

AirVenture 2017 - THE YEAR OF THE BOMBER

By Henry M. Holden, photos Steve Owen.

ONE WOULD think that after 65 years of AirVenture/Oshkosh the Experimental Aircraft Association (EAA) would find it boring. But, no, it keeps getting better. AirVenture 2017, was held between July 24, and July 30, and, as usual, each year there are anniversaries to celebrate.

This year was the 90th anniversary of Charles Lindberg's transAtlantic flight. To recognize this, the EAA flew one its two replica Spirit of St. Louis aircraft during the show.

This year also marked the 80th anniversary of the Piper Cub, with 62 registered to fly in. Weather delayed about 40 of them from arriving on time. First manufactured in 1937, the Piper Cub has become an icon in the aviation world.

Also this year, the Young Eagles Programme celebrated 25 years, and since 1992 about two-million young people have become young eagles.

In addition, nine astronauts joined the event to celebrate 50 years since the start of the Apollo programme. Attending were Walt Cunningham (Apollo 7), Frank Borman (Apollo 8), Jim Lovell (Apollo 8 and Apollo 13), Buzz Aldrin (Apollo 11), Dick Gordon (Apollo 12), Joe Engle (Apollo 14), Fred Haise (Apollo 13), Al Worden (Apollo 15), and Harrison "Jack" Schmitt (Apollo 17). The reunion was the largest gathering of Apollo astronauts at Oshkosh since the memorable 1994 "Salute to Apollo" programme that brought 15 of the men together.



A line-up of B-25s

BOMBERS OVER OSHKOSH

Many seldom seen rare warbirds showed up – a B-2 Spirit, a B-1 Lancer, a B-52 Stratofortress, Mitchell B-25s, *Miss Mitchell* and

Devil Dog, from the Commemorative Air Force (CAF) and other B-25s also took part in the 75th commemoration of the Doolittle Raid.

The CAF's B-17 Texas Raider, and the A-26 Invader, also shared

the spotlight, and the sky.

The B-1, B-2, and B-52 also flew as part of the celebration of the 75th anniversary of the 8th Air Force, on the Saturday. The modern bombers were followed by two B-29s, two B-17s, several



The B-25D-35-NC SN 43-3634 now flying as "Yankee Warrior" was delivered on December 17, 1943.

B-25s, and an A-20. If 2017 is the Year of the Bomber, then Saturday was Bomber Day.

The B-1 flew overhead to start the air show on Monday, to kick off Bomber Week, as well as on Wednesday, to honour the Doolittle Raiders.

The B-2 Spirit, also known as the Stealth Bomber, is unique due to its stealth configuration that makes it undetectable by anti-aircraft defences — no B-2 has ever been brought down by enemy fire since the bomber entered service in the 1990s.

The Doolittle Raid re-enactment took place on Wednesday, and featured more than a dozen B-25s to honour the Doolittle Raiders who flew the type 75 years earlier as part of one of the most important aerial raids in World War II. Before the dramatic re-enactment, the B-25s were arranged in the Warbirds area as though they were on the deck of an aircraft carrier as the real Doolittle Raiders were on the *USS Hornet*.

After the Doolittle Raid re-enactment, Lt. Col. Richard E. Cole, now 101 years old, who is the last surviving crew member, gave a riveting account of his part in the raid, and how he bombed the northwest part of Tokyo, and then escaped to China.

The CAF's C-47, "*That's All Brother*", which was the lead airplane of the D day invasion into Normandy, took a break from the ongoing restoration at the Basler Turbo Conversion facility to attend this year's celebration. The airplane has undergone 16 213 hours of physical restoration with the goal to have it ready to fly back to France to commemorate the 75th anniversary of D-Day in 2019.

"AirVenture attendees loved the variety of bombers, both historic and modern, at Oshkosh this year," said Dennis Dunbar, director of AirVenture air show



B-29 Doc made its first-ever appearance in Oshkosh Saturday, July 21, kicking off a week-long stay at AirVenture 2017.

operations. "Thanks to the unprecedented cooperation we received from the United States Air Force, Global Strike Command, and the 8th Air Force, this was made possible."

The two B-29s also flew on Friday, to celebrate the airplane's 75th anniversary and its storied history. Doc and FIFI flying together was the first time two B-29s have flown together in decades.

Doc, returned to the air after a 61-year hiatus, and 16 years of hardworking, dedicated volunteers restoring the bomber back to factory fresh condition.

Since the EAA is always coming up with "firsts" this year it also marked the first full team performance of the US Navy's Blue Angels on Friday and they closed the show on the Saturday afternoon.

The power and precision of the Blue Angels was accompanied with team personnel appearances throughout AirVenture week.

NEW TECHNOLOGIES

EACH year there are new technological and innovative things to see. This year for example, Blue Origins' New Shepherd rocket, drones, and flying car concepts were among those present.

Samson Motors unveiled its

Switchblade flying sports car project on Tuesday during a press conference. The Switchblade, which is expected to fly in the fall, is technically a motorcycle when driven on roads, due to its three wheels, and will be an experimental aircraft in the skies, as it is sold in kits.

Estimated assembly time is three weeks. Samson estimates the cost of the kits at \$140 000, which includes avionics, and a four-cylinder, turbocharged engine. The aircraft parts are built to FAR 23 standards, and the wings fold up into a protective clamshell while the vehicle is on the ground. The Experimental/homebuilt class, requires the owner to have a private pilot's licence, and to build 51 percent of the vehicle.

The Switchblade can reach



speeds over 100 mph on the ground, and its top speed in the air is around 165 knots with a cruise speed of 87 knots. Its range is about 245 nautical miles. Samson says 58 units have been pre-sold, and 200 people are on the reservation list.

ECLIPSE 700 UPDATE

Alan Klapmeier, CEO of One Aviation, manufacturer of the Eclipse EA550 light jet and developer of the Kestrel single-engine turboprop, provided an update on the Eclipse 700, also known as Project Canada — the upgraded version of the Eclipse 500/550.



The Eclipse 700 features five key enhancements from the out-of-production 500/550: longer wings, with a 792 mm extension trim on each side for added fuel capacity; a 350 mm-longer fuselage for a more comfortable cabin; a larger horizontal stabiliser; a Garmin G3000 avionics suite; and a Williams FJ33 engine to replace the 500/550's P&W Canada PW600. Together, the enhancements create a significantly faster, more comfortable, longer-range aircraft.

"We believe this changes the nature of the airplane in terms of where it fits in the market," Klapmeier said. "This moves the whole curve and changes the way people will look at this niche."

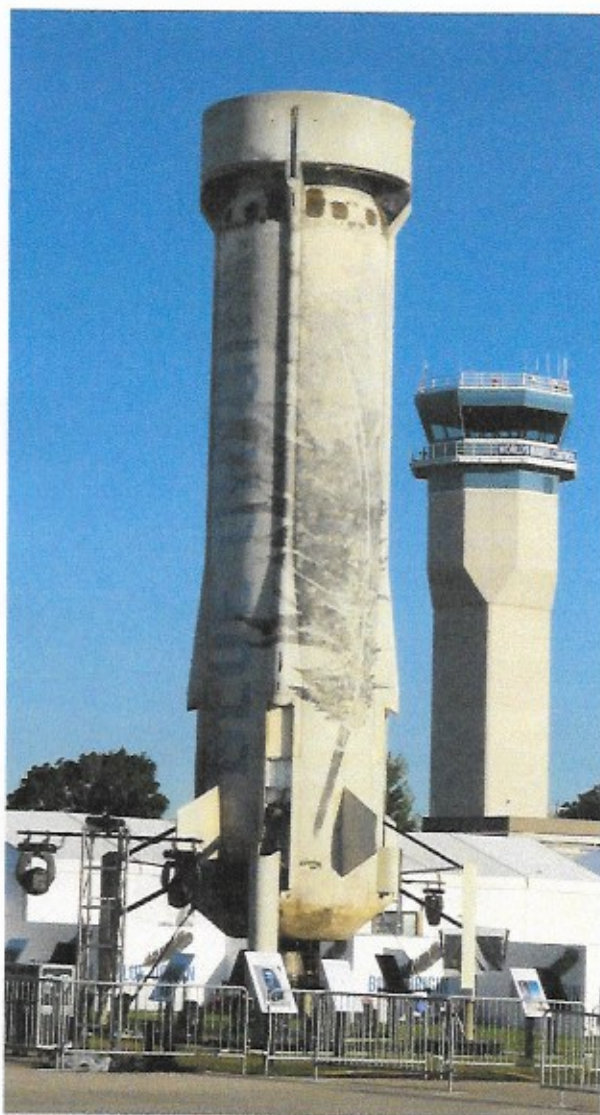
Although the 700 will require a new type certificate, the changes are relatively simple, and Klapmeier expects certification in about 18 to 24 months, assuming expected financing arrangements are successfully concluded. About 30 orders are in hand, but the company is "not being aggressive" in pushing sales, he added.

CIVILIAN SPACE FLIGHT GETTING CLOSER

Looking more like an industrial smokestack than an advanced aerospace vehicle, New Shepard stands the 55-foot tall, and may be your ride into space. New Shepard is the first rocket to ascend above the Karman line (the boundary between Earth and space at 100 km, or some 62 miles, above sea level) and return to Earth for a successful vertical landing. AirVenture guests could take a simulated, suborbital flight of their own in a 1-to-1 scale mock-up of the capsule.

The New Shepard is the reusable vertical takeoff and landing launch system for suborbital space tourism under development by Blue Origin, a company founded by Amazon's Jeff Bezos. On November 23, 2015, the rocket achieved a milestone, its first vertical landing. After minimal renewal, the same booster made four subsequent flights in 2016, the most recent in October 2016. AirVenture was the first public display of the New Shepard.

However, Blue Origin has big plans beyond suborbital tourism. "Our vision is to have millions living and working in space," said Ariane Cornell, the company's head of astronaut strategy and sales. "The first step is to bring down the cost of access, and for that you need reusable rockets."



New Shepard is seen in front of the Oshkosh control tower.

The six-person capsule features six large windows that will give all on board a great view. The booster separates from the capsule at an altitude of about 75 km and the capsule continues its ascent, giving its human cargo about four minutes of weightlessness before they get back in their recliners for the descent. "The entire flight will last about 11 life-changing minutes," Ariane said.

A new New Shepard is scheduled to fly in October 2017 and actual tourist flights could begin "in the next year or two," Ariane said.

CESSNA DENALI SHOWS REAL PROGRESS



A year after unveiling a cabin mock-up of its all-new high-performance single-engine turboprop at AirVenture, Textron Aviation Inc., has made significant progress in bringing to market the Cessna Denali. Manufacturing of the first full airframe test article has begun with tooling for production already underway. The clean-sheet Denali is being designed to outperform its competition in capability, cabin experience, ownership costs and pilot interface.

The Denali will be powered by GE's new advanced turboprop engine. "This will be the first airplane in its class to offer a FADEC-equipped, 1 240 shaft horse power engine. It will ease pilot workload with its single-lever power and propeller control and that's just one of the features that will make the Cessna Denali a best-in-class aircraft," said Brad Thress, senior vice president, engineering.

"We picked up great momentum when we debuted the Denali here last year with a great response from the marketplace, and now we're making excellent progress in the aircraft's development programme. The team began propeller test runs and component tests with GE's new advanced turboprop engine."

The programme has started fabrication of the first full airframe test article to be used for static and fatigue testing.

With a cruise speed of 285 knots and full fuel payload of 499 kg, the Denali will have a range of 1 600 nautical miles at high-speed cruise, with one pilot and four passengers, and will be able to fly from Los Angeles to Chicago, New York to Miami or London to Moscow. The programme is targeted to achieve first flight in 2018 and letters of intent are being accepted.

The new Cessna Denali will have a Garmin G3000 flight deck which will include weather radar, advanced Terrain Awareness Warning Systems (TAWS), and Automatic Dependent Surveillance-Broadcast (ADS-B) capabilities.

The aircraft will boast a digital pressurisation system maintaining a class-leading 6 130-foot cabin altitude at a service ceiling of 31 000 feet.

CESSNA 182 CI TO BURN JET A FUEL

Soloy Aviation Solutions, and its engine manufacturing partner, SMA, a Safran subsidiary, introduced a Cessna 182 featuring a new and more powerful SMA SR305-230E compression ignition (CI) engine,



The 80th anniversary of the Piper J-3 Cub was celebrated at AirVenture 2017

burning Jet-A fuel. The new Soloy installation configuration and aerodynamics package marks significant improvements to the earlier installation designed years ago.

The engineering and testing programme is being completed and validated at Soloy Aviation Solutions' US-based facility in Olympia, Washington, under EASA (European Aviation Safety Agency) regulations.

At the programme's completion, Soloy Aviation will become the STC (Supplemental Type Certificate) holder of the engine conversion programme and intends to market the conversion STC globally.

Soloy and SMA expect the EASA STC approval during the fourth quarter of 2017, with FAA

approval following early 2018. Kit deliveries will begin in the first quarter of 2018.

James Cowan, Soloy's CEO, is proud of his engineering and manufacturing teams' progress.

"We're almost there; certification is close. The future of current 100LL aviation fuel around the world is in question. We view the opportunity to use and improve upon SMA's Cessna 182 engine installation STC as a valid solution to the thousands of operators of Cessna 182 aircraft around the world."

"At the programme's completion, we will offer a wide variety of Cessna 182 owners the chance to convert their current avgas engines to this efficient and powerful engine platform either at overhaul or anytime

during TBO under the revised Soloy STC."

Dave Stauffer, Soloy's Chief Operating Officer, and a 39-year employee, views the SR305-230E project as having great potential. "Our initial focus from a mechanical and engineering standpoint has been to take advantage of the engine's power and reliability. We have found performance improvements through redesign of the current engine installation and aircraft nacelle and cowling configuration. There are many 182s out there and we believe we have a great option for them long term."

CONCLUSION

The above is just a sample of what went on, what was flying and on view on the ground at Oshkosh for AirVenture 2017.

It still ranks as one of – if not *the* – largest general aviation air shows in the world. It proves beyond doubt that the Experimental Aircraft Association is a master player in the industry.

No matter how the aviation press around the world attempts to explain its attraction, no one can really claim to have fully described the AirVenture experience. The only way to really understand and experience the AirVenture magic, is to join the pilgrimage to Oshkosh once a year. No one who has ever been there, will even forget the experience. →

