidated TBY Sea Wolf, a torpedo bomber that was built locally in Allentown, Pennsylvania during World War II. He also remembered when famous aviator Amelia Earhart visited the Lehigh Valley in the early 1930s to raise funds for her failed attempt to become the first woman to fly around the world.

Established in 2013 in memory of my grandfather, "Distelfink Airlines" is an online aviation newsletter that carries on a tradition of sharing a love for aviation that my grandfather shared with me. This newsletter features photographs and writings on a variety of aviation topics. The logo that was chosen for "Distelfink Airlines" is the hex sign that my grandfather chose for his fleet of remote control model aircraft many years ago. This proud symbol of local Pennsylvania Dutch/German culture is joined by a pair of Consolidated TBY Sea Wolf torpedo bombers, the aircraft that was built locally in Allentown during World War II and is such an important part of our local aviation history. Thank you for reading "Distelfink Airlines" and sharing in the passion for aviation that my grandfather shared with me.