



Aiming for the Moon

Someone once said, “You don’t land a spaceship on the moon by aiming carefully.” This simple phrase is the whimsical, thematic thread that ties together the first three columns. First, it seems like an important application of the Apollo analogy introduced earlier this year, and in this issue of the FTSF, I want to apply it to life. Second, it connects directly to Artemis II. Finally, after a short survey, I concluded most people in my office don’t know that there has been important headlines that most of us overlooked, and since I suspect it’s true in general, I summarize it here, in hopes it informs and inspires readers. Here they are in reverse order.

NASA Aims for Better Safety Culture

Two young FTEs in the office just asked me if there were any examples (publicly reported flight test safety facts as it were) that illustrated or discussed other organizations, their challenges with safety culture, and the way they tackled the pressure of the cost-schedule-performance trifecta. I asked if they knew about the NASA Administrator’s comments and widely publicized memo, but they did not. NASA Administrator Jared Isaacman is making both technical competence and safety culture the target of his next moonshot: “To undertake missions that change the world, we must be transparent about both our successes and our shortcomings. We have to own our mistakes and ensure they never happen again.” You can watch the Administrator’s comments at the press conference and find a link to the full report here: <https://www.nasa.gov/news-release/nasa-releases-report-on-starliner-crewed-flight-test-investigation/>.

In January, Isaacman published a similarly inspiring Workforce Directive, but his words seemed like something *more* than corporate jargon. Below is an excerpt that I found particularly inspiring.

- **Duty and Competence:** Working at NASA is a privilege. To serve in the world’s most accomplished space agency, you need to be dedicated to excellence in your profession.
- **Mission-Driven Intensity and Urgency:** Maintaining a bias toward action and achieving objectives in support of the mission is the highest priority of every NASA Employee.
- **Ownership and Accountability:** We own our responsibilities and the outcomes. Every project, problem, part, and requirement has a clear owner.
- **Recalibrated Risk Framework:** We will ensure safety is at the forefront of our decisions but achieving the mission of NASA means accepting that some risks are worth taking.

(Reference: <https://nasawatch.com/ask-the-administrator/isaacman-prime-directive-recognize-reward-inspire/>)

In both cases, we have a chance to watch in real time, if our theories about culture, safety, and human behavior will prove true.

Aiming for the Moon – Real World News

The Artemis II mission, which we ought to remind ourselves was a flight test, was a success, though not without its hiccups. I have several observations. AI didn’t fix the toilet malfunction, which is a tongue-in-cheek observation that may remind you that I’m bearish on AI. Seriously though, it was [an NC State alum that saved the day](#). I wonder if that failure mode was in the STPA. In her comments for the Wolfpack’s article covering her involvement in Artemis II, Koch said, “The responsibility of an astronaut is to share what we see.” I actually think that’s a deep thought, and I wonder if you would tell me if you agree. I’ll be walking around the Flight Test Safety Workshop looking for opportunities to “quote you on that,” or you can respond by email. I like her train of thought. If that doesn’t reinforce everything you’ve ever heard me say about “observation” as the test pilot’s superpower, then I don’t know what does, but I do agree. I haven’t found the reporting I was looking for that gave a nice roll-up on technical lessons from Artemis II. I did find this: <https://spacenews.com/nasa-compiling-lessons-learned-from-artemis-1/>. Now we have a chance to validate our “lessons learned.” This quote from the article stood out: “The effort also involved experts in knowledge capture to ensure that the lessons learned are, in fact, learned.” I think I have heard those exact words more than once at a symposium or workshop. It continues, “It’s not just about documenting the lessons. It’s about the behavior and process of transferring those lessons to individuals.” There was one fascinating vignette from the mission that I am aware of, for which we have a few details: Helium leak. Fact: they knew there was a helium leak. Fact: available data did not lead them to root cause. Fact: they designed test procedures to help them collect additional data to understand the problem. Fact: they had to leave the service module in space, so they won’t get to do a physical inspection of the leaking component. This is all very interesting to think about and gives me a pleasant feeling. Finally, two other things were notable, in my opinion. The picture below of the solar eclipse was beautiful in the true sense of the word, and that sentence has several words which may not find their target in the audience of technical readers, but I hope they do. Pilot and Astronaut Victor Glover has had a lot of good things to say, which aren’t technically about flight test safety, but they do add good to the world. Here are some highlights which I commend to your reading: [Artemis astronaut Victor Glover reminds Americans of ‘most important’ mystery on Earth](#) and [Artemis II earns Glover new Nickname](#). If you were watching the re-entry and splashdown, then you might recall that the recovery parachutes of the Orion capsule underwent flight test after an airdrop from a C-17, a topic [that has appeared in these pages before](#) and has relevant lessons for

Scroll down for...

A photograph of the moon and space that conveys beauty, truth, and goodness

Chia Chat – words of wisdom from the president on the occasion of his third FTSW

Food, fun, and fitness in Fort Worth – FSTW Prerequisites for travelers, merriment seekers

On Conditions, the Flight Test Safety Podcast

today's flight test safety audience. Also, April 14, 2010 just so happened to be the date of one of the airdrops of the recovery parachute test for the Ares part of the SLS.



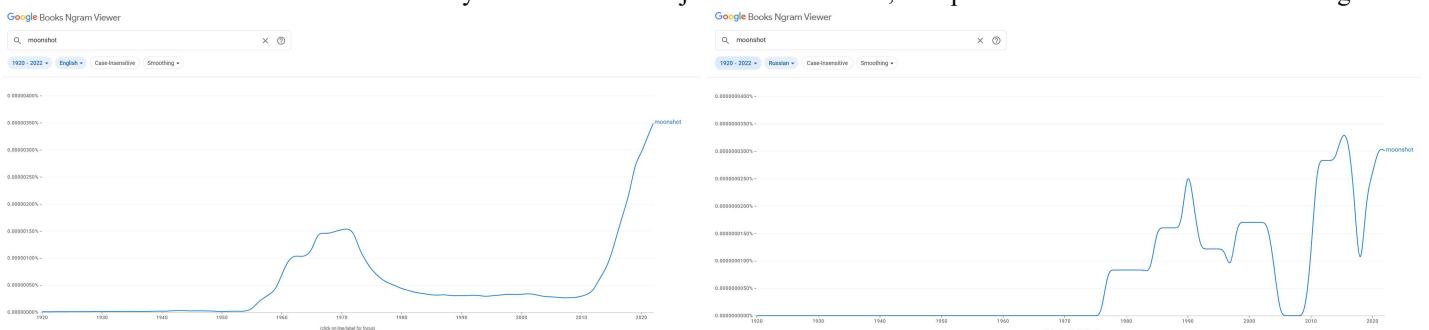
NASA photo

Bonus Content: Space Travel in Popular Culture

Since we talked about culture, in the last issue, I wanted to share news about the movie Project Hail Mary. It is getting favorable reviews and applies to us in ways you might not expect, as seen, for example, in this reporting: <https://thefederalist.com/2026/03/31/project-hail-mary-shows-how-self-sacrifice-overcomes-stifling-anxiety/>. This quote jumped off the page: “You do not find meaning by minimizing risks. You find it by choosing to act when fear tells you not to.” I agree. Heartily.

Etymology of the Word “Moonshot”

Personally, I have mixed feelings about the word “moonshot.” On the one hand, I object to the fact that it’s a single word. Too often these days, we turn phrases into single words, and I’m not sure I like the trend. Personal preferences aside, we see that Cambridge defines the word as you would expect: “a plan or aim to do something that seems almost impossible.” The definition reminds me of the second cause I have for dismay—too many people use the term in situations and scenarios that are not “almost impossible.” It’s like shrinkflation but with words. Don’t say “moonshot” if it’s just “hard.” Instead, be a person whose word means something.



Frequency of the word “moonshot” in English books (left) and Russian books (right)



Nevertheless, the idea—embodied by the quote introduced in the opening paragraph—overcomes the shortcomings of the overused word and conveys something deeper. It manages to activate something in my head and heart. “You don’t land a spaceship on the moon by aiming carefully.” When I read or hear the phrase, the roar of thoughts and complementary emotions begins. Launching those ideas is important, but landing them precisely, in your head and heart is the real goal.

In January we discussed launching into a new year and navigating the unexpected aspects of the trip. This month, we approach the first “post launch” milestone in our journey around the sun as an industry, and that milestone is the Flight Test Safety Workshop. It gives us the first opportunity to measure our trajectory and shed the now-empty-of-fuel-rocket-stage that got us here. It gives us an opportunity to apply course corrections and decide if we can even attempt the next “burn,” the one that will send us on the next leg to the moon. This is the first application of the “aiming carefully” idea.

Now we’ve arrived at the part of the essay that requires careful rumination. When you first read the quote, did you agree wholeheartedly, disagree vehemently, or did you simply just absorb it thoughtfully? Do you know why you responded that way, and if so, would you be willing to share? A second line of questioning naturally follows. What are you setting your sights on? What about your team or organization—what are they setting their sights on? Is there a tendency to over-hype the ambition? A first flight by almost any OEM isn’t a moonshot. Neither is the company’s latest “innovation” project. There are, legitimately, very few **actual** moonshots, and I’m not even certain that the latest NASA campaign rises to the level of accomplishment that merits the term, even though it is literally—in the actual sense of the word and not the popular figurative meaning—a moonshot. But here again, I start to get annoyed. A moonshot isn’t a shot.

The word “shot” conveys careful aiming, a single opportunity to shape a ballistic trajectory. It suggests that you squeeze the trigger, and, with a single “BOOM,” achieve success. Articulating the opposite of this simple illusion is the whole point of the quote. Can we imagine the sheer complexity of the ambition of the original Apollo program? Experience is perhaps the only teacher that can convey how many dominoes must line up, and in real moonshots, we have very little knowledge about the problem beyond the first few dominoes. Planning is exhaustive and may not uncover even a small fraction of the branches on the decision tree. In cases like these, many, many people simply do not have the endurance to land their ideas on the moon because of the magnitude of steps required to arrive at the destination. Still more will never succeed because we are ill-equipped to navigate the uncertainty we cannot imagine, uncertainty that we will most certainly encounter. I want to qualify the uncertainty and explain how we can prepare for it.

One lesson of Apollo 13 is that we will face extremely disruptive and potentially destructive uncertainty. It simply cannot be avoided. Success demands peak performance. Real peak performance, not over-hyped average performance with insincere labels. It will take everything within us to solve problems, the character of which we cannot even imagine. Do we know what it takes to reach that level of performance? Do we have the will to reach it? Something in me believes we have lost sight of the “what it takes.” We have forgotten this truth: “The electric light did not come from the continuous improvement of candles” (Oren Harari).

Let me get to the point before signing off. There are two. The Workshop is a great opportunity for us to look toward the future and articulate the kind of vision that can mobilize an entire nation for a decade of true “nearly impossible” work. But that kind of vision starts from deep inside where a fire is burning hotter than the Orion on re-entry. I think it’s worth the risk of getting burned.

Chia Chat

I really hope you enjoyed this edition of the Flight Test *Safety Fact*. I am sure, like most of our readers, we all watched the Artemis II mission closely and were just as excited to see humanity once again, exploring far from home. Humanity needs to be bold in order to open up new possibilities for future generations. In addition, I definitely like our new NASA Administrator’s Workforce Directives, especially this one: “Recalibrated Risk Framework: We will ensure safety is at the forefront of our decisions but achieving the mission of NASA means accepting that some risks are worth taking.” My personal pet peeve is when organizations say they put safety first and—as I like to repeatedly remind our flight test team at Textron Aviation—that is a complete falsehood. Going to the moon is not putting safety first. We only move forward when we accept risk. The correct question that we need to ask ourselves is, is it an acceptable level of risk? And that answer is different from organization to organization and mission to mission. As an example, I had a conversation recently about why our standard is a minimum of 150 ft wide runways for performance testing, but the THAs for unimproved runways require a minimum of 100 ft wide runways. Surely the unimproved runways will have a safety benefit from having a wider runway. The problem is (other than “Stop calling me Shirely”) how many 150 ft wide unimproved runways are there to choose from. And which of them have close or onsite crash, fire rescue, longer lengths and other facilities that can help reduce the overall risk. A test program could be so constrained that the organization’s ability to successfully execute a test program is doomed before you even start. So why not lower the standard for paved runways too? Because our organization accepts a higher level of risk for unimproved runway performance testing but not for paved because we don’t need to in order to achieve the mission. Some folks will think Artemis II was not an acceptable level of risk for what it achieved, but clearly NASA as an organization did and I couldn’t be more excited to see us one step closer to being back on the moon, and this time permanently!



In other news, the North American Flight Test Safety Workshop in Fort Worth, TX is just a few weeks away and I can't wait for the one of the most important "products" of the Flight Test Safety Committee. As I mentioned in the last newsletter, we have received some great paper submissions, and I think the workshop team has created an excellent line up. In addition, with the tutorial focusing on Flight Test CRM, you don't want to miss this event. This should be a great two-day Workshop, and I am very much looking forward to our second Awards Banquet on Wednesday evening where we will recognize those individuals who have made significant contributions to Flight Test Safety. If you can't make it, no worries, we will be recording most of the papers and they will be available online so you can catch up afterwards. However, being there in person and having the chance to network with others is truly invaluable and I hope you can make it.

On a different topic, our new LLM driven FTSC Paper Database Search Tool is about to make a dramatic transformation. We have just started beta testing of the replacement of the Flight Test Safety Database. This is Phase One, which includes the existing database, which we hope to expand in Phase Two to allow the addition of new THAs. I am hoping we will have the tool update released just in time for the FTSW. As always, we are seeking feedback on this tool since we can adjust the various "levers" of the LLM to ensure the best results are provided to the flight test community. Please forward any feedback you have on the results, along with the queries to either me or Susan. We need SMEs to put queries to the LLM so they can properly critique it!

Related to our LLM tool, I appreciate all the suggested name submittals. I plan to put them to a vote at the upcoming FTSW, so just another reason to be there in person. If you still have an idea for a name, please forward it along to the FTSC.

Thanks again for taking the time to read this newsletter. Please forward it amongst your organizations and fellow flight testers. Remember, keep identifying and managing those risks!

Stuart "Chia" Rogerson

Food, Fun, and Fitness in Fort Worth – FSTW Prerequisites

One of the first things I do after checking into a hotel is worry about sustenance, so I am already thinking about Fort Worth and the coming Workshop. This is basic Maslow, the first F in the alliterated list you encountered in the title of this column, and I am a "seltzer foodie," if such a thing exists. I wondered what kind of seltzer I might find near the hotel when I get to Fort Worth, but an internet search only revealed that a local brewery had invented "hot dog water" flavored seltzer. Too risky for my tastes. Anonymous sources shared the following F³ data **Food:** Downtown Fort Worth has great restaurants and a great watering hole, the Flying Saucer, which you can find here: <https://www.beerknurd.com/fort-worth-flying-saucer/>. It's only thirteen minutes from the hotel. BONUS: there's also a Flying Saucer Emporium in the DFW airport, so you can try it out before you even get your rental car.



WANT TO LOOK GOOD? GRAB SOME SAUCER MERCH. **Flying Saucer** **SERVING GOOD BEER TO GOOD PEOPLE SINCE 1995**

SHAREABLES

- TOSTADA CHIPS & QUESO** A big ass bowl of queso served with fresh house-made salsa 12.99
- CHEESE FRIES** Loaded with cheddar-jack, bacon, chives and jalapeños, served with ranch 12.99
- SAUCER WINGS** 10 hot wings served with celery, carrot sticks, and bleu cheese dressing. *Your pick: buffalo, sweet red chili, lemon pepper, or BBQ* 12.49
- BAVARIAN PRETZELS** Two Big Soft Pretzels with two compliments: Beer Cheese, Queso, Cream Cheese, or Spicy Mustard 15.49
- BRATZEL** Large Soft Pretzel topped with sliced Bratwurst, Swiss Cheese, and served with side of Spicy Brown Mustard 13.99
- MEAT & CHEESE PLATE** Sliced jalapeño sausage and seasonal cheese, served with pickles and onions 15.99
- BEERFEAST** (feeds 3-4) assortment of meat and cheeses and served with pretzel bites and crockers 23.99

STOP MISSING OUT. JOIN THE UFO CLUB

FRESH GREENS **KNIFE & FORK**

Dressings: balsamic vinaigrette • bleu cheese • jalapeño vinaigrette • Italian • honey mustard • ranch • 1000 Island

- GARDEN SALAD** Mixed greens, tomatoes, calamata olives, red onion, mushrooms and Italian dressing. 6.49
- COBB SALAD** Grilled chicken breast, mixed greens, tomatoes, avocado, egg, potato, bleu cheese crumbles with your choice of dressing 14.99
- AUREN'S GOAT CHEESE SALAD** Spring mix, cranberries, goat cheese, tomatoes, walnut, red onions and balsamic vinaigrette. 12.99 *(Add Chicken Breast or Burger Patty for \$4 and Salmon \$4)*
- GERMAN PLATE** Beer bratwurst with house made German potato salad, sauerkraut, roasted tomatoes, and spicy brown mustard 16.99
- HONEY-DIPPED CHICKEN** Mashed potatoes with mild jalapeño cream gravy and vegetable of the day. The "King" of comfort food. 15.99
- GRILLED SALMON BOWL** Salmon, cilantro lime rice, greens, peppers, cucumbers, radishes, carrots, avocado, soy caramel, and Sriracha aioli 19.49
- PERFECT BOWL** Grilled beef patty, cilantro lime rice, broccoli, and Thai chili sauce 15.99
- PACO BOWL** Grilled chicken, cilantro lime rice, black beans, roasted corn, pico de gallo, avocado, queso fresco, and salsa roja 15.49

HAND TO MOUTH

All hot sandwiches are served with your choice of hand punched fries, sweet potato fries, vegetable of the day, or a side salad.

- SAUCER BURGER** Black Angus beef, mustard-mayo, red onion, lettuce, tomato, and pickle 13.99 *(Ask your server how)*
- THE BIG DIPPER** Seasoned roast beef, melted Swiss cheese, arugula, and horseradish-mayo on a hoagie roll.

Yes, it's a small picture of the menu, but you can resize it yourself if you really want to read it.

Fitness: The best running trail is along the Trinity River that has a multiuse path that runs for quite a few miles through Fort Worth. Check out Harmon Field Park (11 minutes from the hotel) on your phone's map app for a good place to start your journey down the rabbit hole on information, or check out this link: <https://www.fortworthtexas.gov/departments/parks/parks-and-trails/harmon-field>.

Fun: Good entertainment and shopping in the stockyards if you want to feel and look like a cowboy. Rangers come back in town on Friday for some home games vs the Cubs in the new Arlington stadium.

The Bell team put together an entire spreadsheet for our merriment. Special thanks to Amit, for collating the input from his colleagues.



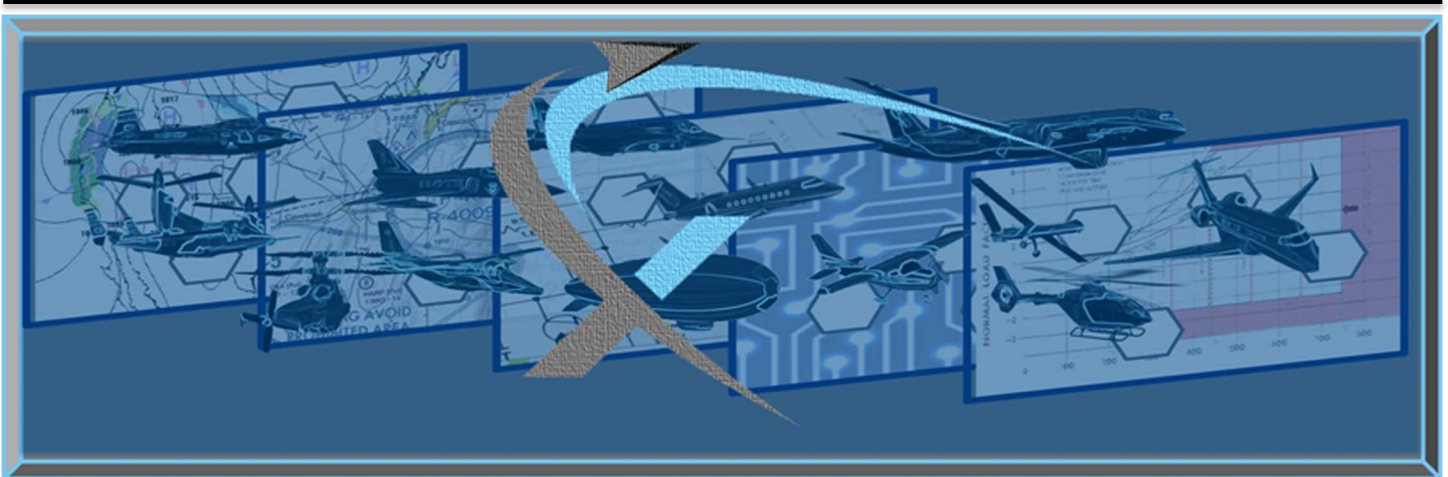
NOTE 1: If the evening calls for heightened levels of merriness, Uber is available in Fort Worth.
NOTE 2: The following information is related to transit trains. Stations & train routes may be viewed using Google Maps ("Transit" layer) or Apple Maps ("Transit" option with destination entered). A day pass is \$4 and a single ride pass is \$2.
 - The TexRail train runs from the Fort Worth T&P station to Dallas-Fort Worth Airport (KDFW). Link: <https://ridetrinitymetro.org/textrail-schedule/>.
 - The TRE train runs from Fort Worth T&P Station to Downtown Dallas EBJ Union station. Link: <https://trinityrailwayexpress.org/stations/#schedules>.

FOOD / DINING	Merriness (Fun & All)	OUTDOORS
Woodshed Smokehouse	The Usual	Trinity Trail
Panther City Barbecue	Maple Branch	Rocky Creek Park
Pulido's Kitchen & Cantina	Fort Brewey	Fort Worth Nature Center and Refuge
The Tavern	River's Cocktail Bar	Fort Worth Botanical Gardens (<i>proximity to Trinity Park</i>)
The Cookshack	Chimi's	Fort Worth Zoo
Walloon's	Cidercade	Fort Worth Water Gardens
Maggie's R&R	Second Rodeo	Sundance Square (Fort Worth)
Cane Rosso	Fort Worth Stockyards (<i>proximity to various other establishments</i>)	
Rodeo Goat	The Bearded Lady (<i>fun burger spot with trivia nights</i>)	
Paloma Suerte	HopFusion Ale Works	
Cattleman's Steak House	Rhar & Sons Brewing Company	
India Grill Indian Restaurant and Bar (<i>proper biryani dishes that are excellent</i>)	Thompson's Bookstore Speakeasy	
Cafecito (<i>great breakfast</i>)	Flying Saucer Draught Emporium	
Panther City BBQ (<i>great local BBQ</i>)		

Honorable mention: Billy Bob's (Food), a Japanese Botanical Garden (Fun), and only ten minutes west of the hotel is a WalMart.

2026 Flight Test Safety Workshop Sponsored By:





Subscribe to our Podcast

Available on iTunes, Spotify, Podbean, Google Play, and Amazon Music: FTSCChannel

<https://flighttestsafety.org/ftsc-news/flight-test-safety-podcast-channel>
<https://ftscchannel.podbean.com/>

Episode 76 – In this episode an AI naming contest (actually a Top Ten list!) and Turbo’s interview with Eric "Pinto" Mitchell. Pinto and Turbo talk about weapons testing, dynamic flying challenges and Go No-Go decisions.

Connect with us by joining the LinkedIn Group: “Flight Test Safety Committee.”

Contact Flight Test Safety Committee

Stuart “Chia” Rogerson, Chairman chairman@flighttestsafety.org
Susan Bennett, FTSC Administrator susan@setp.org
Society of Flight Test Engineers edir@sfte.org
Society of Experimental Test Pilots setp@setp.org
AIAA Flight Test Group derek.spear@gmail.com

Contact *Flight Test Safety Fact*

Mark Jones Jr, Editor

mark@flighttestfact.com

Website: flighttestsafety.org

If you have read this far, think about submitting a letter to the editor so there isn’t any whitespace, even though whitespace doesn’t really matter in the twenty-first century.