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*Corey J Beitler's*

# *"Distelfink Airlines"*

*An Online Aviation Newsletter*

★ *Celebrating 10 Years Of Publication!* ★

## ***The Ford Tri-Motor "The Tin Goose"***



***Embraer ERJ-145LR***

***Easy Model 1/72 Scale Sikorsky HH-60J/MH-60T Jayhawk***

***Boeing F/A-18E Super Hornet***

***Boeing 367-80 Jet Transport Prototype***

***Antonov An-124 Ruslan***

***Hallmark Bulldog Racer Ornament***

*The Liberty Aviation Museum's 1928 Ford 5-AT-B Tri-Motor in flight during a recent visit to the Capital City Airport in Harrisburg, Pennsylvania. The museum's Tri-Motor is painted in the livery of the airline Transcontinental Air Transport. This airline was one of the first to operate the Ford Tri-Motor when it entered service in the late 1920s.*

## FROM THE EDITOR'S DESK

### The "Tin Goose", Antonov An-124 Ruslan, Hallmark's Bulldog Racer

Greetings Everyone:

Welcome to the August edition of "Distelfink Airlines". As everyone who reads and follows the newsletter is well aware, this has been an excellent year for the newsletter. It is an honor and a privilege to write and publish this newsletter, cover airshows and aviation events, and share my aviation photojournalism work with all of you. As we enter the twilight of the summer season, I am looking forward to covering the Visit AC Atlantic City Airshow: A Salute To Those Who Serve in August and the Golden Age Air Museum Flying Circus and World War I Airshow in early September. I expect to have content from these events in upcoming editions of "Distelfink Airlines".

Featured in the August edition of the newsletter is a history of the Ford Tri-Motor. The Tri-Motor was an aircraft that revolutionized air travel when it appeared in 1926. Although it was quickly replaced in airline service by more modern and faster aircraft, the Tri-Motor helped establish the airline industry in the United States. With the Tri-Motor, airlines could offer regularly scheduled and transcontinental airline service. Henry Ford also helped establish many modern safety features at airports unheard of in the late 1920s, including paved runways, radio beacons, and weather stations. Like any Ford-built vehicle at the time, the Tri-Motor was rugged, reliable, and inexpensive to operate. The feature article has a brief history of the Tri-Motor and photos of the Liberty Aviation Museum's 1928 Ford 5-AT-B Tri-Motor, one of the few surviving Tri-Motors in restored airworthy condition. I was fortunate to see this Tri-Motor when it recently stopped at the Capital City Airport in Harrisburg, Pennsylvania as part of a "Fly The Ford" tour stop hosted by local EAA Chapter 122 at the airport. These tour stops are operated by the Experimental Aircraft Association and allow the general public the opportunity to ride in a Tri-Motor and see the aircraft up close at several locations in the United States each year. In order to fly the tour, the Liberty Aviation Museum generously allows the EAA to lease their Tri-Motor. I would like to thank the EAA, the Liberty Aviation Museum, Capital City Airport, and EAA Chapter 122 for hosting a "Fly The Ford" tour stop in Harrisburg and granting me access to the passenger cabin and cockpit of the Tri-Motor for pictures for my article.

Also featured in this edition is a look at the Antonov An-124 Ruslan. This large cargo aircraft is used by the Ukrainian airline Antonov Airlines to operate charter flights carrying large or oversized cargo throughout the world. Antonov Airlines lost its home base, administrative headquarters, and several of its aircraft were destroyed at Hostomel Airport in Ukraine when the airport was severely damaged by Russian forces during the opening phases of the 2022 Russian Invasion of Ukraine. The airline moved its five remaining An-124 aircraft to Leipzig, Germany, and has been able to continue to operate cargo flights from that country.

Finally, this edition of the newsletter includes a small write-up about the 27th ornament in the Hallmark Keepsake Ornament series "Sky's The Limit" of historic airplane Christmas ornaments. For 2023, the aircraft selected is the Bulldog Racer designed by Robert Hall for competition in the 1932 National Air Races. This ornament is an excellent miniature replica of this famous racing aircraft, and it will look great on a Christmas tree this holiday season or on display as a miniature model on a desk or bookshelf.

As always, thank you for reading the newsletter and allowing me the opportunity to share my aviation photojournalism work with all of you. Please feel free to share the newsletter with anyone who might be interested in it or enjoy reading it. I hope you enjoy this edition of "Distelfink Airlines".

Regards,  
-Corey

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*The aircraft designed and built by Robert Hall for competition in the 1932 National Air Races is the 27th aircraft featured in Hallmark's popular "Sky's The Limit" series of aircraft ornaments.*

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# Embraer ERJ-145LR



*An Embraer ERJ-145LR operated by Victory Air on approach to the Lehigh Valley International Airport in Allentown, Pennsylvania after a flight from Statesville Regional Airport in North Carolina. Victory Air is a charter airline that provides flights to NASCAR race locations for NASCAR team personnel and their families. Victory Air operated several flights in and out of the Lehigh Valley International Airport during last month's NASCAR race weekend at the nearby Pocono Raceway.*

The Embraer ERJ family is a series of regional jets produced by the Brazilian aerospace company Embraer. The family includes the ERJ 135, ERJ 140, and ERJ 145 (company model names EMB-135, EMB-140, and EMB-145). The ERJ family also includes the Legacy 600 business jet and the R-99/P-99 family of maritime patrol and airborne early warning and control military aircraft.

Embraer began the design and development of the EMB-145 in 1989, perceiving a new market for regional jet aircraft where passenger comfort and appeal, and increased speed, would be factors in airlines selecting aircraft for their fleets. The early design proposals for the EMB-145 took the form of a turboprop-powered stretch of the existing turboprop-powered EMB-120 Brasilia commuter airliner. Work was temporarily suspended on the EMB-145 in 1990 but restarted with a revised configuration of the aircraft in the early 1990s. The new design retained the three-abreast seating of the Brasilia but had a new swept-back wing and was powered by two rear-fuselage-mounted Rolls-Royce AE3007 turbofans. The new aircraft could carry 50 passengers up to 2,000 nmi. The ERJ-145 flew for the first time in 1995 and entered service in 1997 with the launch customer, ExpressJet Airlines. In 1999, Embraer launched two shortened versions of the aircraft, the ERJ-135, which could carry 37 passengers, and the ERJ-140, which could carry 44 passengers. All models in the ERJ family share parts and engine commonality and have the same type rating, so pilots can fly any ERJ variant without needing additional training. As a result of this shared type rating, many airlines that operate ERJ regional jets have fleets with mixed variants. The ERJ family was a successful product for Embraer, over 1,200 were built during the type's production run, which ran from 1992 to 2020. In recent years, a significant number of the ERJ family of aircraft retired from commercial airline service have been converted for use as charter and corporate aircraft.

The Embraer ERJ-145LR pictured here is operated by charter airline Victory Air. Victory Air offers chartered flights to NASCAR team personnel and their families to NASCAR race locations from the company's base at the Statesville Regional Airport and the Concord-Padgett Regional Airport in North Carolina. Victory Air operates a fleet of 10 Embraer ERJ-145LR aircraft.





# Easy Model 1/72 Scale Sikorsky HH-60J/MH-60T Jayhawk



*Easy Model's 1/72 scale Sikorsky HH-60J/MH-60T Jayhawk is one of the only fully assembled and painted models of this medium-range, twin-engine U.S. Coast Guard search and rescue helicopter on the market. Although the Easy Model brand of model aircraft is marketed as a more affordable product line, the company captured some of the Jayhawk's distinctive features, such as its nose radar blister, fuselage-mounted external fuel tanks, and the red and white U.S. Coast Guard colors and individual aircraft markings quite well.*

The Sikorsky MH-60T Jayhawk is a multi-mission, twin-engine, medium-range helicopter operated by the U.S. Coast Guard. The MH-60T is used by the U.S. Coast Guard for search and rescue, law enforcement, drug interdiction, military readiness, and marine environmental protection missions. It is one of two helicopters in the U.S. Coast Guard inventory, the other being the Airbus Helicopters MH-65D/E Dolphin.

Development of the Jayhawk began in 1986 when the U.S. Coast Guard was looking to replace its fleet of HH-3F Pelicans, which were nearing the end of their service life. Initially designated the HH-60J, the Jayhawk was developed in conjunction with the U.S. Navy's HH-60H Rescue Hawk, a search and rescue variant of Sikorsky's SH-60 Seahawk helicopter. In 1991, the U.S. Coast Guard began training with the new helicopter. Coast Guard Air Station Elizabeth City became the first operational unit to fly the Jayhawk. The U.S. Coast Guard ordered 42 HH-60Js from Sikorsky which were delivered from 1990-1996. Three Jayhawks were lost in crashes and replaced with ex-U.S. Navy MH-60 Seahawks converted to the MH

-60T Jayhawk standard.

The HH-60J was faster, lighter, and had more powerful engines than the HH-3J it replaced. In 2007, the U.S. Coast Guard began upgrading their HH-60Js to the MH-60T standard. The upgrades included a glass cockpit, new radar sensors, a new electro-optic/infrared sensor system, and airborne use of force capability.

The MH-60T can cruise at 160 miles per hour and fly at speeds up to 207 miles per hour for a short time. The helicopter's fuel capacity allows it to fly a crew of four up to 300 miles offshore, hoist six additional people on board, remain on scene for 45 minutes, and still have enough fuel to return to base. MH-60Ts can be fitted with up to three external fuel tanks to increase its range and time on scene. The MH-60T typically operates from land but can be stationed on the 270-foot medium endurance Coast Guard cutters or the larger 418-foot Legend Class National Security Cutters. The U.S. Coast Guard operated the MH-60T from eight Coast Guard Air Stations. The MH-60T Jayhawks were featured in several scenes of the 2006 film *The Guardian*.



The Easy Model “Platinum Collection” of models is a series of fully assembled and affordable models of military aircraft. These models have become popular with collectors as Easy Model offers some aircraft types not available in die-cast. The 1/72 scale HH-60J/MH-60T Jayhawk is part of the company’s lineup of model helicopters. Easy Model labels this model as an earlier HH-60J, but there is very little visual difference between the HH-60J and the MH-60T, as most of the upgrades involved the helicopter’s internal systems. The model is painted in the standard U.S. Coast Guard scheme used on most Jayhawks and marked as being stationed at Coast Guard Air Station Elizabeth City in North Carolina.

The Easy Model HH-60J/MH-60T Jayhawk is an excellent replica of a helicopter seldom seen as a ready-built model. Easy Model did a great job replicating some of the Jayhawk-specific design features, such as the blister in the center of the helicopter’s nose that contains its radar systems and the drop tanks installed along the fuselage. The Jayhawk model also has clear and sharp stenciling and markings. All the stenciling and markings correctly match those found on the real HH-60J/MH-60Ts. There is minor assembly required to complete the model for display, which includes inserting the four ro-

tor blades into the rotor hub on small tabs. These tabs are fragile and easy to break when installing the rotor blades if one is not careful.

The Easy Model 1/72 HH-60J/MH-60T Jayhawk does have some weak points. Although the rendering of the markings is excellent, the company had difficulty replicating the red-orange and white color scheme, as the paint lines show minor overspray in places. The red color used by Easy Model on the Jayhawk also seems too red, and the actual color should have a more orange hue. Finally, a disappointing aspect of this model is Easy Model does not include a display stand for its helicopter models as it does for its 1/72 scale airplane models.

The Easy Model 1/72 scale HH-60J/MH-60T Jayhawk is a decent replica of a helicopter rarely seen available as a fully assembled model with a very affordable price point. The detail level and quality of the paint application and markings on the Jayhawk is on par with many die-cast models available in 1/72 scale. The Easy Model HH-60J/MH-60T Jayhawk is also an excellent opportunity to add a model of a U.S. Coast Guard helicopter to a model aircraft collection and salute the service of an aircraft and its crews that have saved thousands of lives during its service career.



*The Easy Model 1/72 scale Sikorsky HH-60J/MH-60T Jayhawk has some areas that could benefit from improvement. The rotor and tail rotor hubs are incorrectly painted white on the model when they should be a metal color to match the real aircraft. The red color used on the model also seems more red in hue than it should be, the color being a red-orange on the actual helicopter. The rotor blades are also difficult to push into place on the small tabs on the rotor hub. These tabs are made of soft plastic, very fragile, and easy to break if not careful.*



## Boeing F/A-18E Super Hornet

(1995)



The Boeing F/A-18E Super Hornet is a supersonic, twin-engine, carrier-capable multirole fighter aircraft derived from the earlier McDonnell Douglas F/A-18 Hornet series. The single-seat F/A-18E and the twin-seat F/A-18F are larger and more advanced versions of the F/A-18C and D Hornet. The Super Hornet entered production in 1997 and entered service with the U.S. Navy in 1999. As a multirole fighter and attack aircraft, the Super Hornet can carry a variety of air-to-air and air-to-ground weapons. The Super Hornet can also be deployed as an airborne tanker by adding an external air-to-air refueling system. In addition to the U.S. Navy, the Royal Australian Air Force and the Kuwaiti Air Force also operate the Super Hornet. The Super Hornet airframe has also been developed into a dedicated electronic warfare variant, the EA-18G Growler.

### Boeing F/A-18E Super Hornet

**Crew:** 1 (Flight Instructor/Student Pilot or Pilot/Passenger)

**Length:** 60 ft 1.25 in

**Height:** 16 ft

**Wingspan:** 44 ft 8.5 in

**Wing Area:** 500 sq ft

**Powerplant:** General Electric F414-400 turbofans (x2)

**Range:** 1,275 nmi

**Maximum Speed:** Mach 1.6 (1,190 mph)

**Cruise Speed:** 777 mph

**Empty/Gross/Maximum Takeoff Weights:** 32,081 lb/47,020 lb/66,000 lb

**Service Ceiling:** 52,300 ft

**Armament:** 20 mm M61A2 Vulcan rotary cannon (x1), wingtip missile launch rails (x2), under-wing weapons pylon stations (x6), under-fuselage weapons pylon stations (x3), total payload capacity of 17,750 lb of Air-to-air missiles, Air to-surface missiles, Anti-ship missiles, bombs, external pods or fuel tanks

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**Boeing F/A-18E Super Hornet, U.S. Navy “Blue Angels” Flight Demonstration Squadron,  
#3 Left Wing, Lt. Amanda Lee, NAS Pensacola, Pensacola, Florida, 2023**

*The Blue Angels are the official flight demonstration squadron of the U.S. Navy. The Blue Angels were formed in 1946 and are the second oldest aerobatic formation team in the world. The mission of the Blue Angels is to showcase the professionalism and pride of the U.S. Navy and Marine Corps by inspiring a culture of excellence and service to the country through flight demonstrations and community outreach.*

*The Blue Angels typically perform over 60 aerial displays annually in the United States and Canada during an airshow season. A typical aerial display season runs from March to November, with an estimated 11 million people seeing the team perform each season. Before the airshow season begins, the team completes an intensive winter training program at NAF El Centro in California. During the display season, the team trains at its home base NAS Pensacola in Florida. Members of the Blue Angels also spend time during the season visiting people in hospitals, schools, and community functions.*

*The Blue Angels have flown several aircraft during their history. Currently, the team flies six single-seat Boeing F/A-18E Super Hornets. In addition to these aircraft, two F/A-18F two-seat Super Hornets are also flown to each display site. These F/A-18Fs are used for VIP ride flights at a display location and as spare aircraft should one of the primary aircraft develop a maintenance problem. A U.S. Marine Corps Lockheed Martin C-130J Super Hercules transport aircraft affectionately nicknamed “Fat Albert” carries the team’s support personnel and equipment to each display site.*

*The Blue Angels transitioned to the F/A-18 Super Hornet in November 2020. The Super Hornets flown by the Blue Angels wear the team’s famous blue and yellow paint scheme. The F/A-18E Super Hornet shown here is currently flown by Lt. Amanda Lee, the #3 Left Wing pilot. Lt. Lee is the first woman to serve as a demonstration pilot with the Blue Angels.*



# ***The Ford Tri-Motor "The Tin Goose"***



***Although its production run and time in airline service were brief, Ford's reliable and rugged Tri-Motor helped convince the American public that air travel was safe and revolutionized the airline industry and air travel in the nation.***

*The Liberty Aviation Museum's 1928 Ford 5-AT-B Tri-Motor in flight during a visit to the Capital City Airport in Harrisburg, Pennsylvania. This aircraft is based at the Erie-Ottawa International Airport in Port Clinton, Ohio. This Tri-Motor is leased from the Liberty Aviation Museum by the Experimental Aircraft Association for their "Fly The Ford" tour which travels the United States each year.*





*I pose for a picture with the Liberty Aviation Museum's 1928 Ford 5-AT-B Tri-Motor at the Capital City Airport in Harrisburg, Pennsylvania. The aircraft visited the airport in June as part of the Experimental Aircraft Association's "Fly The Ford" tour. At the time this photo was taken, the Tri-Motor was tucked safely inside a hangar waiting out a nearby thunderstorm before resuming ride flights.*

When the Liberty Aviation Museum's 1928 Ford 5-AT-B Tri-Motor comes in for a landing during one of its ride flights at one of its "Fly The Ford" tour stops in the United States, one can easily see why the Tri-Motor was nicknamed the "Tin Goose". The Ford does look like some sort of mythical bird with its large metal wings and large belly. The nose with one of the three large radial engines up front, and the unique cockpit windows, can be imagined to resemble a bird's beak and eyes. Closer inspection of the aircraft reveals the corrugated Alclad, the corrosion-resistant aluminum sheeting that covers all parts of the aircraft's structure.

When the Ford Tri-Motor was introduced in 1926, it provided the American airline industry, which was in its infancy, a safe and reliable aircraft. With the proud reputation of the Ford name behind it, the Tri-Motor helped convince a skeptical American public that commercial air travel was safe. During its brief time in commercial airline service, the Ford Tri-Motor revolutionized the airline industry and air travel, putting

both on the path to the passenger airline service and modern airport infrastructure enjoyed in the United States today.

The Ford Tri-Motor's story begins with an inventor named William Stout. After graduating from college, Stout covered aviation for the *Chicago Tribune* and later founded and published his own aviation magazine, *Aerial Age*. During World War I, Stout worked for Packard, which produced Liberty aero engines. Later, Stout managed to get himself assigned to the Wartime Production Board. During his tenure with the War Production Board, Stout had the opportunity to view and evaluate many different airplane designs. It was well-known the United States had fallen behind Europe in both the designs of airplanes and aero engines. The designs evaluated by Stout left him unimpressed, and in his eyes, from an engineering perspective, he could see why the United States had fallen so far behind European nations in aircraft design. By the end of the war, Stout was convinced that there had to be a better way to build and design aircraft, and soon began building his own airplane.



The first aircraft constructed by Stout after the Armistice was called the Batwing. After building a second and improved version of the Batwing, Stout landed a contract to build a twin-engine torpedo bomber for the U.S. Navy. The machine Stout built was years ahead of its time, but was crashed by a U.S. Navy test pilot on its first flight. Soon after, the U.S. Navy lost interest in the project and to Stout's dismay, canceled the production contract.

After this setback, Stout was broke and his reputation damaged, but his desire to build a successful airplane was not. For his next project, he contacted all the leading Detroit industrialists who had shown an interest in aviation. Freely admitting they would probably never get their money back, Stout asked them each to contribute \$1,000 toward a new aviation company. Over 60 of these businessmen went along with the idea, some contributing over the \$1,000 requested. Among the backers was Henry Ford, persuaded to back the project by his son Edsel, who loved airplanes since childhood.

The new company was called the Stout Metal Airplane Company and its first airplane was a four-seat, deep-bellied monoplane made of wood and fabric and powered by an old Curtiss OX-5 engine. Called the Air Sedan, the airplane was underpowered and did not fly very well. An improved version of the Air Sedan, powered by a Hisso engine and made of corrugated metal, didn't fly much better. Stout was frustrated and complained to the Fords about his lack of success. Henry Ford suggested to Bill Stout that he build a larger airplane.

The Fords continued to provide Stout more funding. Stout's next airplane, the Air Pullman and later, the Air Transport, were close in design to the "Tin Goose" but single-engine machines. By 1924, the Fords had a majority stake in Stout's company. The Fords continued to feed more money into the company and built Stout a proper factory to build his airplanes. The Fords started their own scheduled airline service using examples of Stout's Air Transports to fly employees and executives between Ford factories in the Detroit area.



*A close-up of the nose of the Liberty Aviation Museum's 1928 Ford 5-AT-B Tri-Motor during its recent visit to the Capital City Airport in Harrisburg, Pennsylvania. Some of the Ford Tri-Motor's unique features showcased in this picture include the three Pratt & Whitney radial engines, the wide-track main landing gear, the passenger cabin door, and the metal cables that actuate the control surfaces, visible just below the cockpit windows.*



*The passenger cabin of the Liberty Aviation Museum's 1928 Ford 5-AT-B Tri-Motor. Most of the passenger cabins in Ford Tri-Motors had wooden interiors. The passenger cabin amenities included a light above every seat for reading or writing at night, window curtains that could be opened or closed, and a lavatory located at the rear of the cabin. The individual passenger seats could be removed from the cabin so the Tri-Motor could carry freight or mail if required.*



In July 1925, Henry Ford bought out all the other investors in Stout's company. Ford wasn't satisfied with the performance of Stout's Air Pullman and Air Transport aircraft, so he brought in his own chief engineer and told Stout to build a larger, multi-engine transport aircraft. Stout's answer to Ford's request was to stick three Wright Whirlwind radial engines on an Air Pullman airframe. The airplane looked terrible and flew even worse. Henry Ford was trying to figure out what to do next when the Stout factory burned down one winter evening.

The fire was a blessing to Henry Ford, who had become annoyed with Bill Stout's lack of progress. As the factory was rebuilt, Stout was sent by Ford on a publicity and lecture tour. Henry Ford brought in three young engineering graduates of MIT to redesign the Air Pullman and make it a successful airplane. The result was the first Ford Tri-Motor, the 4-AT, which flew for the first time in 1926.

The 4-AT was a revolutionary airplane. For its time, it was big, with a wingspan of 74 feet and a length of

50 feet. The cabin could seat 12 passengers comfortably, and with a height of 16 feet, allowed people to fully stand up inside. The cabin even had lighting so passengers could read a newspaper or book during an evening flight. The pilots sat in an enclosed cockpit that protected them from the wind and the elements. In a world of wood and fabric airplanes, the Ford was all metal, even the control surfaces.

The new 4-AT also had some other interesting aspects to its design. Similar to other aircraft of the era, the metal wires that actuated the rudder and elevators were strung along the outside of the aircraft. Many of the gauges for the engines were mounted externally on the engines themselves and had to be read by the pilot looking out the cockpit windows. The brakes for the wheels were operated by a lever called a "Johnny brake". Finally, the three-engine design was a notable safety feature at a time when the reliability of aero engines was still suspect. The Tri-Motor flew safely with one engine out, and a lightly loaded Tri-Motor could even fly safely on just one engine.





*The cockpit of the Liberty Aviation Museum's 1928 Ford 5-AT-B Tri-Motor. The wooden steering wheels used in the Tri-Motor cockpits were the same used on Ford's Model T automobiles, and the starter switches were the same used on the Ford Model A. One of the complaints about the Tri-Motor was the noise in the cockpit. Even though they sat close to each other, pilots often had to yell to be heard over the roar of the aircraft's three engines.*

The 4-AT also flew well. The airplane would lift off the ground and land with ease. The wide track of the main landing gear prevented ground-looping. The 4-AT also had a 500-mile range and could carry a payload of over 2000 lbs. The Tri-Motor's three Wright Whirlwind radial engines were reliable and provided plenty of power. The only drawbacks of the 4-AT's design were its speed and the noise. The 4-AT had a cruise speed of only about 80 miles per hour. This lack of speed was partially caused by the Tri-Motor's corrugated skin, which contributed to significant drag on the airframe. The cockpit was also extremely noisy, with the pilots often having to yell at each other to communicate.

It wasn't long before orders came pouring in for the new Tri-Motor. Ford's new factory began churning out the aircraft, using the same assembly line and manufacturing techniques that had made the company successful in the automobile industry. Understanding the importance of parts commonality in manufacturing more so than most, Ford used some

parts from his automobiles on the Tri-Motor. The steering wheel to move the ailerons came from the Ford Model T, and the engine starter switches off the Ford Model A. Near the factory, Ford built a 600-acre airport. The airfield had many modern amenities unheard of at the time, including two paved runways, radio beacons, a weather station, a passenger terminal, and a pilot training center.

The 4-AT was soon developed into an improved variant, the 5-AT. The 5-AT had three more powerful and reliable 420-horsepower Pratt & Whitney Wasp radial engines instead of the Wright Whirlwinds used on the earlier 4-AT. The 5-AT also had a larger cabin that increased passenger capacity to 15. To increase the Tri-Motor's cargo capacity, the 5-AT had drop-down baggage compartments in the lower inner wing sections. With its more powerful Pratt & Whitney engines, the 5-AT could cruise at speeds of just over 100 miles per hour. Tri-Motor operators also had the opportunity to customize their aircraft with engine cowlings, wheel spats, and three-bladed propellers instead of the standard two-blade units.



Ford sold 198 production model Ford Tri-Motors between 1926 and 1933. All sorts of operators bought them including airlines, oil companies, mining companies, and freight companies. During its career as an airliner, over 100 airlines operated the Ford Tri-Motor. For the airlines, the Tri-Motor offered the opportunity for them to offer transcontinental flights in the United States for the first time. For major corporations, the Tri-Motor offered many of them the opportunity to operate an aircraft for business and executive travel. Military operators such as the U.S. Army Air Corps, Royal Australian Air Force, and Royal Canadian Air Force used small numbers of the Ford Tri-Motor as military transport aircraft and air ambulances.

In service, the Tri-Motor, like Ford-built cars and tractors, was rugged, reliable, and inexpensive to operate. The Tri-Motor could be refueled and serviced with simple ladders and scaffolds, so ground crews did not need special equipment. The Tri-Motor's passenger cabin had seats that were easy to

remove and a structurally reinforced floor, allowing the aircraft to be easily adapted to hauling cargo. To operate from remote locations, the Tri-Motor's wheels could be switched to skis or floats.

In 1933, the Ford Tri-Motor's time as a commercial airliner began to end. The Boeing 247, an airliner that introduced features such as retractable landing gear, a cantilevered wing, and an autopilot system, entered service in 1933. The all-metal Boeing 247 was also 100 miles per hour faster than the Tri-Motor. In 1935, the Douglas DC-3 entered service. The DC-3 was more reliable, could fly three times as far as a Tri-Motor, and was over 130 miles per hour faster than the Ford. The introduction of the Boeing 247 and Douglas DC-3 quickly relegated the Ford Tri-Motor to second and third-tier airline service. Some smaller airlines continued to operate the Tri-Motor into the 1960s. One of the major uses of the Tri-Motor after being replaced in airline service by more modern aircraft was to haul heavy equipment to mining operations in jungle or mountain regions. Some Tri-Motors were used for decades in this role.

*One of the reasons the Ford Tri-Motor was successful was because of the reputation Henry Ford and his company enjoyed by building reliable and inexpensive automobiles and tractors. The Ford Tri-Motor enjoyed a similar reputation with its operators. In this photo, the Liberty Aviation Museum's 1928 Ford 5-AT-B Tri-Motor is sharing the ramp with a classic Ford Model A truck.*



Another reason the Ford Tri-Motor met its end was Henry Ford lost his enthusiasm for manufacturing airplanes. Ford himself had never been fond of airplanes and flying and had only flown once in his life. Three of Ford's test pilots had been killed in crashes. One of those pilots, Henry Brooks, was a close friend of Ford's. Brooks was killed testing a new prototype aircraft for Ford called the "Flivver". The "Flivver" was an inexpensive single-engine monoplane Henry Ford envisioned as being affordable to anyone. After Brooks lost his life testing the "Flivver" prototype, a distraught Henry Ford canceled production of the small aircraft and eventually the Tri-Motor as well.

Today, 18 Ford Tri-Motors remain in existence as museum displays, restoration projects, or in airworthy condition. One of the most viewed Tri-Motors on display in a museum is the 1929 5-AT-B in the National Air and Space Museum, donated to the museum by American Airlines. A 1929 5-AT-B operated by Pan American Airways is on display in the San Diego Air and Space Museum in California. Another

famous Tri-Motor on display is the 1928 4-AT-B used by Commander Richard E. Byrd during his 1929 expedition to the South Pole. This Tri-Motor is displayed at the Henry Ford Museum in Dearborn, Michigan.

Eight of the 18 surviving Ford Tri-Motors have current airworthy certificates from the FAA. Of those eight, two Tri-Motors are flown regularly as part of the Experimental Aircraft Association's "Fly The Ford" tour that travels the United States each year, allowing the public to ride in a Tri-Motor and see one up close. One is the 1929 4-AT-E owned by the Experimental Aircraft Association and based in Oshkosh, Wisconsin. This Tri-Motor was originally owned by Eastern Air Transport and was restored by the EAA after being badly damaged in a storm many years ago and thought to be a total loss. This Tri-Motor recently returned to airworthy status after being the subject of an extensive restoration project that involved building new wings for the aircraft after airframe corrosion was found during a routine maintenance inspection a few years ago.



*The Liberty Aviation Museum's 1928 Ford 5-AT-B Tri-Motor warming up its engines prior to a ride flight during a "Fly The Ford" tour stop at the Capital City Airport in Harrisburg, Pennsylvania. The Liberty Aviation Museum leases this Tri-Motor to the Experimental Aircraft Association so it can tour the United States as part of its "Fly The Ford" tour each summer.*



*The Liberty Aviation Museum's 1928 Ford 5-AT-B Tri-Motor departs the Capital City Airport in Harrisburg, Pennsylvania for a ride flight during a recent "Fly The Ford" tour stop hosted by local EAA Chapter 122. These tour stops, hosted by local EAA Chapters throughout the United States, allow people to fly on the Ford Tri-Motor for a donation and help keep the history of the Tri-Motor and its contribution to American aviation history alive.*



The Tri-Motor featured in the photographs of this article is the 1928 5-AT-B operated by the Liberty Aviation Museum and based at the Erie-Ottawa International Airport in Port Clinton, Ohio. This Ford Tri-Motor is nicknamed "The City of Wichita/City of Port Clinton" and wears the livery of Transcontinental Air Transport, one of the first airlines to operate the Tri-Motor. This Tri-Motor is leased by the Experimental Aircraft Association to be part of the "Fly The Ford" tour that the organization operates in the United States each year. This Tri-Motor has also appeared at airshows and has been used in several historical and living history photo shoots.

The Ford Tri-Motor's time as a commercial airliner was very short, but it left a lasting legacy on commercial aviation and air travel in the United States. Thanks to Henry Ford's influence, the Tri-Motor helped introduce the airline industry to flight schedules, paved runways, radio beacons, passenger terminals, weather stations, and pilot training centers. The Tri-Motor, built with Ford's reputation for qual-

ity and durability, proved to the American public that commercial air travel was safe and that aircraft could be built to carry passengers across the country in relatively comfortable accommodations. Later aircraft like the Boeing 247 and Douglas DC-3 built on the Tri-Motor's revolutionary concepts, offering faster service, improved reliability, and more comfortable passenger accommodations.

Today, the Ford Motor Company remains a world leader in the production of cars and trucks. For a brief time in the late 1920s and early 1930s, with a loud and slow three-engine aircraft nicknamed the "Tin Goose", the company was a world leader in aircraft production as well. Thanks to the efforts of the Liberty Aviation Museum and the Experimental Aircraft Association with their "Fly The Ford" tour stops, people have the opportunity to experience what it was like to fly on a Tri-Motor and see the airplane up close on the ground. The continued popularity of these tour stops with the public indicates that the Ford Tri-Motor still has a story to tell, over 90 years after the airplane changed aviation forever.



## Boeing 367-80 Jet Transport Prototype



*The Boeing 367-80 or Dash 80 Jet Transport Prototype on display at the National Air and Space Museum's Steven F. Udvar-Hazy Center in Chantilly, Virginia. This prototype aircraft would serve as the design basis for the KC-135 Stratotanker military transport and tanker and the 707 commercial airliner. Boeing funded the initial development and building of the Dash 80 out of their own pocket, taking a gamble that the design would be a success and the aircraft would be purchased by commercial airlines and the U.S. Air Force.*

In the early 1950s, Boeing began studying the possibility of creating a new jet-powered military transport and tanker aircraft. Unfortunately, the U.S. Air Force showed no interest in the idea initially. Taking a huge gamble and risking its future as a company, Boeing invested \$16 million of its own money to build and fly a prototype jet transport in the hopes airlines and the U.S. Air Force would buy the aircraft once it had proved itself. As it had previously with the B-17 Flying Fortress, Boeing's gamble paid off. The new aircraft, the 367-80, better known as the Dash 80, would revolutionize commercial air travel when the developed version entered service as the Boeing 707, America's first jet airliner.

After the formal start of the project in May 1952, work proceeded quickly. Due to security and trade secret concerns, Boeing called the new project the 367-80 or Dash 80. The new aircraft had a cabin based on the earlier C-97 transport and 35-degree swept wings based on those of the B-52 bomber, but that were considerably stiffer and incorporated significant dihedral. The wings featured high-speed and low-speed ailerons and a sophisti-

cated spoiler and flap system. The new aircraft was powered by four Pratt & Whitney JT3 turbojet engines, each producing 10,000 pounds of thrust. After the Dash 80 flew for the first time in July 1954, Boeing realized they had a winner. The new aircraft was 100 miles per hour faster than the rival de Havilland Comet and had a maximum range of over 3,500 miles.

After the test flights, Boeing showed the aircraft to the U.S. Air Force. As Boeing expected, the U.S. Air Force was impressed with the aircraft and ordered 29 examples, designated the KC-135A Stratotanker. The only change requested by the U.S. Air Force was widening the fuselage by 12 inches. One benefit of the KC-135 design was that the aircraft could be used as an aerial tanker and transport aircraft. The U.S. Air Force eventually ordered more examples of the KC-135, the aircraft being continuously improved in successive variants. Eventually, the U.S. Air Force bought 732 KC-135s. Today, variants of the KC-135 with improved turbofan engines remain in service with the U.S. Air Force over 60 years after the type was introduced into service.



After satisfying the U.S. Air Force, Boeing turned their attention to selling the aircraft to the airline industry. In an attempt to impress airline representatives of the capabilities of the new aircraft, Boeing arranged for a flyby of the Dash 80 during the Gold Cup hydroplane races held in Seattle in August 1955 and invited airline representatives to attend the event. During the flyby, Boeing test pilot Alvin "Tex" Johnston barrel-rolled the Dash 80 over the lake in the view of thousands of spectators. Although the maneuver shocked Boeing officials, Johnston had vividly demonstrated the strength and performance of the new jet to the gathered airline executives.

Boeing's first customer for the new 707 was Pan American Airways. The company president Juan Trippe wanted a suitable jet airliner to maintain his company's status as a leader in international air travel. Trippe ordered 20 707s from Boeing. In October 1958, Pan Am ushered in the jet age in the United States with the first international 707 flight. The new 707, along with the Douglas DC-8, made air travel more profitable and

faster. Initially designed for one-stop transatlantic range, the 707 was modified with more efficient turbofan engines and extra fuel tanks. The 707-300 Intercontinental variant could fly nonstop across the Atlantic with a full payload. Boeing eventually built 855 707s, over 700 of which were bought by airlines worldwide.

After it successfully launched Boeing into the jet age, the Dash 80 was used by the company as a test aircraft for several years. The aircraft was used extensively by Boeing as a test bed for the new systems and engines for the company's 727 trijet. The Dash 80 was also used to test new engines, new flap and aileron designs, and a special multiple-wheel low-pressure landing gear system to test the concept of large military transport aircraft operating from unprepared airstrips. After a long and successful career as a test aircraft, Boeing retired the Dash 80 from this role in 1972.

After its retirement, the Boeing 367-80 was donated to the Smithsonian Institution's National Air and Space Museum. The aircraft is now displayed in the museum's Steven F. Udvar-Hazy Center in Chantilly, Virginia.



### Antonov An-124 Ruslan

(1986)



*The Antonov An-124 Ruslan is a large, strategic airlift, four-engine aircraft that was designed in the early 1980s by the Antonov Design Bureau in Ukraine, then part of the Soviet Union. The An-124 was designed to address a shortfall the Soviet Air Force had in strategic heavy airlift capacity. The An-124 first flew in 1982 and entered service in 1986. A total of 55 An-124s were built between 1982 and 2004. Ongoing tensions between Ukraine and Russia have prevented any further production of the An-124. The breakup of the Soviet Union resulted in the An-124 being adapted for commercial air cargo use in significant numbers by civil operators in Russia and Ukraine. Currently, the An-124 is in service with the Russian Aerospace Forces and commercial operators Volga-Dneper Airlines, Antonov Airlines, and Maximus Air Cargo.*

### *Antonov An-124 Ruslan*

**Crew:** 5-7 (Pilot, Co-Pilot, Radio Operator, Navigator, Loadmaster, Flight Engineer (x2))

**Passenger Capacity:** 88 seated in upper aft fuselage, up to 350 passengers on pallet seating in cargo hold

**Cargo Capacity:** 330,700 lb of cargo in main hold

**Length:** 226 ft 8 in

**Height:** 69 ft 2 in

**Wingspan:** 240 ft 6 in

**Wing Area:** 6,760 sq ft

**Powerplant:** Progress D-18T high-bypass turbofan engines (x4)

**Range:** 2,400 nmi with full payload

**Cruise Speed:** 500 mph

**Maximum Speed:** 540 mph

**Empty/Maximum Takeoff Weights:** 399,037 lb/892,872 lb

**Service Ceiling:** 39,000 ft

20 “Distelfink Airlines”



# International Cargo Transporter

## Cockpit & Upper Deck

The cockpit is equipped with a fly-by-wire hybrid flight control system. Conventional mechanical controls are utilized for some aspects of flight control. This hybrid system is designed to provide redundancy against a single hydraulic circuit failure. The cockpit also contains two radar systems, one for weather and one for ground mapping. Pilots report the An-124 has good handling characteristics for its size and is easy to fly. The An-124 is designed to be operated by a crew of 5 to 7, with some An-124s having upgraded avionics and communications equipment installed by Russian and Ukrainian operators that allow for smaller flight crews. A passenger seating area is located behind the cockpit on the upper deck and can accommodate 88 people. The upper deck is accessible from the cargo hold through foldable ladders.

## Control Surfaces & Layout

The An-124 is very similar to the Lockheed C-5 Galaxy in design and layout, with the design of the control surfaces, such as flaps, slats, and spoilers being similar or nearly identical to those of its American counterpart. The tail shares a design and shape that is similar to the tail surface of the Boeing 747. The wing and fuselage of the An-124 both have a very similar shape to that of the C-5 Galaxy, but the wing is slightly longer in span, and the fuselage is slightly shorter in length. Unlike the C-5 Galaxy, the An-124 was not built with the provision for air-to-air refueling.

## Antonov Airlines

Antonov Airlines is a Ukrainian charter cargo airline that is a world leader in the international air transportation of oversized and superheavy cargo loads. The airline was based at Hostomel Airport near Kyiv when the 2022 Russian Invasion of Ukraine began. During the Battle of Hostomel Airport, Russian forces captured the airport and destroyed or severely damaged several Antonov Airlines facilities and aircraft, including the one-off An-225 Mriya and one of the airline's An-124 aircraft. Antonov Airlines relocated five of its An-124 aircraft to Leipzig/Halle Airport in Germany. The airline has continued commercial cargo operations with its remaining An-124 aircraft from this airport. Antonov Airlines aircraft wear this colorful livery that proudly represents the people and nation of Ukraine.



## Cargo Hold

Access to the An-124 Ruslan's massive cargo hold is through the large opening nose or the loading ramp in the rear fuselage. The cargo hold is not fully pressurized, so the ability to carry passengers is limited, as they would have to wear winter clothing and oxygen masks while seated in the cargo hold. For the efficient loading of items, even without the support of ground equipment, the An-124's cargo hold is equipped with cargo handling equipment. This equipment includes two traveling cranes capable of lifting over 60,000 lbs, and rollgang and tiedown equipment to secure cargo. Large items weighing over 260,000 lbs can be loaded using the two onboard winches. The cargo hold floor is made of titanium, and can support the weight of most heavy machinery and large vehicles, including large diesel locomotives and construction equipment.

## Landing Gear

The landing gear of the An-124 consists of 24 wheels. The large number of landing gear wheels helps distribute the weight of the An-124 on the runway or taxiway and reduces stress on the surface. The front landing gear of the An-124 has the ability to "kneel" to allow cargo to be loaded efficiently into the aircraft using the opening nose cargo door and ramp. The landing gear is equipped with an oleo strut suppression system, which allows the An-124 to takeoff and land on unprepared airstrips. The An-124's two auxiliary power units (APUs) are located in the main landing gear fairings.

## Engines

The An-124 Ruslan is powered by four Progress D-18T turbofan engines. These engines are high-bypass turbofans and are equipped with thrust reversers to reduce the landing distance of the An-124, allowing operations with the aircraft at airports with shorter runways. The D-18T engine was designed by Ivchenko-Progress and manufactured for the An-124 in Ukraine by Motor Sich. In recent years, some An-124s have had upgraded versions of these engines installed that increased the aircraft's maximum takeoff weight and cargo capacity. The upgraded versions of these engines also meet current airport noise regulations. In 2018, studies were conducted by GE Aviation to explore the possibility of equipping the existing An-124 fleet with more efficient and reliable CF6 engines. The CF6 engines are also readily available, which would make spares easier to source for An-124 operators. Unfortunately, the progressive deterioration of relations between Russia and Ukraine prevented this plan from going beyond the initial exploratory studies.



## Hallmark Bulldog Racer Ornament



*The Bulldog Racer is the 27th ornament in Hallmark's long-running "Sky's The Limit" series of Christmas ornaments representing historic American aircraft. The Bulldog Racer was a racing aircraft designed and built by Robert Hall for competition in the 1932 National Air Races.*

For 27 years, Hallmark Cards Inc. has produced a series of ornaments portraying historic American aircraft as part of its Keepsake Christmas ornament product line. The "Sky's The Limit" series has featured many famous American aircraft in ornament form since it debuted in 1996, including the Wright Flyer, Charles Lindbergh's Ryan NYP *The Spirit of St. Louis*, and the bright red Lockheed Vega 5B that was flown by Amelia Earhart when she became the first woman to fly solo across the Atlantic in 1932. For 2023, the Hallmark "Sky's The Limit" ornament series features the Bulldog Racer, an aircraft built for competition in the 1932 National Air Races

Robert Hall was a successful mechanical engineer and began his involvement in air racing when he joined Granville Brothers Aircraft. While with the Granville Brothers, Hall designed the Gee Bee Z, which won every racing contest held at the 1931 National Air Races. After a dispute with the Granville Brothers, Hall left the company and decided to build aircraft on his own. In early 1932, Hall began designing a new racing aircraft, built under contract for Marion Price Guggenheim of the famous Guggenheim family of New York. This contract also stipulated that Russell Thaw would pilot the new aircraft in the 1932 National Air Races. The new aircraft, called the "Bulldog", was a gull-wing design powered by a Pratt & Whitney Wasp Jr. radial engine which developed 535 horsepower. Hamilton Standard gave Hall one of their first controllable pitch propellers to use on the "Bulldog". The racer was painted red, black, and white and assigned race number 6 for the upcoming National Air Races in Cleveland.

After test-flying the "Bulldog" and not being satisfied with its performance, Thaw refused to fly the aircraft in the National Air Races and withdrew from the event. At the last minute, Hall was granted permission from Mrs. Guggenheim to race the "Bulldog" himself in the National Air Races. In the Thompson Trophy Race, the main event of the 1932 National Air Races, the "Bulldog" finished in a disappointing sixth place and was considerably slower than the race-winning Gee Bee R-1 built by the Granville Brothers and flown by Jimmy Doolittle. Bob Hall was so upset with the "Bulldog's" performance that after the races he dismantled the aircraft, and it never raced again.

Hallmark's Bulldog Racer is an excellent replica of this historic racing aircraft. The miniature ornament of the "Bulldog" faithfully replicates the real aircraft's gull-wing design and bright red, black, and white paint scheme. The ornament is now available on Hallmark.com and in Hallmark retail stores in the United States and Canada.







**Distelfink  
Airlines**

Est.  
2013



*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.*

## ABOUT

### DISTELFINK AIRLINES

*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.*

*"Distelfink Airlines" is an online newsletter featuring the aviation photography and writings of Corey J. Beitler. Contributions from guest photographers and writers are sometimes featured and are used only with prior permission. Public domain and/or copyright free images are utilized for some articles. All text and images are copyright to the original owners and may not be reproduced or reused without permission.*