

THE RITE FLYER

MARTIN AIRFIELD

New study could improve how aircraft fly in gusty winds

October 21, 2020 by [General Aviation News Staff](#)

Scientists from the University of Bristol and the Royal Veterinary College in England have discovered how birds are able to fly in gusty conditions — findings that could inform the development of bio-inspired small-scale aircraft.

“Birds routinely fly in high winds close to buildings and terrain, often in gusts as fast as their flight speed. So the ability to cope with strong and sudden changes in wind is essential for their survival and to be able to do things like land safely and capture prey,” said Dr. Shane Windsor from the Department of Aerospace Engineering at the University of Bristol.

“We know birds cope amazingly well in conditions which challenge engineered air vehicles of a similar size but, until now, we didn’t understand the mechanics behind it,” he added.

The study, published in [Proceedings of the Royal Society B](#), reveals how bird wings act as a suspension system to cope with changing wind conditions. For its study, the team used a combination of high-speed, video-based 3D surface reconstruction, computed tomography (CT) scans, and computational fluid dynamics (CFD) to understand how birds “reject” gusts through wing morphing, by changing the shape and posture of their wings.

In the experiment, conducted in the Structure and Motion Laboratory at the Royal Veterinary College, the team filmed Lily, a barn owl, gliding through a range of

Continued page 2

Coming Up ...

Meeting :

Monday , December 14,
7:00 p.m. Online

Program: Weather,
Hazards of Winter Flying

Board of Directors

December 12, 5:00 pm

Next Meeting:

January 7th, Online

Chapter Website:

chapters.eaa.org/caa604

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Calendar Items to share

Week Days Coffee Club, Martin Field Pilot's Lounge, **Cancelled until further notice**

Fly-outs are sparse due to social distancing and crowd size limitations.



Gusty Winds... *continued*



fan-generated vertical gusts, the strongest of which was as fast as her flight speed. Lily is a trained falconry bird who is a veteran of many nature documentaries, so wasn't fazed in the least by all the lights and cameras, according to the researchers.

"We began with very gentle gusts in case Lily had any difficulties, but soon found that — even at the highest gust speeds we could make — Lily was unperturbed. She flew straight through to get the food reward being held by her trainer, Lloyd Buck," said Professor Richard Bompfrey of the Royal Veterinary College.

"Lily flew through the bumpy gusts and consistently kept her head and torso amazingly stable over the trajectory, as if she was flying with a suspension system. When we analyzed it, what surprised us was that the suspension-system effect wasn't just due to aerodynamics, but benefited from the mass in her wings. For reference, each of our upper limbs is about 5% of our body weight, for a bird it's about double, and they use that mass to effectively absorb the gust," said lead author Dr. Jorn Cheney from the Royal Veterinary College.

"Perhaps most exciting is the discovery that the very fastest part of the suspension effect is built into the mechanics of the wings, so birds don't actively need to do anything for it to work. The mechanics are very elegant. When you strike a ball at the sweet spot of a bat or racquet, your hand is not jarred because the force there cancels out. Anyone who plays a bat-and-ball sport knows how effortless this feels. A wing has a sweet spot, just like a bat. Our analysis

suggests that the force of the gust acts near this sweetspot and this markedly reduces the disturbance to the body during the first fraction of a second. The process is automatic and buys just enough time for other clever stabilizing processes to kick in," added Dr. Jonathan Stevenson from the University of Bristol.

The next step for the research, which was funded by the European Research Council (ERC), Air Force Office of Scientific Research, and the Wellcome Trust, is to develop bio-inspired suspension systems for small-scale aircraft.

First flight bends homebuilt plane

December 10, 2020 by [General Aviation News Staff](#)

The pilot reported that the flight was the first flight of the experimental amateur-built Zenith CH750. He was landing at the airport in Xenia, Ohio, when the accident occurred.

He noted that he was lined up with the runway center line, that his airspeed was 60 mph, and the tachometer registered 1,600 rpm, when he felt the right tire touch the runway.

"In an instant the left wing came down and the left tire and axle [were] sheared off. The left wing contacted the runway and the plane skidded about 40 feet and came to a full stop."

The pilot said he used a higher landing airspeed since he had been told by other builders of that airplane that he needed to land with speed "so as not get near the stall speed as this aircraft does have leading edge slats and this equates to a high lift wing."

The pilot stated that the wind was calm, the altimeter setting was 30.12 inches, and the temperature was 55°F. The wind recorded at an airport 8 miles north was from 200° at 12 knots.

Continued page 4

EAA 604 Minutes, November 9, 2020

The meeting was called to order by President Bill Herrington at 7:04 p.m. using Zoom Meetings due to Covid-19 and the Stay Home Stay Safe order from our Governor. Don Gibbard took attendance and we had 13 members at the online meeting and no guest. The Minutes of the October meeting were approved as printed in the Newsletter.

Board Meeting Report: The Board of Directors met November 7th and approved the Financial report. Ron Urban reminded us that the dues for 2021 are due. They are \$30 and can be sent to Ron at 840 Clay, Walla Walla. He reminded us that Dave Cheney is a Lifetime member so he is already current. We set a date of Nov. 18th at 2:00 for a meeting to review the Young Eagle Workshop proposal from EAA. Due to the current pandemic, there will be no Holiday party but we will hold our normal monthly meeting in December.

Old Business: Projects—Troy Wright shared about his RV-7. He presented 3 short videos (attempted to) and reported that the tail is mounted. The canopy was a nightmare but now fits. The instrument panel inserts are in. The engine is mounted. He is making good progress.

Matt Harris says the RV-9 is in the hangar. He is working on a Milholland Legal Eagle Ultralight just to keep busy.

Someone reported that Boyd bought a sailboat which explains the poor communication. The J3 is on its gear but the engine is not hung yet. Paint is done (mostly) with black lightening bolts added.

New Business: The flying Club is doing well these days. No other report from them Bill H reported that DART has 1000 masks left to distribute to Vancouver WA and then that project will be complete. A big thanks goes to Bill Herrington for his efforts in managing that project for GA.

There was no other business so we adjourned for our discussion topic on Holiday Travel.

Respectfully submitted,
Don Gibbard, Secretary



NTSB Advisory: Loss of engine power linked to oil filter adapters

December 9, 2020 by [General Aviation News Staff](#)

The [NTSB](#) has issued an [Advisory](#) warning airplane owners of a loss of engine power on various Continental engine models linked to F&M Enterprises and Stratus Tool Technologies oil filter adapters.

According to NTSB officials, they identified 11 accidents between 2004 and 2019 in which airplanes equipped with an F&M or Stratus oil filter adapter suffered a loss of engine power following an oil leak. These accidents resulted in three fatalities and five serious injuries.

“As a result, we have issued an advisory to mechanics, airplane owners, and operators,” NTSB officials said. “We also are calling on the Federal Aviation Administration to issue an airworthiness directive to address an unsafe condition associated with oil filter adapters installed through a supplemental type certificate on Continental engines.”

The advisory opens with details of an accident that occurred on May 1, 2019, when a Cessna 182 experienced a total loss of engine power. During the emergency landing, the airplane collided with a power line near Mill Creek, California. One passenger was fatally injured, and the pilot and other passenger were seriously injured.

“NTSB found that the F&M oil filter adapter was loose, a fiber gasket between the airplane’s engine oil pump assembly and the oil filter adapter was torn and had a crescent mark, and oil had leaked from the broken gasket seal (see picture below). The oil leak led to the loss of engine power. We saw at least 10 other airplanes with an F&M or Stratus oil filter adapter that had a loss of engine power following an oil leak, leading to two other

Continued page 4

The discussion theme for Monday night is “What are your experiences with Weather, We will discuss Icing, Fog, and the challenges of winter weather. Share your personal experiences.

Chapter Meeting Online

Our December Chapter meeting will be held as an online Zoom meeting on Monday December 14th starting at 7:00 p.m. You will receive an invitation to join the meeting from Ron Urban. There will be a link to the online meeting you can use with a computer, smartphone, tablet with video capabilities. If you do not have a camera on your computer you can still join online but you will need a microphone in order to join the conversation.

The second option is to dial in with any phone. There is a toll free number with the meeting ID and password in the line. If you can launch the call from your email, the link will in put all the necessary information. If you dial it directly from a phone you will need to follow the prompts for meeting ID and meeting Password.

Keep your email invitation handy as you login since it contains all the information you need to succeed.

If you have not used Zoom before, the link will prompt you to download the Zoom App. Follow the install directions.

First flight ... *continued*

Post-accident examination of the airplane revealed that the left wing tip was bent up, the nose landing gear “U” channel was bent 90°, and the skin around the left wing strut and landing gear attachment points were buckled.

There were no reported preimpact anomalies with the airplane.

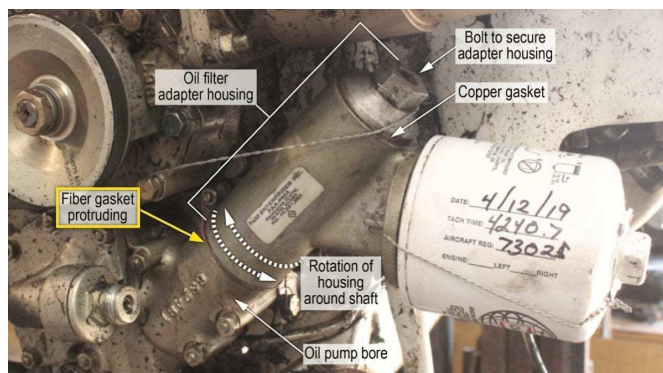
Probable Cause: The pilot’s failure to maintain airplane control during landing, which resulted in the right tire contacting the runway first followed by the left wing.

NTSB Identification: 100815

This December 2019 accident report is provided by the National Transportation Safety Board. Published as an educational tool, it is intended to help pilots learn from the misfortunes of others.

NTSB Advisory *cont*

fatalities.”



What you can do

Read the NTSB’s [safety recommendation report ASR-20-05](#), which is a deep dive into the NTSB’s investigation, and [Stratus mandatory service bulletin SB-001](#).

“By ensuring that the adapter is installed properly, oil loss and potential engine power loss could be prevented,” NTSB officials conclude.

Is Your Plane Affected?

In the advisory, the NTSB includes a table that highlights the aircraft and engines that are compatible with Stratus and F&M oil filter adapters:

Models of aircraft and engines that are compatible with Stratus and F&M oil filter adapters					
Oil Filter Adapter Models (STC Numbers)	C0-300 (SE8409SW)	C6LC-L (SE09356SC)	C6LC-S (SE09356SC)	C6SC (SE8409SW)	C6LC-11/15 (SE10348SC)
Aircraft	Beechcraft Bonanza Beechcraft Debonair Cessna 170, 172 Globe Swift Maule	Beechcraft Bonanza Beechcraft Debonair Cessna 205, 206, 207, 210, 310 Grumman Widgeon Meyers Navion Twin Commander	Beechcraft Bonanza Beechcraft Baron (Model 55) Beechcraft Debonair Cessna 180, 182, 185, 188	Cessna 172 Hawk XP, 175, 336, 337 Maule Mooney M20-K Piper Seneca II Piper Turbo Arrow III & IV	Cessna L-19 Bird Dog
Continental Engine Models	C-125 Series C-145 Series O-300 Series	O-470 Series (Sand Cast Crankcase Only) IO-470 Series IO-520 Series IO-550 Series TSIO-520 Series	O-470 Series (Sand Cast Crankcase Only) IO-470 Series IO-520 Series IO-550 Series TSIO-520 Series	GO-300 Series IO-360 Series TSIO-360 Series	O-470-11 O-470-15