

# Flight Test Safety Fact



Published for the Flight Test Safety Committee

## ***FTSW is Next Week!***

**Tom Huff**

The 2019 Flight Test Safety Workshop will kick off on Monday 6 May in Charleston, SC. Are you prepared for a flight test accident response? How effective are Safety Assurance methods in *your* organization? These are critically important elements of a robust Safety Management System. Attendees will engage with industry experts and takeaway effective practices to make their organizations safer. The legendary Peter Garrison of Flying magazine will deliver the dinner keynote. Registrations are near a high-water mark for us, and we hope you will be among those joining us!

*Tom Huff, Chairman*

You can always find workshop info on the website: [flighttestsafety.org/workshops](http://flighttestsafety.org/workshops). The theme this year is as follows:

**Data to Assure Success – the key enabler to Safety Assurance in Flight Test. Besides a test point that is “within tolerance,” how do we really know we are executing tests safely? This FTSW aims to explore processes, methods, and data to “close-the-loop” on safety management and enable safer, more efficient test execution.”**

Join us in the low country for a deep dive on Safety Assurance in flight test, which is, arguably, one of the more challenging aspects of a robust Safety Management System (SMS). The Workshop will provide a comprehensive look at methods to validate the effectiveness of risk mitigations – developed in planning and employed in the conduct of test. The tutorial will lay the foundation, to include a review of SMS voluntary standards and the means by which flight test organizations should incorporate recommended practices to monitor the effectiveness of safety risk controls. Subject matter experts will also share their experiences with reporting tools and how to audit for success. Both of these can help participants shape or enhance their Safety Management Systems. We’ll also touch on data that helps keep us safe and efficient. To complement and reinforce the theme, we will hear from test teams on their SMS Safety Assurance journey. Specifically, what discoveries (hazards) were made in test that were – or were not – sufficiently identified and risks not adequately mitigated. As a bonus, we will kick-off the FTSW with a scenario-based training module on emergency response and finish with a tour of the Boeing Dreamliner production facility!

**Editor’s Note:** I received a question after last month’s newsletter that I was not expecting, but I wanted to answer it here. Whenever we have guest writers, columnists, etc., we include the name of the author. Whenever the Editor writes the content, he refers to himself in the third person and does not include his name in the byline. Just so you know.

## **Flight Test Safety Committee**

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## **Five Things You Must Do at the FTSW**

Five tips from a former Charleston foodie and FTSE editor.

### 1. South End Brewery

It is downtown on Rainbow Row, and besides the obvious attraction, it has two Charleston favorites: a) Shrimp and Grits is a Lowcountry favorite, and South End has one of the best; b) She Crab Soup, another dish you must-have. There’s only one other place where I recommend Shrimp and Grits, and that’s Slightly North of Broad. Two eateries – two of the best Shrimp and Grits dishes in the state. A visit here will also give you a quick overview of the most beautiful part of the city, which is another great reason to do it. Oh and buy a sweetgrass souvenir.

### 2. Andolini’s Pizza

The best New York style pizza in the world. Even better than New York. Andolini’s has several locations, including one that’s on short final for RWY21 at KCHS. It’s a short drive from the Marriott, and it is something you will not want to miss. There are also downtown locations. The conversations you have during dinner add value to the workshop and our community.

### 3. Send a letter to the Editor.

I won’t be at the Workshop, so I need your notes. Tell me which presentation you will be talking about when you go home and why. Tell me what presentation had everyone buzzing over drinks after the day was done. You can jot a one-line note daily.

If you are a speaker, I want to hear from you. Many of you will give talks that are suitable for a larger audience, and you may even agree to share the video on the FTSC website, as past speakers have done. I’d like a copy of your slides and even a six hundred word synopsis of your talk. Many, many people will not be able to attend, and they will benefit from your email to the Editor, via [mark@flighttestfact.com](mailto:mark@flighttestfact.com). You can access the videos of a limited number of past presentations on the FTSC website: [flighttestsafety.org/2018-arlington-tx](http://flighttestsafety.org/2018-arlington-tx). I’d be delighted to share your talk with an even larger audience.

### 4. Print and carry a copy of the **Flight Test Safety Fact**.

The FTSW always attracts a wide audience, and it includes people who are not members of SETP and SFTE. We want to Reach Everyone (117%). We want you to introduce more people to the newsletter, so they can take it home to their unit, department, or country. Tell them to reach out to the Editor, so we can include them in future editions.

### 5. Tell me what presentation you found interesting.

Everyone will hear about the best paper, but everyone *should* hear about more. This newsletter is a great way to do that.

## F-35 Auto-GCAS wins Collier Trophy

The F-35 Test Team from Edwards AFB has won the 2018 Collier Trophy. This is huge flight test safety news. No one can deny the cold, hard data: Auto-GCAS saves lives. It is truly a delight—I am ecstatic—to see it on the F-35. It took too many years to see Auto-GCAS implemented in the fleet of F-16s, and the integration of the capability on the F-35 is a welcome change, even if accomplishing it “seven years ahead of schedule” is an implicit editorial on the acquisition process.

### *National Aeronautic Association press release:*

Washington, DC, April 5, 2019 – The National Aeronautic Association (NAA) is pleased to announce that the Automatic Ground Collision Avoidance System (Auto GCAS) Team has been named the recipient of the 2018 Robert J. Collier Trophy for “... successfully completing a rapid design, integration, and flight test of critical, lifesaving technology for the worldwide F-35 fleet.” The Collier Trophy is awarded annually “...for the greatest achievement in aeronautics or astronautics in America, with respect to improving the performance, efficiency, and safety of air or space vehicles, the value of which has been thoroughly demonstrated by actual use during the preceding year.” The list of Collier recipients represents a timeline of air and space achievements, marking major events in the history of flight. “I am so proud of the entire Auto GCAS Team and their commitment and dedication to saving lives through this revolutionary technology,” expressed Mark Wilkins, Senior Aviation Safety Analyst, Office of Secretary of Defense for Personnel Readiness and Safety. “We are truly honored to be recognized with such a prestigious award and deeply humbled considering the aviation greats who won previously.”

You can read the press release from the NAA here: <https://naa.aero/userfiles/files/documents/Press%20Releases/Collier%20Trophy%202018.pdf>.

### *US Air Force story:*

EDWARDS AIR FORCE BASE, Calif. – The 412th Test Wing recently published the technical report on the F-35 Automatic Ground Collision Avoidance System and have recommended it for fielding, seven years ahead of schedule. The Auto GCAS is a tool that utilizes a suite of sensors, on-board monitors and flight data to determine if a plane is on course for a probable ground collision. The effort to test the system on the F-35A was headed by the Test Wing’s 461st Flight Test Squadron at Edwards Air Force Base, California, as part of the F-35 AGCAS Team. The whole team consisted of engineers and pilots from the Air Force, the F-35 Joint Program Office, NASA, Lockheed-Martin and the Defense Safety Oversight Council. Further support was provided to the team by a group of congressmen. In November 2017, Hamilton provided a brief of the program to Rep. Kevin McCarthy and then-Rep. Steve Knight. The support of both California congressmen helped shed light to the importance of the program and accelerate its development by seven years.

You can read the US Air Force story here: <https://www.edwards.af.mil/News/Article/1826012/f-35-agcas-recommended-for-fielding/>.

## The Structure of Flight Test Safety

Does the organizational chart affect flight test safety?

At first glance, the question may seem trivial, but I believe the varied experience of our readers, of members of our societies, will prove that it is a complicated and nuanced topic that includes many difficult questions. Some of the questions will sting and may even stab, but I think we must ask them.

Members of the SETP, SFTE, and AIAA explored this question during its symposium held 1 March at the Doolittle Conference Center in Niceville, Florida. Panelists discussed their experience with the 96<sup>th</sup> Test Wing, Edwards AFB, foreign exchange, Air Force Research Laboratory, and civilian organizations that interact with the FAA in both 14 CFR Part 23 and Part 25. One strength of the panel was an incredible breadth of experience, which included remotely piloted aircraft, Navy strike aircraft, TPS “school house” leadership, small UAS, rotorcraft and VTOL, transport aircraft, biz jets, advanced light jets, NBAA, SETP, SFTE, and AIAA.

We would like to continue research on this question in a future edition of the flight test news, and in particular, I would like to ask industry executives and senior leaders to participate. Some organizations have a Vice President for Safety. If that describes you, would you be willing to reply with a letter to the editor?

The US Air Force has a Chief of Wing Safety that reports to the Wing Commander. Is that the right chain of command? Some MAJCOMs require that the Safety Chief be a candidate for squadron command, but frequently these tours are one year or less, which is, according to popular literature, barely long enough to learn the job, much less affect change or build any significant momentum. The trend in civilian flight test is to retain safety personnel for a longer period. These are all aspects of the “structure” of the “organization.”

It is an infrequently discussed—but probably widely held—opinion that the organizational chart for the Light Attack Experiment was a significant cause of the tragic loss of the Super Tucano A-29 in June 2018 at Holloman AFB.

Some organizations, like Gulfstream, have changed their structure following flight test accidents. Others have not. Will the US Air Force adapt their organizational structure following this latest mishap? I would ask the question, if I could figure out who to ask. Similar questions that we might raise include the topic the Workshop intends to address: Safety Management Systems. Will the FAA (Certification section) require SMS for flight test organizations? Military readers may be surprised to learn that it is not required nor is it widely adopted, though this last statement is a qualitative opinion, but military readers should also point out that there is no similar system in defense flight safety. Should there be? These are questions we’ve discussed among ourselves at length, and each Committee member would even ask in person, face-to face, if given the opportunity, but who among us *should* be asking these hard questions? That’s a question worth discussing more.