

# Flight Test Safety Fact



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Published for the Flight Test Safety Committee

## Register for the *Flight Test Safety Workshop*

When: 3-5 May 2022

Where: Palm Beach Gardens Marriott, FL

The Flight Test Safety Committee (FTSC), in conjunction with The Society of Experimental Test Pilots (SETP) and the Society of Flight Test Engineers (SFTE), will hold the North American Flight Test Safety Workshop on 3 - 5 May 2022 in Palm Beach Gardens, FL. The purpose of the Safety Workshop is to provide an open forum where flight test safety issues can be presented, discussed and probed with other members and disciplines of the flight test community. Mr. Glen Knaust and Bill Fell are coordinating the event.



The theme of the workshop is “Can organizational culture play a factor in flight test safety?”

Organizations each have their own unique cultural attributes, but which of those contribute to an environment of enhanced flight test safety? Conversely, what organizational environmental characteristic create adverse climate and the potential for reduced overall safety? For those organizations that have a Safety Management System (SMS) or aspire to implement/mature a SMS, the 2022 edition of the FTSW will explore how culture underpins an effective SMS and safer flight test operations.

Attendees will leave the Workshop with exemplary Policy statement examples, and we’ll work together to formulate reasonable and meaningful objectives that could be used in your flight test organization to boost safety emphasis and improve performance. For the technical paper presentation portion of the Workshop, we will hear from testers on their experiences regarding organizational factors – both good or bad – that played a role in the conduct of flight testing.

Click [HERE](#) for more information and to register! We are excited that Mr. John "Lites" Leenhouts, President & CEO of Aerospace Center of Excellence (picture here) will be our guest speaker during the dinner on Wednesday, 4 May 2022.

Find this information on our website: <http://www.flighttestsafety.org/workshops>.

## FTSC unveils Houle’s Collection of Aircraft Accidents

*In an effort to highlight the resources of the FTSC website, this article is a reprint from 2020.*

The Flight Test Safety Committee has rolled out a web page with links to an 8 volume collection of papers detailing aircraft accidents and the accompanying lessons learned since the 1920s. The collection includes a summary and an index together with 8 pdfs that include notes and clippings about flight test accidents. Each volume has almost 418 pages, for a total of almost 3000 pages. Some of the notes are hand written, and some are electronic reproductions of historical documents dating back to 1929 and forward to 2011. Many have links to active websites, and the entire collection may be searched using optical character recognition technology.

Dave Houle Flight Test Accident Archive: <b>New Addition to the Website!</b>	
<a href="#">Summary of Accidents</a>	<a href="#">Flight Test Accident Index</a>
<a href="#">Flight Test Accidents Part 1</a>	<a href="#">Flight Test Accidents Part 2</a>
<a href="#">Flight Test Accidents Part 3</a>	<a href="#">Flight Test Accidents Part 4</a>
<a href="#">Flight Test Accidents Part 5</a>	<a href="#">Flight Test Accidents Part 6</a>
<a href="#">Flight Test Accidents Part 7</a>	<a href="#">Flight Test Accidents Part 8</a>

According to Pete Donath, who recounted a personal anecdote from the “early days” of this collection, Dave Houle\* would often bring a tall stack of file folders and drop it on the desk. The timing of these visits coincided with company plans for an upcoming flight test campaign. As he walked away, he would mention an incident or accident and

recommend that his colleague review what went wrong, what went right, what could have been done better, safer. His words reverberate down through ages, “Please make this step part of your preparation for flight tests.”

\*The late Dave Houle was one of the founding members of the Flight Test Safety Committee in 1994. Pete Donath, who edited the collection, provided the following instructions for best use of the documents, hosted on the FTSC website: <http://www.flighttestsafety.org/web-links>.

Dave Houle collected historical documentation from many notable aircraft mishaps. The documentation in this archive ranges from 1929-2011. Some are anecdotal articles, and others are full accident investigation reports. We have scanned these into searchable pdf files, available for download. There is also a rudimentary index of the contents of each file with a brief description of each article.

### Directions

1. Review [the index](#) to find the incident of interest.
2. Locate the FT Accident file number (1-8) and page number in the row of the selected incident to identify which volume contains the summary. (See arrow in figure.)
3. Select the hyperlink of the specified volume (Figure 1), and go to the page number of interest for further details.

In the spirit of sharing lessons learned, if you have similar documentation that you feel will help other test crews, please contact us at [ftsc@flighttestsafety.org](mailto:ftsc@flighttestsafety.org), for inclusion in the collection.

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## What Happens when We Crash

*Mark Jones Jr.*

Two things happen when I learn about an aircraft accident, a crash or a mishap. First, I have an emotional response. I suspect we all do. The way I experience the event is personal and subjective, but it does not change the objective fact that emotions accompanied my reception of the information, however sparse. We all have a similar reaction. Sometimes my reaction is to rush to judgment, and I suspect some of us think the same thing I do: “What were they thinking?” Other times, I respond with frustration, wondering who writes some of the press releases we see. Those are all judgments based on my emotions, experience, and norms. It is a subjective assessment.

Sometimes the accident makes me reflect on my own human frailty, like I did many years ago in a letter to my son, “[A Test Pilot’s Thoughts for His Seven Year Old](#).” It doesn’t take long, though, for me to begin “thinking slow” and respond in a thoughtful way—this is the second thing that happens when I learn about a flight test crash.

I am deliberate in the line of questioning that I ponder: “Could this have happened to me?” It takes humility to seriously contemplate this idea, and most of us aren’t models of this particular character trait. I believe that we have certain responsibilities, as flight test professionals and as humans, when things like this happen. Introspection is one of them. I ought to audit my own behavior, performance, and subjective response.

Another responsibility is a quantitative response. I should count the accident. This is a technical responsibility—I ought to update my subjective probability. This is a difficult concept fraught with opinions. Look at the recent crash of an [eVTOL prototype](#). None of us have experienced this until now, so the event informs and adds to our repository of knowledge. It is data. It is an objective fact that an aircraft crashed while conducting an unmanned test flight in a remote area of California. It’s possible that you had not heard that yet, and acquiring this information will begin your emotional response. That’s natural.

This crash is not subjective—it is objective. It is also quantitative data—one crash. It is something we all should know. It’s not hard to count. It should inform our beliefs about the probability of these kinds of events.

The event did many things. Discussing the event revealed gaps in our knowledge—it affected our heads and our hearts—because sometimes we do let the emotion cloud our judgment, and sometimes we learn about a new subdomain of our profession. As the Flight Test Safety Committee discussed the accident, both of these things happened, and there were several very useful lines of discussion. For example, the fact that no one was injured or killed is objectively good. This happened because the optionally piloted aircraft was unmanned at the time of the component failure. The unmanned aspect of the test created a line of discussion that informed some members who lacked experience in that domain. That is a good thing.

As the Flight Test Safety Committee discussed the accident even more, I noticed both things happening: the emotional response that clouds our judgment and new knowledge acquisition. I offer again the same recommendation: I should humbly reflect. As I do, I am reminded that I believe I should treat others the way I want to be treated. Furthermore, I believe we should all act this way—I think every individual in our profession, every reader, should act this way. In my opinion, if you don’t agree with this human behavioral norm, I think you are wrong, but it is neither offensive nor objectionable for us to disagree. It is highly likely—I’d say there’s more than a fifty percent chance—that we will make different decisions about how to act.

I think we would agree, that if I were in the cockpit, I ought to observe the facts when they occur. It is my responsibility to describe what I see when it happens in real time. However, there are some conclusions that I should not make until I have had time to thoughtfully analyze data. It is possible to do both professionally. We will learn more about this accident once the investigation is complete. But until then it is possible to question what happened as a way to gather facts, and I believe we should. We should observe and wait for

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sufficient data to draw conclusions. Along the way, it is possible to disagree with one another and to do so professionally, and I believe we should.

Our final responsibility complements the publication of Dave Houle's database, the previous article in this issue of the Flight Test Safety Fact. **We ought to collect and organize the data from these accidents.** By doing so we inform the intellect of flight test professionals, so our subjective probability is more than just a guess, because "engineering is done with numbers. Analysis without numbers is only an opinion" (David Akin).

In conclusion, these kinds of articles have appeared here before and make up a theme in this newsletter: for example, "24 Dead in 15 Accidents" was published [in the first issue](#) of FTSC. We still haven't figured out how best to collate this data, as seen in the Houle collection above or an open repository of more recent data in a place where anyone can contribute (url below). **We need to figure out how to keep this info accessible and relevant.** And just maybe that's crowdsourcing the data on github or in the Houle collection. [https://github.com/flighttestfact/flighttestfact.github.io/blob/master/data/FTSC\\_data\\_flight\\_test\\_accidents\\_20190104.csv](https://github.com/flighttestfact/flighttestfact.github.io/blob/master/data/FTSC_data_flight_test_accidents_20190104.csv)

## Turbo Talk – Chairman's Corner

*Art "Turbo" Tomassetti*

We have about a month to go until our Flight Test Safety Workshop, from 3-5 May in Palm Gardens, FL. Registration for the event is open. The theme of the workshop is "Can organizational culture play a factor in flight test safety?" The first day will be a tutorial where we will explore how culture underpins an effective SMS and safer flight test operations. We call it a workshop for a reason, as attendees will work together to formulate reasonable and meaningful objectives that could be used in your flight test organization to boost safety emphasis and improve performance. Day 2 and 3 will be technical paper presentation portion of the Workshop, we will hear from testers on their experiences regarding organizational factors – both good and bad – that played a role in the conduct of flight testing.

I am looking forward to the event and hope to see many of our readers there. Now I am probably expected to say that as I am the Chairman of the Flight Test Safety Committee. So I do have somewhat of an obligation to go. But I always looked forward to this event even before my time as Chairman and made every effort to attend. The workshop theme and the tutorial that typically takes place on day one makes this event a little different than other flight test symposia. Additionally, the audience is always diverse and representing many aspects of flight test that exists today. Those are the unique pieces. Not so unique maybe are the information that is presented and networking opportunity that exists. Occasionally these are the forums where we learn what happened, or maybe what didn't happen. If I had to explain to my boss why I should attend I would try to use these aspects in that pitch. The ROI (return on investment) being that I come back better. No, I can't quantify it, but a qualitative self-assessment bears it out. Maybe it satisfies your boss maybe it doesn't. Here's the thing for me though, on a personal level that ROI is worth the price of admission. Sometimes I even get to play a small part in making someone else better. And every now and then I get to play a part in making others better at this event. I have learned never to miss those opportunities.

So I still value all of these aspects even in the retirement chapter of my "life book". If you have spent any time in the profession of flight test there were likely underlying attributes that brought you to it and maybe, kept you in it. A desire to solve problems, a willingness to meet challenges and maybe even simple curiosity. For me all of those attributes are reinvigorated when I attend this event.

That's my sales pitch, thanks for reading.

Until next time: Be Safe, Be Smart and Be Ready.

**Turbo**

### **Subscribe to our Podcast**

**Rehearsal** was the topic of January's podcast, and Turbo also discusses how to make "Lessons Learned" part of the culture and policy in our organization. It doesn't take long to subscribe, and it takes even less time to recommend it to a colleague. Please subscribe to the Flight Test Safety Podcast on the [Apple](#) or [Google podcast app](#). You can also navigate directly to the recording in [a web browser](#) and leave comments on these sites.

Podcast: [ftschannel.podbean.com/](https://ftschannel.podbean.com/)

### **Contact Flight Test Safety Committee**

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**Editor's note:** Susan, who normally manages the administration of the FTSC, is on family leave, and she will not answer your email. Laurie ([laurie@setp.org](mailto:laurie@setp.org)) has graciously stepped in during her absence.