



# AAHS FLIGHTLINE

No. 197, 1st Quarter 2018

American Aviation Historical Society

[www.aahs-online.org](http://www.aahs-online.org)



Second place overall winner Nick Lacy in Six Cat, being chased by another T-6 during one of the early heat races. (Photo by Charles E. Stewart)

## 2017 NATIONAL CHAMPIONSHIP AIR RACES

### Highlights of What's Inside

- 2017 National Championship Air Races
- NASA Contracts to Build X-Plane
- 2017 Dubai Air Show
- Best of the Best

### Regular Sections

- Book Reviews
- President's Message
- New Members
- Wants & Disposals

Excitement for the 54th annual Reno National Championship Air Races was heightened by Stevo Hinton's September 2 attempt in P-51 *Voodoo* at establishing a new speed record for propeller driven aircraft (to be detailed in the next FlightLine). While he moved the mark up to 531 mph from 528 mph set by Lyle Shelton in F8F Bearcat Rare Bear in 1989, the speed differential was in sufficient to be classed as an official

world speed record.

*Voodoo*, which is owned by Bob Button and sponsored by Aviation Partners of Seattle, Wash., established the 531 mph speed based on the average of four runs over a 3 km course. Hinton's fastest single run over the course was just shy of 555 mph.

On arrival at Stead Field, *Voodoo* was reconfigured for pylon racing and given a new paint job. Hinton was the defending



A couple of the warbirds that attended the races. Both of the "stock" aircraft were also raced in the Unlimited Class. (Photo by Charles E. Stewart)



*A group of P-51s, plus a Yak-3M, prepare for takeoff in one of the unlimited heat races. The T-33 is the official starter/safety plane for the race. (Photo by Charles E. Stewart)*

Unlimited Race champion, having won this event the last six times. His closest challenger is Jay Consalvi of Midland, Tex., who placed second in the Gold Champion race in 2016.

The 2017 Championship Air Race was an outstanding event with over 120 aircraft of all types entered in the six categories of racing. For the WWII aviation buffs, the Unlimited Class fielded 18 entries of stock and highly modified vintage fighters. These included P-51A and D model Mustangs, Hawker Sea Fury, Yak 3M, Grumman FM-2 Wildcat, FG-1D Corsair, P-40E Warhawk and even, for the first time in a long time, a Supermarine Spitfire.

In the other classes, there were 16 T-6/SNJ entries, 19 Formula One, 14 in the Biplane Class and 16 in the Jet Class. The fastest growing class is the Sport Class that had 40 aircraft entered this year. Competition speeds in this class are approaching 400 mph, almost fast enough to be competitive with the unlimiteds!

While racing takes center stage at the air races, organizers also offered a number of other diversions for those in attendance. These attractions included both aerial and ground displays. Texas Flying Legends Museum brought six of their restored vintage warbirds, including a B-25 and TBM-3, that were on static display and flown during the week. Also participating was the USAF A-10 Heritage Flight Team, USMC AV-8B Harrier and B-2 stealth bomber. Brad Wursten Airshows provided excellent aerobatic performances while Livfast FMX performed bike demonstrations between races.

The “education discovery zone,” an area designed to deliver science, technology, engineering and math (STEM) education for all ages was made possible by Global Robot and Drone Deployment and the Nevada Business Aviation Association. This area provided both youths and adults with learning experiences focused around aviation, 3D printing, robots, technology displays and safety training/operations using unmanned aircraft systems. Available to attendees were virtual reality demonstrations, a number of flight simulator stations, a drone flight training area and wearable computers and sensors. Four 3D printers

working full-time provided free software, training and printing for no charge to any student or teacher.

### **Air Racing**

This multi-day event conducts a number of elimination races in each class to narrow the final field down to the fastest in each category. The Gold Races are the culmination of this process and are flown on Sunday, the final day of the event. This process produces the most competitive field for the final races.

### **AT-6 Class**

This class of stock WWII trainers generally promises to be the most competitive and this year was no different. All entries must use the 650-hp nine-cylinder Pratt & Whitney R-1340 radial engine. While crews are not allowed to increase the cubic-inch displacement of their P&W powerplant, they are allowed to blueprint the engine (In blueprinting the engines crews often balance the pistons, polish the heads and cylinders, polish the blower and polish the carburetor). The crews are also allowed to fill open seams and wax/polish the aircraft to make them more aerodynamically clean. Last but not least, the crews are allowed to remove the rear seat to reduce overall weight.

Sixteen veterans took up the gauntlet, which was narrowed down to five finalists in the Gold Race. John Lohmar of Dallas,



*John Lohmer in Radial Velocity leads the T-6 Gold Race around the first pylon followed closely by second place winner Dennis Beulm in Midnight Miss III. Lohmer would go on to win the race. (Photo by Charles E. Stewart)*



Jet Class Gold winner, American Spirit, an L-39 flown by Rick Vandam. (Photo by Charles E. Stewart)



Sport Class winner Jeff LeVelle taxiing Super Glasair III, #39, following a heat race. (Photo by Charles E. Stewart)

Tex., flying SNJ-5 *Radial Velocity* edged out last year's runner up Nick Macy of Tulelake, Calif., in T-6G *Six Cat* by a mere 0.074 seconds, with last year's champion Dennis Buehn of Fallon, Nev., coming in third in AT-6D *Midnight Miss III*. The winning speed was 225.470 mph, just 0.036 mph faster than second place.

### Formula One Class

Nineteen entrants qualified to this class with eight making it to the Gold Race. All aircraft must adhere to the following requirements: a minimum dry empty weight of 500 pounds, non-retractable landing gear, a minimum wing area of 66 square feet, a fixed-pitch propeller constructed of either wood or composite materials and a 100-hp 200 cubic-inch Continental engine.

Lowell Slatter of Buhl, Idaho, flying a Gilbert GR-2 called *Fraed Naught*, prevailed in this class with a winning speed of 242.104 mph. This was about 1.5 mph faster than the second place finisher, Steve Senegal of San Bruno, Calif., flying *Endeavor*, an Arnold AR-6.

### Biplane Class

Biplanes must have a minimum dry weight of 500 pounds, at least 30 percent of the required 75 square foot wing area must be contained in the smaller of the two wings, non-retractable landing gear, a fixed pitch propeller, and the largest engine permitted is the 360 cubic-inch, 180-hp Lycoming engine.

This class, made up of primarily Pitts Specials, was won by Andrew Buehler of Olalla, Wash., in his modified Mong Sport *Phantom*. They finished almost 35 seconds and 17 mph faster



Second place Biplane Class Pitts S-1 Bad Mojo, flown by Jake Stewart) (Photo by Charles E. Stewart)

than second place finisher Jake Stewart of Carinth, Tex., in his Pitts S-1.

### Jet Class

Dominated by Aero L-29s and L-39s, this group hosted a field of 16 qualifiers. This year's Gold Race was won by Rick Vandam of Reno, Nev., flying the L-39 *American Spirit* with a speed of 494.210 mph. In an event dominated by L-39s, second place was captured by Zachary McNeill of Corpus Christi, Tex., in his DH-115 Vampire *Stealth*.

### Sport Class

This class of racers, 40 entrants in all, is dominated by Super Glasair and Lancair Legacy models, with a couple of Thunder Mustangs thrown into the mix. The class is open to production kit-built aircraft powered by a reciprocating engine with a displacement of 650 cubic inches or less. Aircraft must have a current FAA Airworthiness Certificate. Pilots must have at least 500 hours of flight time-in-type, and be EAA formation flight certified to participate in a race.

The Gold Race was won going away Jeff LeVelle of Mukilteo, Wash., in a Super Glasair III, Race No. 39, with a speed of 388.313 mph. This was 22 mph and 34 seconds faster than Vicky Benzing's Lancair Super Legacy, *Lucky Too*, that clocked in at 360.130 mph.

### Unlimited Class

Even though this racing class is called "unlimited" there are certain restrictions placed upon all entries. All aircraft must have piston engines, be propeller driven, and capable of pulling 6 G's. Besides that, this class is basically a "no-holds-barred" affair operating within these few requirements. Anything goes! Eighteen competitors qualified for this series of races.

The Gold Race for the Unlimited Class looked as if it was going to be a repeat of the preceding year with Stevo Hinton flying *Voodoo* leading for the first seven of the eight lap race. In the final turn, James Consalvi flying *Strega* was able to position himself where he was able to convert altitude to airspeed and dive pass Hinton at the finish line, thus ending Hinton's string of consecutive wins at six. The winning speed was 481.340 mph. →





Artist's rendering of the QueSST, based on NASA and Lockheed engineering studies. (Lockheed Martin)

# NASA Selects Lockheed Martin Skunk Works® to Build X-Plane

PALMDALE, Calif., April 3, 2018 -- Supersonic commercial travel is on the horizon. Today NASA awarded Lockheed Martin Skunk Works® a contract to design, build and flight test the Low-Boom Flight Demonstrator, an X-plane designed to make supersonic passenger air travel a reality.

Can you imagine flying from New York to Los Angeles in half the time?

Think about it. Commercial flight over land in a supersonic jet would mean less time in-flight; less time in a cramped seat next to your new, and probably unwanted, best friend; fewer tiny bags of peanuts; and more time at your destination.

Couldn't Concorde do that? Nope. Concorde, which last flew in 2003, utilized 1950s technology, was only supersonic over the ocean and was deemed too noisy to fly over people. It also burned a lot of fuel and was an expensive ticket. Approximately \$15,000 for a round-trip seat in today's dollars! That makes our wallets hurt.

Ok, so just build a new Concorde with new technology that saves fuel. Well, it's really not that easy. Since 1973, supersonic flight over land has been forbidden in the United States because of the noise from sonic boom. A new supersonic commercial airplane needs to beat the boom problem and be efficient as well.

That's what NASA's Commercial Supersonic Technology Project is trying to do. After years of work, we think we can bring something new to the table that produces acceptable in-flight noise to communities along flight paths. We are ready to prove it, and that is where the Quiet Supersonic Technology (QueSST) experimental aircraft (X-plane) concept being developed by NASA and partner Lockheed Martin comes in.

"It is super exciting to be back designing and flying X-planes at this scale," said Jaiwon Shin, NASA's associate administrator for aeronautics. "Our long tradition of solving the technical barriers of supersonic flight to benefit everyone continues."

Lockheed Martin Skunk Works will build a full-scale experimental aircraft, known as an X-plane, from its preliminary design developed under NASA's QueSST effort. The X-plane will help NASA establish an acceptable commercial supersonic noise standard to overturn current regulations banning commercial supersonic travel over land.

"We're honored to continue our partnership with NASA to enable a new generation of supersonic travel," said Peter Iosifidis, Low-Boom Flight Demonstrator program manager, Lockheed Martin Skunk Works. "We look forward to applying the extensive work completed under QueSST to the design, build and flight test of the X-plane, providing NASA with a demonstrator to make supersonic commercial travel possible for passengers around the globe."

Lockheed Martin Skunk Works and NASA have partnered for more than a decade to enable the next generation of commercial supersonic aircraft. NASA awarded Lockheed Martin Skunk Works a contract in February 2016 for the preliminary design of the supersonic X-plane flight demonstrator.

The aircraft will be built at the Lockheed Martin Skunk Works facility in Palmdale, Calif., and will conduct its first flight in 2021.

For more information, visit these websites: [lockheedmartin.com/QueSST](http://lockheedmartin.com/QueSST) or [www.nasa.gov/aero](http://www.nasa.gov/aero). →

# 2017 Dubai Air Show

by Ed Martin



The 15th Dubai Air Show took place at the Al Maktoum International Airport (DWC) located 35 miles from downtown Dubai and part of a 100 square mile development area known as Dubai South. Today DWC is the second passenger airport in Dubai and also utilized as a cargo airport. When the DWC airport is fully completed it will be the largest airport in the world with five widely-spaced 2.8 mile runways, capacity for 220 million passengers and 16 million tons of cargo per year. A large airport master plan diorama was on display in the trade hall. The current Dubai International Airport (DXB) is located approximately 2.5 miles east of downtown Dubai. It is the world's busiest airport in international passenger traffic, the third biggest with overall passenger traffic.

Sunday November 12, HH Sheik Mohammed Bin Rashid Al Maktoum, Vice-President and Prime Minister of the UAE and Ruler of Dubai cut the ceremonial tape to open the show as an Emirates Airbus A380 and an Emirates Boeing 777-300ER escorted by the United Arab Emirates (UAE) Air Force Al FURSAN seven-aircraft aerobatics team featured a unique fly past. The UAE team flying their black and gold Aermacchi MB-339 gave an impressive display of formation flying with the green, white red and black smoke of the national colors trailing behind.



*Opening the show with a fly-past of an Emirate's Boeing 777-300ER, Airbus A-380 and UAEAF Al FURSAN display team. (From the author's collection)*

Over 1,200 exhibitors at the show compete for military, commercial and space business with 80 from the United States making it the largest contingent at the show. The USA Partnership Pavilion was the centerpiece for U.S. exhibitors to meet, network and share ideas with buyers. The anticipated attendance of 70,000 at the show was exceeded by nearly 10,000 making it the 3rd largest Air and Trade Show in the world after Paris and Farnborough.

*The heat on the ramps was oppressive, obliging the crowds to remain in the air conditioned exhibit halls for extended periods. Shuttle trains made getting around in the heat a little more tolerable. (Photos by the author and John Martin)*

The large daily crowd enjoyed the 160 aircraft on static display and available for inspection, including the Boeing 787-10, 777-300ER, F-16C, F-22A, F-15E, KC-130J, E-3, MV-22 Osprey, Airbus A380, A350, A320, A400M, C295, the Russian SU-35, SU-30SM, French Rafale, Chinese PLAAF J-10A, J-10S, plus helicopters, business jets, commuter aircraft, and UAVs.

The daily three-hour non-stop flying display was outstanding, demonstrating the capabilities of the aircraft and the skill of the pilots. The attendance was wowed by three different national aerobatic demonstration teams, the United Arab Emirates Air Force Al FURSAN demonstration team, the Russian Knights team in their colorful Sukhoi Su-30SM aircraft, and the Chinese PLAAF August 1st team in their JS-10A multi-role fighters. Additionally, the F-22 Raptor, F-16, French Rafale, Swedish Gripen, Russian SU-35 were send for the first time. Other performances were delivered by Beriev BE 200ES, with an impressive fire-fighting water drop, Airbus A350, of particular attention was the Calidus B-250 manufactured in the UAE, and many others. I believe this flying display far exceeds the Paris or Farnborough flying displays.

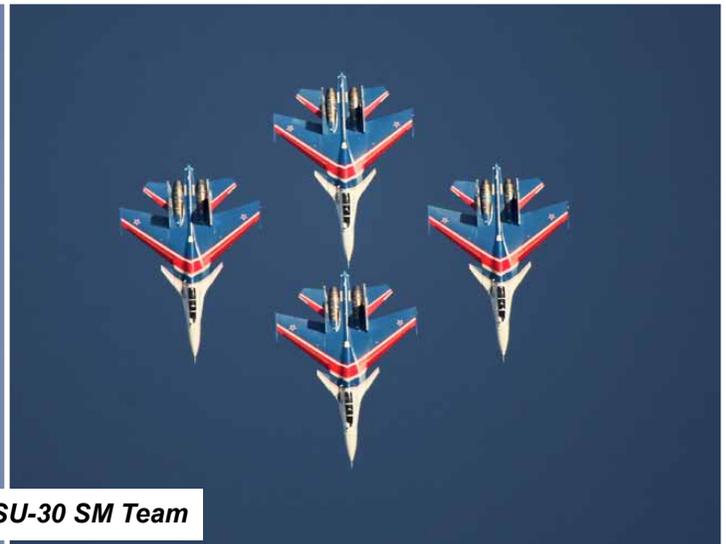
Opening day of the show saw Emirates Airlines committing to an order for 40 Boeing 787-10s worth \$15.1 billion based on list prices. Emirates continued to examine the engine options between the Rolls Royce Trent 1000 TEN and General Electric Genx-1B, and will make an announcement shortly. Deliveries are anticipated between 2022 and 2030. Emirates commitment places the total number of new 787 orders and commitments received by Boeing this year at 180 airplanes. Orders and commitments for the 787-10 are at 240 overall.

Boeing also completed a \$27 billion deal with carrier FlyDubai for 225 aircraft in the 737 MAX families, consisting of MAX 8s, 9s and 10s. Azerbaijan Airlines placed an order for five Boeing 787-8 Dreamliners. Boeing also displayed their Starliner Docking System and the KC-46 refueling simulator.

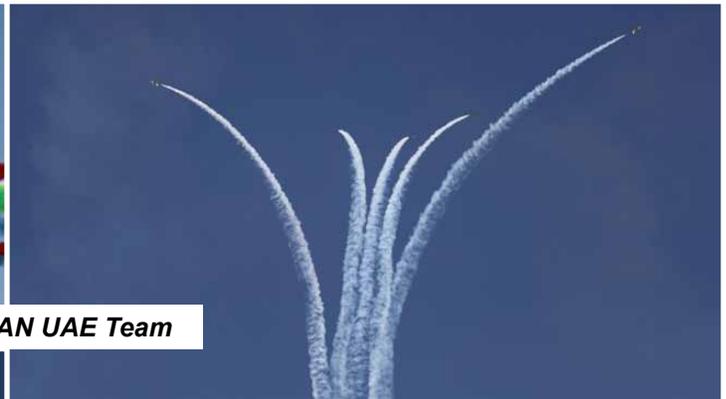
Airbus had a large presence on the static line featuring the A350-900, ACJ319ceo Executive Jet, A400M airlifter and C295 military transport. Airbus Helicopter H160 and the NH90 mock-ups were on display along with a selection of satellites in the Exhibition Hall. Airbus completed its largest single aircraft deal ever, \$49.5 billion with Indigo Partners to purchase 430 A320neo's. Indigo Partners is a U.S. private equity fund that owns four low cost carriers where the aircraft will be shared: Wizz Air (Hungary) 72 A320neo's, 74 A321neo's, Frontier



**Russian Sukhoi SU-30 SM Team**



**AL FURSAN UAE Team**



**Chinese PLAAF J-10A Team**



Airlines (USA) 100 A320neo's, 34 A321neo's, Jet Smart (Chile) 56 A320neo's, 14 A321neo's, Volaris (Mexico) 46 A320neo's, 34 A321neo's.

Emirates Airlines had placed orders for 142 Airbus A380s and on November 3, and took delivery of their 100th A380. Emirates is considering placing another order as Airbus presented the A380 Plus, with a re-arranged cabin that makes space for 80 additional passengers, and an increase in maximum take-off weight to 578 tons.

*Flight Daily News* 11/12, reported all Airbus/Boeing Middle East deliveries and orders between 2017-2036: Airbus

2,526, Boeing 3,290.

On the military side Lockheed-Martin presented the F-35 Joint Strike Fighter in the flying display and available for inspection on the static line. Some Gulf States expressed interest in this aircraft.

Bell-Boeing helicopters had the V-22 Osprey tilt-rotor on static display for interested parties and highlighted the availability of the AH-1Z, the most modern attack helicopter flying today. Bell recently received European certification for its 505 Jet Ranger X with deliveries expected in 2018. Boeing had the CH-47F Chinook and the AH-64D Apache on display.



*Emirate Airlines is the largest single operator of the Air Bus A-380 with 100 delivered and another 142 on order. (From the author's collection)*

*Dassault Systemes had model displays of their Rafael C and M along with several other designs. (From the author's collection)*

The U.S. DOD, was also well represented on the static line with the F-15E, E-3, KC-130J and CH-53 Super Stallion.

The French Mirage and Airbus A350XWB also put on excellent flying displays.

SAAB utilizes a modified Bombardier 6000 business jet to carry its GlobalEye simultaneous detection and tracking of multiple targets system. The multi-role platform consists of an electronically scanned array radar in a dorsal unit above its fuselage, plus a maritime search radar and electro-optical/infrared sensor underneath. The system is a significant boost in capability for the UAE. The SAAB AB JAS 39 Gripen participated in the flying display and in the static line.

Bombardier had an impressive display of four aircraft on the static line including the C Series 300, and EMBRAER was also well represented on the static line with three aircraft.

The world's only Flying Eye Hospital "ORBIS" was on static display at the show. UTC Aerospace Systems (UTAS) contributed \$1 million as part of a three-year deal for a simulation facility being developed by Orbis in conjunction with organizations including the Center for Care and the University of California. The simulation center will allow Orbis to train local medical professionals more effectively in the field. The refurbished McDonnell Douglas MD-10 freighter that was

donated by FedEx in 2011 is staffed by volunteer ophthalmic specialists who train local health care teams to treat eye issues, it conducts sight saving surgeries in its on-board operating theatre. Last year Orbis volunteers helped doctors complete 1,921 training courses, conduct 3.53 million eye screenings and exams, and perform 83,176 surgeries at partner institutions and aboard the Flying Eye Hospital. The aircraft arrived after a month in Cameroon and is crewed by volunteer FedEx pilots and mechanics. It was headed for Bangladesh following the show.

Boom Supersonic, a Colorado based company, plans to develop a 170,000 lb supersonic airliner capable of Mach 2.2 speed by 2023 with 55 passengers. Initial design will be the XB-1 Baby Boom demonstrator that was unveiled this year as a one-third size prototype with first flight schedule for 2018. Blake Scholl, founder and chief executive stated, "The technology is already there." Advances in carbon-fibre composites means designers are not limited to aluminum for components exposed to heat caused by supersonic speed. Boom is designing the 55 seat supersonic airliner to offer New York to London flights for \$5,000.

Aircraft engine activity was very strong at the show with GE accelerating certification of the GE9X engine that will



*Views of one of the operating rooms (left) and recovery rooms (right) on the converted McDonnell Douglas MD-10 ORBIS Flying Eye Hospital, which was on static display during the show. (From the author's collection)*



*Spirit of the Emirates, will provide tourist flights over the UAE in Zeppelin airships operating from Dubai and Abu Dhabi. They will operate from specially constructed passenger terminals. (From the author's collection)*

power the Boeing 777X beginning in 2020. Emirates, Qatar Airways and Etihad Airways have ordered more than 200 GE9X powered Boeing 777X aircraft.

CFM International has orders for 3,000 CFM56 and LEAP engines this year and is building 20 LEAP engines per week for commitments to Boeing and Airbus.

In the past year Rolls Royce had engine first flights of the Trent 1000 Ten on the Boeing 787-10, the Trent XWB-97 on the Airbus A350-1000, and the Trent 7000 on the Airbus A320neo. Rolls Royce expects to have 8,000 engines in service by 2027.

A special two-day Space Conference was held in the Space Pavilion at the show, where astronaut Col. Al Worden, USAF (retired), command module pilot for the Apollo 15, moon mission in 1971 gave an address. His theme was “We have not been here before, but we are going Mars together.” No one country can do it alone, it will take a partnership, similar to the manner of the International Space Station. He also reminisced about earlier times of visiting schools with fellow astronauts Michael Collins Gemini mission and Apollo 11, and Gene Cernan, Apollo 17 known as the last man on the moon. During these visits they encouraged young people to study, Science, Technology, Engineering, Math, (STEM). Col. Worden spent three days visiting schools in the UAE during his visit. At 86 he is still encouraging students. He has written a book, *Falling to Earth*.

Starting November 2018 “The Spirit of the Emirates”



*The author with Col. Al Warden, USAF (Retired), command module pilot on Apollo 15. (From the author's collection)*

airships will take to the skies over the UAE. Operations are planned for Zeppelin airships carrying 10 passengers to provide flights from both Dubai and Abu Dhabi viewing the country and coastline from 1,500 feet. A special airport with passenger terminal facilities will be built for this operation. It is anticipated 15,000 passengers will enjoy these flights during the first season.

Many other areas of aviation/aerospace were on display at the show, with the global winglets market forecasting increased growth due to the benefits gained reduced drag, enhanced fuel efficiency, reduced wingtip vortices and reduced community noise. Gulfstream was well represented with three aircraft on static display including the G650ER that can fly 6,400 nm at 0.90 mach. At mach 0.85 it can travel 7,500nm, which means it can carry eight passengers from Dubai to New York.

#### UAVs.

Gulfstream also high-lighted the “Special Missions” capability of the G550 aircraft. Unmanned aerial vehicles and drones were prominent both for military and civil use. The UAE Government departments, police, transportation, utilities, make extensive use of drones. Cyber-security both civil and military, received lots of attention, with many companies displaying their capabilities, including Raytheon. Pilot training, improved maintenance reporting/repair procedures were also high-lighted.

Russia had its newest civil aircraft the Super Jet 100 on the static line and their newest fighter aircraft the UAC SU-35 gave an impressive flying display. They also had a large presence in the Exhibition hall.

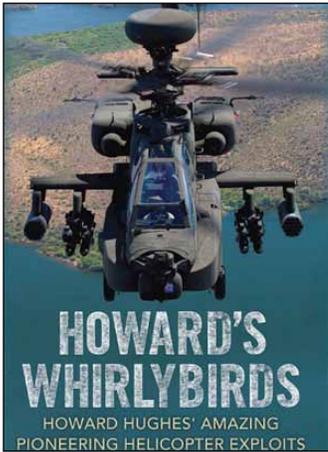
China had three armed UAVs on display.

Dubai in the United Arab Emirates is a fascinating place with manmade residential palm shaped islands reclaimed from the sea, a 100 square mile airport under development extending into the desert, and the world’s tallest building at 2,710 feet with 160 stories – as well as a huge mall with 1,200 retail outlets and an Olympic size ice rink, cinema, the world’s largest aquarium where 33,000 fish live including 400 sharks and rays. Skyscrapers of intriguing designs line the waterways as dancing fountains entertain at night. Dubai is indeed a fun place but one must be aware of what is acceptable and not acceptable behavior to ensure an enjoyable visit.

Next Dubai Air Show is November 17-21 2019. →

# Book Reviews

## Howard's Whirlybirds; Howard Hughes' Amazing Pioneering Helicopter Exploits



by Donald J. Porter. Fonthill Media, [www.fonthillmedia.com](http://www.fonthillmedia.com). ISBN: 978-1781550892, 2015. Hardcover, 6.5"x9.5", 240 pages, numerous photos, end notes, references and index.

Howard Hughes was a man of many adventures throughout his life. This book provides a short glimpse into his attempt to build airplanes, but which led to him building some of the best military and civilian helicopters ever developed. Having grown up during the early years of the

helicopter development it was truly fascinating to read about the behind the scenes activities associated with the challenges that Hughes struggled with to achieve success.

Author Donald Porter, who has published other corporate biographies, delves into the burgeoning interests of Hughes into whirlybirds, following the single flight of the mammoth HK-1, Spruce Goose. Porter provides details of the many controversial personalities that made up Hughes staff, as well as the personal and organizational conflicts Hughes experienced while designing, testing and producing some of the most technologically advanced rotorcraft of the time. Near disasters, political intrigue, key resignations, unsung geniuses, cover-ups and brilliant engineering feats that brought these rotorcraft projects to fruition reads more like a movie script that Hughes may have produced.

Porter tells this history using the voices of people who were actually there, documents direct from congressional records, company files and personal interviews. The author supports the story with considerable source material references on a chapter level, as well as an extensive index.

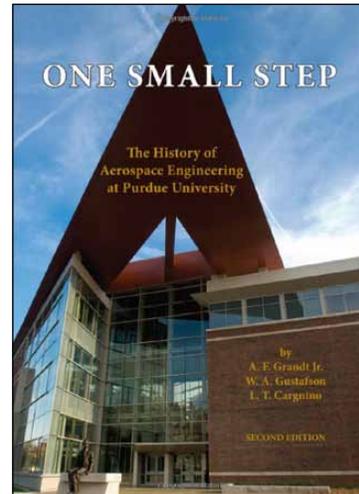
This reviewer was amazed at how once I had started reading I didn't want to put it down. The narrative flows from one chapter to the next in a seamless style. It's one of those books you don't want to end. But like many things that capture your attention, the story is over and in your mind you still see the efforts of those daring people who continue to strive for success no matter what the challenge.

As a pilot and having flown one of Hughes's helicopter designs I can now smile more now knowing just how hard it was to eventually get it right. The OH-6, s/n 4, that I flew was one of my most memorial experiences. Because of this book, it's even more so. Thank you Mr. Porter.

Gary Lacore, AAHS Member

## One Small Step, The History of Aerospace Engineering at Purdue University

A.F. Grandt, Jr.; W.A. Gustafson; L.T. Cargnino. Published by the Purdue School of Aeronautics & Astronautics. 2010. Hardcover. 7.5" x 10.5". 472 pp. BW illustrations.



Beginning in 1921, Purdue University has offered aeronautical engineering courses. Starting with four elective courses offered by the Purdue School of Mechanical Engineering as a senior engineering option and taught by an ME professor, G.A. Young, the

student interest mushroomed. More courses were offered each year thereafter and more instructional staff was assigned. The first four-year BS Aeronautical Engineering degree program was activated in 1942 and the name of the Department was changed to the School of Mechanical and Aeronautical Engineering. The school went through many name changes and today exists as the Purdue School of Aeronautics and Astronautics.

Along the way many interesting developments occurred. In 1934, the University built an airfield two miles from the main campus. It became the first college owned airfield in the nation and is still owned by the University. It featured a windsock nailed to a tree and a stone ring in the middle, officially entitling it to be marked on state maps. The Purdue Aeronautics Corporation was formed to run the airport, give student flight instruction and repair aircraft. In 1937 the first wind-tunnel was built on the campus. The 300 mph tunnel was eventually joined by supersonic and hypersonic tunnels. Amelia Earhart outfitted her famous Lockheed Electra with a flying laboratory in 1937. The University signed government contracts in 1938 to operate a CPT program and later a WTS program. In 1943, the school was contracted to train women in aeronautical engineering to work in defense plants. The Curtiss-Wright Cadettes took the place of men who had been drafted. The school also offered a Navy V-12 cadet program.

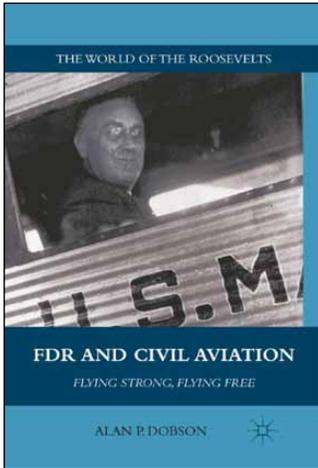
In the postwar period, the school began offering an Air Transportation curriculum to match the growth of jobs in that field, including an air freight course. A jet propulsion lab was introduced in 1947 and in the mid 1950s a rocket engine lab was added. The school also had its own aviation oriented newspaper and radio station.

The Purdue AE school to date has awarded 6% of all aeronautical engineering degrees in the US and 7% of all PhDs. Some of its illustrious graduates are Iven Kincheloe BSAE 1949; Gus Grissom BSME 1950; Neil Armstrong BSAE 1955, Eugene Cernan BSEE 1956, and Roger Chaffee BSME 1957. Armstrong and Cernan represent the first and last men to walk on the moon. Grissom and Chaffee died in the tragic Apollo 1 fire on the launch pad in 1967.

This book is a book of facts and statistics, probably geared for Purdue Engineering School alumni. It lists in detail the various courses offered every year since 1921, the professors and staff, year by year, and yes, the names of every BS, MS and PhD degree graduate from 1943 through 2009. It also lists the titles and authors of all PhD theses written, and all the research grant winners through the same time period. Despite the fairly narrow audience for this book, it is clearly written and is non-technological to where it makes interesting reading.

Noel Allard

**FDR and Civil Aviation: Flying Strong, Flying Free**, by Alan P Dobson. Publisher: Palgrave MacMillan, 175 Fifth Avenue, New York, NY 10010. 2011, ISBN: 978-1-349-29030-7. Softcover, 8"x6", 280 pages, no photos, Index. \$41.00.



FDR and Civil Aviation is a dense, exhaustively researched book. It is a detailed study of the critical time of President Roosevelt's administration, during which United States aviation history was developing in the midst of scandal, depression, great expansion of

the federal government and the rapidly deteriorating world geopolitical situation. It is not light reading and, as noted above, there are no pictures or illustrations. The book is an academic treatise of the complex array of events, politics and personalities that shaped the United States aviation industry and defined the federal government's role regarding regulation and oversight.

The author, Alan P Dobson, is a professor at Dundee University in Scotland. He has published eleven books and numerous articles about international civil aviation and US-Anglo relations. He has achieved many honors and credits during his long career in higher education. Therefore, it is no surprise that the writing is detailed and complex. That being said, Dr. Dobson paints a clear picture for the reader. It is a very large picture with many scenes and subjects, but he keeps the central theme in view through the ten chapters: the role of the United States federal government, and that of President Roosevelt in particular, in the development of domestic and international commercial aviation as a vehicle of both commerce and national security.

In the study of FDR, Dr. Dobson describes the president through his actions and words regarding air commerce. Interestingly, he describes FDR as truly engaged and perceptive, if not always precise in his directions to his administration. He notes that FDR had a remarkable sense of "spatial dimension": an expansive understanding and ability to foresee actions in the geo-political world. This quality, the same embodied by Winston Churchill, would be put to the ultimate test during World War 2. The similarities between the two leaders are obvious, but Dr. Dobson describes some notable acrimony

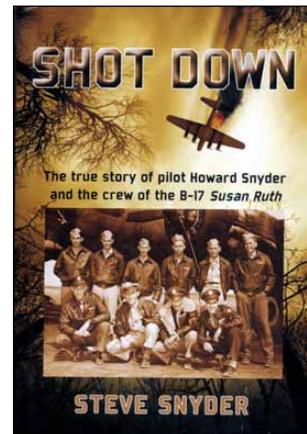
between the two as they planned for post-war commercial aviation as early as 1943.

I found one error regarding the famous TWA Fokker 10 crash that killed Knute Rockne. 1935 is noted as the date, but the F10 crash was in May, 1931. There was a TWA DC-2 crash in 1935 that killed a senator from New Mexico. The Fokker crash, however, was significant in that it prompted the first real accident investigation to find the cause rather than the standard practice at the time of blaming the crash on pilot error.

Adding to the main body text are extensive and helpful notes, bibliography and index sections. As mentioned, this is not light reading and price might be considered high for a soft bound book. FDR and Civil Aviation is, however, a serious and informative book for any reader interested in years that took United States aviation from a random collection of aircraft manufacturers and airlines to the dominant world aviation power.

Jim Daigneau

**Shot Down**, by Steve Snyder. Sea Breeze Publishing, 601 Sea Breeze Drive, Seal Beach, CA 90747, SteveSynderAuthor.com. 2017, ISBN: 978-0-9860760-0-8. Hardcover, 9"x6", 360 pages, with numerous photographs, bibliography and index.



This is the story of the B-17 crew of the *Susan Ruth*, commanded by the author's father during WWII. From flight school to deployment, the reader is almost a companion to the group as they experience life in England, their initial combat missions, being shot down and the aftermath of this. Snyder has done an excellent job of weaving the personal lives of the crew into

a coherent story about their experiences.

While many similar stories focus on the combat operations and experiences, Snyder's book provides an excellent look into the "behind-the-scenes" aspects of lives of a B-17 crew. From R&R in England, preparation for a mission and post-mission activities.

In particular, he has detailed the crew's experiences with the French and Belgium underground after being shot down on the border between the two. Of the 10 member crew, two were killed during the shoot down, and the rest wounded to various degrees. The three would be captured almost immediately by the Germans, while the remaining five found refuge and treatment of their wounds with the underground. Three crewmembers would eventually be betrayed and subsequently executed by the Germans. The author's father and tail gunner William Slenker would eventually be repatriated in September 1944, after seven months of hiding.

The author has dedicated almost half of the book to the *Susan Ruth's* crew experiences following the shoot down. In particular, he visited the locations where they landed and

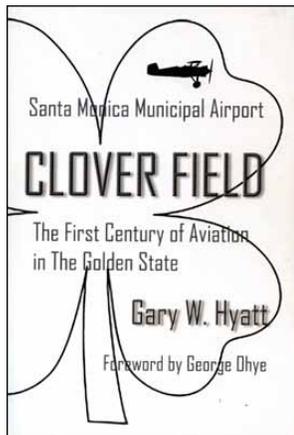
interviewed many of the locals that provided aid to the crew. The reader is provided with a unique perspective of the efforts and sacrifices made by the locals in providing assistance to downed Allied airmen during the war, and the strong ties built during this period.

This book is an excellent read for those interested in WWII history and wish to learn more about aspects of airmen's lives beyond those of combat. It is also an excellent source for insight into the details of what happened to those crewmen that escaped immediate capture after being shot down.

Hayden Hamilton

**Clover Field**, by Gary W. Hyatt. Delta Mike Airfield, Inc., Naples, Florida, [www.cloverfield.org](http://www.cloverfield.org). 2017, ISBN: 978-1-5499498-4-5, Softcover, 9"x6", 284 pages, numerous photos, appendices.

AAHS member Gary Hyatt has taken an interesting and somewhat mundane Golden Age document – the Clover Field (Santa Monica Airport) Registry (1928 to 1939) – and woven a fascinating story of the people and planes that passed through this airport during this period. Rather than simply



state person so-in-so landed at Clover Field on such-in-such date flying this particular aircraft, the author has selected a handful of these individuals and woven their biographical information into a story that helps explain why they were at Clover.

Covered in the book are five men (Hiram Bingham, Howard Hughes, Paul Mantz, Elmer McLeod and Henry Ohye), three women (Jean LaRene, Blanche Wilcox Noyes and Iris Louise

McPhetridge Thaden), "What Might Have Been Times Four" (a section on promising aviators whose lives ended while acting as pilot-in-command) and three significant aircraft that passed through (Travel Air Mystery Type S, NR613K, Stinson NC12146 and Vultee NC14251). You will also find several appendices built from the register data including: An alphabetical listing of the pilots that signed the registry and a listing of the tail numbers of the planes (make only) that visited Clover Field.

Mr. Hyatt has provided in this work an interesting insight into the Golden Age of aviation through the perspective of one of the significant early airports established and used by these intrepid aviators that helped establish and expand the aviation industry. He is helping both preserve and share an important piece of our aviation heritage through his work of saving airfield registries such as the Clover Field registry.

The book is an excellent read and well worth the investment for those interested in early American aviation.

Hayden Hamilton

# Best of the Best

At the end of each year, the AAHS membership is asked to vote for the Best Article and Best Artist published in the AAHS Journal for that calendar year. This is never an easy choice, which some of you have responded by returning a ballot with the notation, "They are all too good to select just one." And, while all the articles and painting for CY'2017 (Vol. 62) are outstanding and represent hours of research and writing, or slaving away over a canvas, one or two tend to solicit a bit more interests than the rest. This year was no different with three articles being in almost a virtual tie with only one vote representing the difference between each.

Ed Martin's "Pan American Airways, the Pacific Challenge" was your choice for Best Article out of the 30 eligible articles. Honorable mentions goes to Jim Geldert for his biographical profile on AAHS founder "William T. Larkins," and to Dr. Larry Elman for his humorous article on "The First Airborne Flushable Toilet."



The Best Artist selection was first time contributor Don Feely for his rendering of two USAF F-86 Sabres performing a break over RAF Shepherds Grove, UK. Our apologies for Don for misspelling his surname in both the Journal and the ballot.

The Society wishes to thank all of those whose contributed articles and paintings. Without your contributions we would not exist, and the rest of us are more knowledgeable about American aviation history because of your efforts. Thank you!

For the rest of you, you don't have to be a "professional" writer to contribute to the AAHS Journal. You just need to have a story that you want to tell. We can work with you to polish it up and help find illustrations for it. So do not hesitate to let the Managing Editor know you have something you would like to share. Drop a note or email to Hayden Hamilton, Managing Editor, at the AAHS Office (PO Box 3023, Huntington Beach, CA 92605-3203, or [editor@aahs-online.org](mailto:editor@aahs-online.org). →

# President's Message

Our Annual meeting, held in Orange County (OC), Calif., was a history packed weekend, that highlighted a wide range of early aviation in Southern California, including the 1910 Los Angeles Air Meet, the beginnings of John Wayne Airport (SNA)-the oldest still operating OC airport, and its founder Eddie Martin, the aviation collection of Gen. William Lyon, history of the Santa Ana Air Base and a peek into the second oldest Orange County airport, Fullerton Municipal Airport (see article 'Annual Meeting Covers OC' in this issue). The most enjoyable aspect, as always, was visiting with old friends and making new ones. We want to thank the AAHS members that attended, as well as the tireless volunteers that helped organize and manage the three-day event. AAHS would not be able to put on this or other events without such volunteers, nor without donors who generously provide their support in funds and raffle items.

Support for AAHS operations has recently been given a tremendous boost by AAHS member John Turgyan, of New Jersey (not Virginia, as stated previously, in error!). John has provided generous financial donations for the purchase of new office equipment, photo scanning equipment and advertising space in EAA publications. AAHS has always utilized the large majority of its resources to create and publish the *Journal*, using whatever funds remaining to digitize and preserve the aviation collection, maintain office operations and reach out to new audiences. With this situation, many important maintenance tasks get delayed, or dropped altogether, due to lack of funds. An example is the AAHS microfilm reader, necessary for us to read our microfilm archive (which includes 100s of reels of Air Force / Navy Aircraft Record Cards) has been broken for several years, with limited funds to repair or replace it. In addition, incoming photo donations have far outpaced our digitization efforts, both from sheer volume, and the slow pace of work using outdated equipment and slow PC systems. John recognized AAHS' dilemma and took direct action to help solve our bottleneck with new equipment purchases, as well as providing funds to jump-start our advertising outreach, with a color ad in the *Vintage Aircraft* (VAA) magazine.



*John Turgyan at the controls of the EAA DC-3*

John is a founding member of VAA (he joined in 1971, with Member #3), when it was called 'Antiques and Classics' (a division of EAA). The picture is of John, flying one of his favorite antiques, EAA Museum's DC-3, in 1981 (this photo made the cover of *FLYING* magazine, August issue). A Captain for USAir at the time, John volunteered at the EAA Museum to help restore the DC-3 to flying condition; he rewired the DC-3's instrument panel.

This, in conjunction with John's support of AAHS' move to the new headquarters at Flabob Airport has given AAHS new energy to meet our mission, and to look forward with enthusiasm, instead of anxiety. We have tons of work ahead of us, but with the right tools to work with, we have a real leg up to getting it done! On behalf of AAHS I say 'thanks' to John and all our AAHS members who have given their support to our shared goal.

Jerri Bergen  
AAHS President



North American BT-9C (NA 64-2168), N4737G, at a CAF Air Show in Harlingen, Tex., in October 1975. This aircraft was owned by Challenge Publications at the time. It is now displayed at the National Museum of the USAF, Wright Patterson AFB. (Photo from the AAHS archives, AAHS-S002302)

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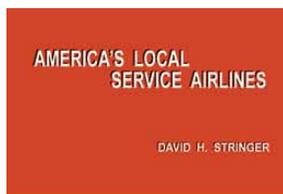


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# New Members

*Editor's Note: Due to search engines extracting and indexing personal information, the AAHS no longer publishes detailed addresses. Please contact the office if you wish to contact a member.*

Jack Jasinski  
Necedah, WI 54646-7503

Gary Johnson  
Minot, ND 58703

Dave Osgood  
Seattle, WA 98102

Don Stewart  
Vulcan, MI 49892

Kenneth Foote  
Merrimack, NH

John Martin  
Huntington Beach, CA  
92649

Ted Pepin  
Papillion, NE 68046

James Cunningham  
Normal, IL 61761

Steven L. Dawson  
East Troy, WI 53120

Bill Schramm  
Walker, LA 70785

Kevin McKenzie  
Temecula, CA 92591

John Steiger  
Nassau Bay, TX 77058

Michael Steiger  
Cypress, TX 77429

Dennis Mahon  
Terre Haute, IN 47808

Joy Guyer  
Anthem, AZ 85086

Chris Stanton  
Seattle, WA 98108

William E. West  
Martinez, CA 94553-6278

Carl M. Maldonado  
Lakewood, CO 80215-1026

Jack Murphy  
New paltz, NY 12561-1202

Richard W. Leche  
Covinton, LA 70433-4601

Gary Brooks  
Concord, OH 44077

Douglas Castleman  
Torrance, CA 90503

Edward Grabot  
Reno, NV 89502

Craig Kaston  
Oxnard, CA 93030

James Daigneau  
Hampton, GA 30228

Kihara Kensaku  
Tokyo, Tokyo 104-0041  
JAPAN

R. D. Lindgren  
Fairfax, VA 22030

Dwight Messimer  
Roseville, CA 95661

Wayne Muxlow  
Bloomington, MN 55420-  
0456

Robert Rees  
Reno, NV 89506

Alexander Rose  
Chappaqua, NY 10514

William Tarrant  
Galesburg, IL 61401

Matti Salonen  
FI-36240 Kangasala  
FINLAND

Steven Doty  
Sun City, AZ 85373

Rick Searle  
Brisbane, QLD 4061  
AUSTRALIA

Paul Neuman  
Torrance, CA 90505

Bruce Brown  
Ottawa, ONT KIT 3A9  
Canada

David Hedgecock  
Elkhorn, WI 53121-1472

Tim Savage  
Huntington, IN 46750

Timothy Trevor  
Long Beach, CA 90802

Robert Cashman  
Villa Park, CA 92861

Antonio G. Fucci  
Santa Rosa Valley, CA  
93012

Leon Robert  
Hansville, WA 98340

Kevin Rusnak  
West Chester, OH 45241

Rockford Zaccardi  
Cocoa, FL 32927

Henry Gornic  
Rahway, NJ 07065

Peter Butt  
Dhahran 31932,  
Eastern Province  
Saudi Arabia

David Pugh  
Bedford, MK41 6DW  
United Kingdom

## NEW MEMBER DRIVE

The AAHS is in its sixth decade of operation and continues to face the challenge of sustaining its membership.

As current members, **YOU** can contribute to the success of helping grow the organization.

Did you know that more than **50 percent of all new members** learned about the AAHS from a friend?

Do you have friends who are interested in aviation history?

Pass them a copy of the Membership Application above and encourage them to join!

Make it a commitment to **recruit one new** AAHS member this year!

**MAKE A DIFFERENCE  
RECRUIT A FRIEND**

## AAHS FlightLine

American Aviation Historical Society

*President:* Jerri Bergen

*Managing Editor:* Hayden Hamilton

The *AAHS FlightLine* is a quarterly electronic publication of the American Aviation Historical Society and is a supplemental publication to the *AAHS Journal*. The *FlightLine* is principally a communication vehicle for the membership.

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Huntington Beach, CA 92649-1156, USA

Phone: (714) 549-4818 (Wednesday only)

Website: [www.aahs-online.org](http://www.aahs-online.org)

Email: [aahs2333@aahs-online.org](mailto:aahs2333@aahs-online.org)

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# Wants & Disposals

**WANTED:** The Lawrence D. Bell Museum in Mentone, Ind., has acquired the original pattern Bell H-12 "Fat Boy" from Agusta-Bell in Italy. It is the only known existing H-12 and is in sad shape, having been left to rot away in Agusta's junk yard. The Museum has initiated an inventory of what they received and will begin restoration this year.

They welcome any information on the following as well as any donations and assistance interested parties wish to volunteer.

Approximately 12 H-12s were manufactured for the USAF, but little information is known concerning their service operations. There is one flying about the Nevada Test Range in one movie concerning the exposure of airplanes to A-bomb tests. No information is known about this aircraft and the DOE office in D.C. is clueless.

Should readers know of parts, pieces or an H-12 shell, drawings, or operational data on the H-12 series, please contact:

Mr. Tim Whetstone.  
Email: [averagetimw@gmail.com](mailto:averagetimw@gmail.com)  
Phone: 574-353-7296 (evenings)

**WANTED:** Unpublished, good quality images of Curtiss-Wright AT-9 Jeeps and North American O-47 series aircraft in other than factory or manufacturing settings, preferably at station and in service, after December 7, 1941.

Dan Hagedorn,  
Life member 100  
23053 SE 246th Place  
Maple Valley, WA 98038  
Email: [hagedorn\\_dan@comcast.net](mailto:hagedorn_dan@comcast.net)

**WANTED:** I am interested in contacting any descendant of Bertram "Bert" Acosta, 1895-1954, and/or locating any collections of letters and other papers that Bert may have left. Please contact me with any information or leads.

Mike Gough  
Email: [mgough39@yahoo.com](mailto:mgough39@yahoo.com)

**DISPOSAL:** The following individual issues of the AAHS Journal are available for \$20/magazine (postage included).  
1960, No. 4  
1964, Nos. 1, 2, 3, 4  
1965, Nos. 1, 2, 3, 4 (2 sets)  
1966, No. 4  
1967, Nos. 1, 2, 3, 4

If interested, please contact via email.

Hans-Joachim Klein  
Steinkirchen-ILM, Germany  
Email [hajo\\_klein@t-online.de](mailto:hajo_klein@t-online.de)

**DISPOSAL:** AAHS Journal back issues 1964 (Vol. 9) to 1995 (Vol. 40) inclusive with all issues for each year. Any reasonable offer will be accepted.

Also, numerous aviation books are available as well. Please contact me for details.

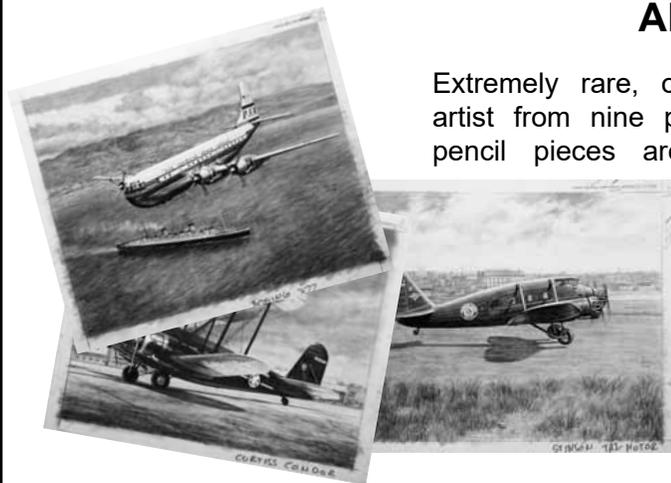
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Michael P. Jungers  
Los Vegas, NV  
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**Dennis Eggert at: 651-291-7925  
or E-mail at: [steco1911@aol.com](mailto:steco1911@aol.com)**



# American Aviation Historical Society

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## MEMBERSHIP APPLICATION

Please enroll me as a member of the AAHS. Enclosed is my check (money order or bank draft) for dues as checked below. I understand that I will receive all issues of the *AAHS Journal* published to date during my membership year, plus all issues of the *AAHS FlightLine* (Downloadable from the AAHS website). Individuals joining after October 1, will have their membership begin the following year, but will receive the Winter issue of the *Journal* as a bonus. I also understand that renewal is due at the end of the calendar year in which membership will expire. (Valid through December 31, 2017)

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## AAHS Photo Archive CDs Series

The Society has recently started development of a series of photo CDs. These CDs contain high-resolution scans of negatives, slides and prints from the AAHS Image Library. The resolution of these scanned images is sufficient to make an 8"x10" photographic quality print. Each CD focuses on a particular aspect of American aviation history - be that a particular manufacturer, type or class of aircraft.

As of this date, the following CDs are available. Each CD contains between 70 and 140 images depending on content.

- 1001 Douglas Propeller-Driven Commercial Transports
- 1006 Lockheed Constellations, Part I
- 1007 Lockheed Connies in Color
- 1009 Lockheed P-38/F-5
- 1011 Curtiss Transports
- 1021 Boeing Propeller-Driven Commercial Transports
- 1031 Golden Age Commercial Flying Boats



These CDs are available to members for \$19.95 (\$29.95 non-members) each plus shipping (\$2.50 U.S., \$10.00 International - add \$1.00 for each additional CD). Order forms are available online and on request, but a note along with your donation specifying your particular interest is sufficient.

Proceeds go to support the preservation of the photo archives. Do you have a particular interest or suggestion for a CD in this series? Drop us a line or email the webmaster ([webmaster@aahs-online.org](mailto:webmaster@aahs-online.org)). We are currently researching the possibilities of offerings covering the following areas: Connies Part II, XP-56, Northrop X-4, Bell Aircraft, and Early Lockheeds.