



Flight Test Safety Fact

Published for the Flight Test Safety Committee

The Annual Report on the Flight Test Safety Workshop Edition of the FTSF

Reporting from the FTSW in Seattle, including best presentation award (with slides), safety award winner, and next workshop **The First Chia Chat** - reflections from the new Chairman of the Flight Test Safety Committee in his first ever column

Flight Test Safety Workshop Report

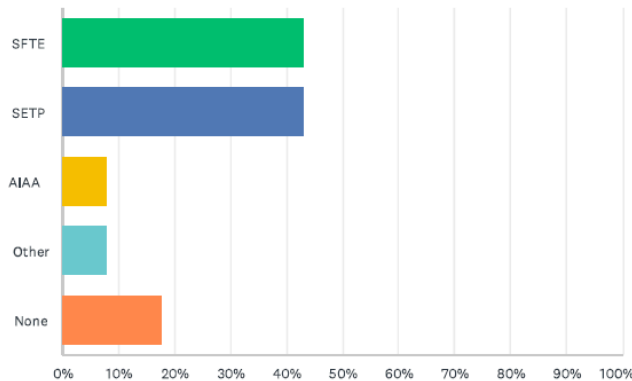
Three days of beautiful weather, snow capped mountains, and energetic discussion are just some of the ways one might describe the 2024 Flight Test Safety Workshop, which also announced a new Chairman in a ceremony that was one part Star Wars, one part Hunger Games, and all parts Turbo-tastic. The transfer of control also included, for a first time, a watermelon, a symbol of the cultural fruit salad we find in many organizations and an allusion to a great talk by the same title.

Of the 165 attendees, 52 responded to the Workshop survey, and as pictured here, approximately 43%

indicated membership in SETP, another 43% with SFTE, and 25% affiliated with neither. (For those doing mental math, that means some attendees belong to both SETP and SFTE.) I think this is a good indication, suggesting the reach the FTSC and Workshop have outside of our traditional professional affiliations. This loosely aligns with trends from previous years.

Q19 Professional organizational affiliation (select all that apply)

Answered: 51 Skipped: 1



ANSWER CHOICES	RESPONSES
SFTE	43.14% 22
SETP	43.14% 22
AIAA	7.84% 4
Other	7.84% 4
None	17.65% 9
Total Respondents: 51	

Videos from Flight Test Safety Workshop

The Videocasts approved for public release from the 2024 Flight Test Safety Workshop in Seattle, WA are now available to view with this link: [2024 FTSW Seattle, WA](#). If your company prohibits access to Vimeo for security reasons, you may have to view the videos from your personal / home computer. You can optionally click on a Presentation Title to open the presentation in its own window. The FTSC requests that you handle this information

as background material, and not as a corporate release. If you should wish to use this information in a story or any other form of presentation, you must contact the presenters or appropriate corporate representatives to ensure that the presentation material can be viewed in the proper programmatic context. The FTSC expressly forbids the use of this presented material in connection with any press release or article without the written consent of the authors.

Review of “Handling Human Failings in Flight Test: ‘Breaking the Chain’ vs. Effective Organizational Safety Management”

Stuart “Chia” Rogerson

Review

At the 2024 North American Flight Test Safety Workshop, the Dave Houle Award for Best FTSW Presentation (sponsored by Bombardier) was presented to Mr. David Webber from the FAA for his presentation, *Handling Human Failings in Flight Test: “Breaking the Chain” vs. Effective Organization Safety Management*. Congratulations to Mr. Webber! Mr. Webber’s presentation is available now to watch at <https://www.flighttestsafety.org/2024-seattle-wa> along with the other presentations from the Workshop.

This presentation was centered on the X-31 accident on January 19, 1995, which occurred due to the pitot probe freezing resulting in an aircraft departure from controlled flight and subsequent ejection by the test pilot due to the improper airspeed input to the flight control laws. Mr. Webber was a Test Director (TD) for the X-31 program and on the day of the accident he was assisting the TD as the Notetaker in the control room, so he has a significant amount of knowledge on this accident. I learned quite a few new things through the entire presentation about this accident that I had never heard before. For example, the pitot tube configuration with no heat (Kiel probe) was installed 20 months earlier and had been flown for over 300+ flights. In his presentation, Mr. Webber first sets the stage for the accident with some background on the program and this particular flight which in turn starts to highlight the latent failures that existed, showing how the Swiss cheese holes lined up for the accident to happen. After this initial introduction, about twenty minutes of the NASA produced video "X-31: Breaking the Chain: Lessons Learned" was played for the attendees. The entire video is available online: <https://www.youtube.com/watch?v=x1E3xpePbmA>. I am a huge fan of this video, and it is an excellent resource for introducing new aircrew and reminding experienced aircrew about the principles of flight test CRM.

Following the video, Mr. Webber spent most of the time conducting a deep dive identifying and explaining the latent and active failures that led to the accident. One example was the Aircraft Flight Manual and its Return to Base checklist had not been updated to reflect the inoperative pitot heat. Interestingly, the Keil probe was added to address a departure that occurred during a split-S maneuver to 60 degrees of AOA to improve the air data accuracy at high angles of attack. Good intentions led to an unexpected negative outcome. One of the key points of the presentation was a discussion on the loss of tribal knowledge from the highly experienced engineers, FTEs, and pilots who participated at the beginning of the program. Most of those folks had moved on to other test programs at the time of the accident, and without proper documentation of their knowledge, there were significant gaps in the knowledge for the replacement team members. Mr. Webber then spends some time discussing how an organization needs to evolve as the aircraft matures. Most test programs are reactive at the beginning relying on individual knowledge and hypotheses that are proven or disproved as the test program advances. However, as the aircraft matures and knowledge is gained, the program needs a proactive approach with managing safety risks. This includes simple tasks like updating the flight manuals to reflect the current configuration. Mr. Webber proposes that this transition from reactive to proactive may require a planned pause to ensure a proper audit is done on all flight documents and tribal knowledge to ensure it is properly documented for those coming into the program. In the end, Mr Webber leaves us with the same challenge he presented at the beginning. What would you do if, “You had 2 minutes to solve a problem...” just like the X-31 flight test team did.



Mr Webber shared the abstract below and his slides, which are included as an attachment to this pdf.

Handling Human Failings in Flight Test: ‘Breaking the Chain’ vs. Effective Organizational Safety Management - Abstract

This presentation is a reflection of sorts on a 30+ year career, and utilizes the 1995 X-31 flight research accident as an example of the importance of ensuring flight test procedures and documentation are updated as the flight program matures. The presenter was an X-31 test conductor who was a member of the flight test crew on the day of the accident. Building on NASA’s X-31 “Breaking the Chain” documentary, he recounts and clarifies some of the key engineering, organizational and interpersonal circumstances that set the stage for the accident. He offers that, due to the workings of our brain in high stress environments, it is critically important to assure that flight test programs periodically build in planned reviews and updates of operational documents to assure that effective operational procedures are put in place or continually improved. In the case of flight research projects or new and/or highly modified designs, this pause must happen before ops tempos are increased and/or the inevitable turnover in personnel occurs on the project (before the “ringers” leave for the next project). The suggestion is for flight test operations to plan these cross-functional reviews/audits into the flight schedule to drive the necessary updates and weed out incorrect knowledge and procedures, regardless of the original intended duration of the flight test program.

Flight Test Safety Committee - Calendar of Events

Flight Test Safety Workshop 2025 Announced

When: 6-7 May 2025

The Koury Convention Center in Greensboro is the likely location for next year's event.

European FTSW ~ November 2025

<https://www.flighttestsafety.org/workshops>



The screenshot shows the website [flighttestsafety.org/workshops](https://www.flighttestsafety.org/workshops). The navigation menu includes: FLIGHT TEST SAFETY, ABOUT, NEWS, WORKSHOPS (selected), AWARDS, REFERENCES/RECOMMENDED PRACTICES, and RESOURCES/LINKS. The main heading is "Upcoming Workshops". On the left, under "PREVIOUS WORKSHOPS", there is a list of past events from 2017 to 2024. The central announcement reads: "2025 Flight Test Safety Workshop" on "6 & 7 May 2025" with a "(New 2 day schedule)". The text below the announcement states: "The Flight Test Safety Committee, a joint committee of SFTE, AIAA, and SETP, is pleased to announce that the North American Flight Test Safety Workshop will be held 6 & 7 May 2025 in Greensboro, NC. More details will be available later this fall. Thank you!"

Chia Chat

Stuart "Chia" Rogerson

The annual North American Flight Test Safety Workshop held in Seattle, WA wrapped up in early May. This was once again a fantastic event with some great tutorial topics, presentations, and of course networking. I especially want to thank Bob Stoney (F) for being the Workshop Chairman as well as our sponsors, presenters, SETP staff and attendees. I cannot thank the presenters enough for taking the time to put together their presentations. Your willingness to commit to share your lessons learned with the greater flight test community is critical to supporting the FTSC's mission. I also want to thank our attendees for setting aside their precious time and financial resources to attend this event so you can bring back those lessons learned to your own organizations.

The link to the recorded presentations was provided earlier in the newsletter, so please check out the videocasts and use them to help train and educate your flight test teams. They are an excellent resource to ensure we pass along lessons learned from the Workshop to the rest of our organizations. There are so many good presentations, so I hope those that were unable to attend take the time to watch all of them and if you want to know more about "Walter the Watermelon" you will definitely need to watch "Safety Culture Fruit Salad."

In addition, it is especially important we watch those that have lessons learned that are tragically written in blood. Mr. Reynaldo Enriquez's (Department of the Air Force) presentation on the "Accident Investigation Board Results From a MQ-9 Fatality Mishap" is a must watch to ensure something like this does not happen again. The lessons

learned from this accident apply to all flight test operations, not just unmanned aircraft. Please honor the memory of the individual who lost their life in this mishap by getting those lessons out to the larger flight test community.

Finally, please mark your calendars now for 2025 and save these dates. First, we will be holding the North American FTSW in Greensboro, NC May 6th and 7th. This will be the first time the event will be held on the new 2-day schedule. Second, Pipistrel is planning to host the European FTSW in early November 2025. Exact dates are yet to be determined, but the location should be Trieste, Italy. I hope most folks can make at least one of these events. Meeting in person is critical to create the best lines of communication between the different flight test organizations. Those personal connections you make at the Workshops will last the rest of your professional career and those benefits are incalculable.

After multiple years of dedicated and exemplary service to the flight test community, Art “Turbo” Tomassetti officially handed over the Chairman position for the Flight Test Safety Committee at this Workshop. I am honored to be selected by the board to serve as the next Chairman of the FTSC. Turbo did a fantastic job these past few years as Chairman and I am excited to see how we can continue to advance safety for the greater flight test community. Of course, Turbo gave us “Turbo Talk”, so it seemed only appropriate that we continue that tradition with the “Chia Chat.” I hope this small section of the Flight Test *Safety Fact* will at least come close to what Turbo did for the flight test community over these years.

Based on the Tutorial topics and other discussions at the Workshop I hope to focus the FTSC on a few areas. First, there is a lot of pertinent discussions about SMS especially with the recent FAA Part 5 mandate changes for Part 21 certificate holders. The FTSC is a unique position to help organizations find their way as they implement and mature a successful SMS, so the committee will hopefully be providing more resources to assist with that goal in the near future. Secondly, one of the FTSC’s mission objectives is to “to gather, provide and maintain a user-friendly online repository of flight test safety information, and enable unrestricted access to that system.” There has been a significant technological leap in recent history in this area, and it is the right time that we as a committee try to adopt some of these newer capabilities to ensure the greater flight test community has easy and ready access to the best safety material out there.

As Chairman, I am going to try and keep our online presence active throughout the year. My primary vehicle for this will be via our LinkedIn site. If you are a member of LinkedIn and do not follow the Flight Test Safety Committee, please ask to join the group either via this link (<https://www.linkedin.com/groups/3834383/>) or searching for the “Flight Test Safety Committee.” If you are already a member, please invite other flight test professionals you know to join as well. I would love to see a discussion of best flight test safety practices, lessons learned and incidents throughout the year to fill the gap between the Workshops. Maybe a future presentation topic will come out of these discussions.

In addition to emails and social media, don’t forget to check out all the resources available at <https://www.flighttestsafety.org/>. When was the last time you checked out the REFERENCES/RECOMMENDED PRACTICES tab to see all the available information there? Remember any new items are highlighted in yellow with the latest addition being “Test and Evaluation Crew Resource Management.” Have a high-altitude test program coming up? Have you recently read the High-Altitude Testing paper on this tab? There are so many good resources available, so make sure you are regular visitor to our website ensuring you are refreshing your memory on best practices and lessons learned.

I want to also thank Mark Jones Jr. and Turbo for their tireless efforts and continued production of our two digital products, the Flight Test *Safety Fact* (FTSF) and the Flight Test Safety Podcast. It is a lot of work putting these together and I truly appreciate their dedication to creating quality content for the flight test community. As well, both are excellent resources to be shared amongst your flight test organizations. As always, please provide feedback on these products and suggestions for new content.

I once again want to thank the FTSC board for trusting me with leadership of the FTSC for the next few years. I am excited to see what we can continue to do to support the FTSC's purpose "to initiate and sustain a flight test related safety organization intended to promote flight safety, reduce the risk of mishap, promote risk reduction management and continually improve the profession's communication and coordination." If you have any further comments or questions, please feel free to reach out to me at chairman@flighttestsafety.org. **Chia**

Latest Podcast: Go, No Go, or Glide?

Art "Turbo" Tomassetti

Find the answer in this month's podcast. If you heard someone say: "I think I can get this done," would you be hearing a positive attitude or a prelude to risk? This month, Turbo interviews Mike Meier about flight testing competitive hang gliders, decision making, and lessons learned along the way. Learn more about Mike here: <https://meiersafe.com/about-mike-meier/>, and on the [FTSC website](#), there are links to Mike's paper and a previous FTSW presentation video. You can subscribe to the Flight Test Safety Channel podcast in iTunes, Spotify, Podbean, Google, and Amazon Music's FTSCChannel.



You can also share the link: <https://flighttestsafety.org/ftsc-news/flight-test-safety-podcast-channel>.

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