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SAFETYWIRE

FAA SAFO: Shipments of Batteries/Battery-Powered Devices and Flammable Materials

(Source: FAA SAFO: 24007, October 15, 2024)

U.S. Department
of Transportation
Federal Aviation
Administration

SAFO
Safety Alert for Operators

SAFO 24007
DATE: 10/15/24

Flight Standards Service
Washington, DC

Subject: Shipments of Batteries/Battery-Powered Devices and Flammable Materials.

Purpose: This SAFO alerts aircraft operators to safety concerns involving cargo shipments that may contain batteries, battery-powered devices, or analog or electronic timing devices in combination with flammable materials (e.g., flammable liquids, flammable solids, flammable gas).

Background: Hazardous materials have been a factor in multiple aviation accidents over the past few decades, revealing an elevated risk when carrying certain quantities of hazardous materials, such as flammable aerosols, gases, solids, explosives and lithium batteries. Lithium batteries and lithium-battery powered devices can act as an ignition source and/or contribute significantly to a fire once ignited. In all instances, aircraft operators must know what is being carried aboard their aircraft and ensure that hazardous materials accepted for carriage comply with the Hazardous Materials Regulations Title 49 of the Code of Federal Regulations (49 CFR) Parts 171-185; HMR. However, these regulations do not address the aircraft-level risk posed by an aggregate shipment of these items. In the absence of other controls, certain cargo shipments can exceed the capabilities of design features of aircraft fire protection systems required by 14 CFR part 25 §§ 25.851, 25.853, and 25.855 through 25.858.

Discussion: The holiday season is rapidly approaching, when the number of packages, including electronics, entering into the aviation cargo stream significantly increases, warranting a review by aircraft operators of their procedures and checklists specifically addressing recognition, differentiation, and mitigation of odors, smoke, fire and/or fumes in the aircraft. Events involving odor, smoke, fire and/or fumes may require targeted and timely action to protect the aircraft, aircrew and passengers.

Recommended Action: The Federal Aviation Administration (FAA) recommends aircraft operators review their Safety Risk Assessments (SRA) through their Safety Management System (SMS) processes to ensure they have identified and mitigated the risks associated with the carriage of certain quantities of hazardous materials, such as flammable aerosols, gases, solids and explosives, and lithium batteries. To ensure the proper preventive controls and risk mitigations are in place for cargo fire events, operators should review Advisory Circular (AC) 120-121—Safety Risk Management Involving Items in Aircraft Cargo Compartments, and conduct SRA, as appropriate.

Under their existing SMS structure, operators should review:

- The adequacy of existing preventive controls to ensure cargo, including undeclared hazardous materials, onboard the aircraft will not cause a fire that exceeds the capabilities of design features of aircraft fire protection systems.
- In-flight procedures for actions to be taken during odor, smoke, and/or fume events to ensure their flightcrews are thoroughly familiar with those procedures.
- Guidance for crews, including, when appropriate, security information that can be disseminated through appropriate internal channels (e.g., Sensitive Security Information bulletins, manuals, etc.) as specific concerns are identified.
- Applicable international standards regarding equipage of fire protection systems and applicable risk assessment elements.

Contact: General questions or comments regarding this SAFO and/or cargo-specific subjects should be directed to the Air Transportation Division at 9-AFS-200-Correspondence@faa.gov or (202) 267-8166. Questions regarding hazardous materials should be directed to the Office of Hazardous Materials Safety at hazmatinfo@faa.gov or (405) 954-0088.

http://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/safo/all_safos

A SAFO contains important safety information and may include recommended action. Besides the specific action recommended in a SAFO, an alternative action may be as effective in addressing the safety issue named in the SAFO. The contents of this document do not have the force and effect of law and are not meant to bind the public in any way. This document is intended only to provide clarity to the public regarding existing requirements under the law or agency policies.

Please Wait Your Turn - The Importance of Properly Heeding "Line Up and Wait" Instructions

(Source: Kent Koran; FAA Safety Briefing, September 04, 2024)

In February 2023 at Boston's Logan International Airport (BOS), a Learjet 60 departed after being instructed to line up and wait on Runway 9 with an Embraer 190 cleared to land on Runway 4 Right. The Embraer went around, and the Learjet crossed Runway 4 Right only about 330 feet in front of the Embraer.

Then in September 2023 at Sarasota/Bradenton International Airport (SRQ), a Beechcraft Bonanza instructed to line up and wait on Runway 14 departed while a Piper *Archer* was on final for Runway 4. ATC told the *Archer* to go-around. The *Bonanza* passed beneath the *Archer* over the intersection of the two runways.

In October 2023, a Hawker 25, was instructed to line up and wait on Runway 22 at Houston's William P. Hobby Airport (HOU). The pilot read back the line up and wait instruction and taxied onto the runway. Then the plane began its takeoff roll. The controller told the aircraft to stop and hold position, but the aircraft continued its takeoff and collided with a Cessna *Citation* that had landed and was rolling out on Runway 13R. Luckily, only the left winglet of the Hawker and the tail cone of the *Citation* touched (see below) and no one was killed or injured.

Aft view of tail cone damage to the Cessna Citation cited in the accident at Hobby Airport. Photo courtesy of NTSB.

These were not the only instances of aircraft instructed to line up and wait but instead of waiting, started their takeoff roll. In fact, there were more than 25 such events in 2023 alone, with operators ranging from single-engine general aviation (GA) aircraft to air carrier jets with two pilots.

“Line up and wait” is used by ATC to inform a pilot to taxi onto the departure runway to and hold position until cleared for takeoff. It is not authorization for takeoff. It is used to pre-position a departing aircraft on the runway when it can’t yet be cleared for takeoff due to other traffic, for example:

- a preceding arrival that is still on the runway,
- an aircraft taking off or landing on an intersecting runway, or
- an aircraft or vehicle crossing the runway downfield.

This can significantly increase the capacity of an airport because aircraft can already be on the runway when the traffic clears, rather than having to taxi onto the runway from the holding position.

Controllers conduct line up and wait operations according to strict rules, but those rules don’t mean anything if pilots line up and “GO” instead of line up and “STOP.”

So, why do pilots depart when they are instructed to line up and wait? The answer lies in a variety of human factors that can lead pilots to mistakenly depart.

Expectation bias occurs when individuals are primed to receive and interpret information in a way that aligns with their anticipated outcomes, rather than objectively assessing that information. In the case of line up and wait, it is natural to expect a takeoff clearance when holding short of the runway. But if a pilot fails to anticipate that the next logical step could also include line up and wait, what the controller actually said and what the pilot understands may not be the same. That expectation bias may be so powerful that it can even override a line up and wait clearance that pilots have read-back correctly.

> "Line up and wait" is used by ATC to inform a pilot to taxi onto the departure runway to and hold position until cleared for takeoff. It is not authorization for takeoff.

A phenomenon called habit intrusion may cause normally practiced steps to be so compelling as to override any ATC communications. For pilots who are not accustomed to performing line up and wait, the mere act of taxiing onto the active runway, the act of completing checklist items, or even that view down the runway may be so closely associated with the takeoff roll that performing the takeoff becomes a force of habit.

Our vision provides some of the most powerful cues to the world around us. As mentioned above, the visual cues when looking down the runway in line up and wait status are the same as when lined up for takeoff and can be so compelling that it causes pilots to forget they were told to line up and wait.

Line up and wait is a two-part instruction. The first part, line up, is done immediately. The second part, “wait,” is a requirement for future action. The requirement to remember to do something in the future is known as “prospective memory” and it presents a unique mental challenge, namely that we must remember to perform an intended action in the future; in this case “waiting” after lining up on the runway.

Voluntary reporting system reports regularly indicate that distraction is a factor in line up and wait events for both GA and commercial operations. The primary task while taxiing from the hold line to the runway centerline is to safely maneuver onto the runway and hold position. Anything else you do during this period, such as non-operational conversations, completing checklists, or programming avionics, is a distraction that could cause you to forget that you were told to line up and wait.

What can you do to prevent departing when instructed to line up and wait?

- Actively listen to what ATC is saying — think about what the controller actually said before you respond.
- Clearly read back the instruction to line up and wait, including the runway designation and your callsign.
- Think about the traffic that is restricting ATC from giving you a takeoff clearance. Unless it is obvious, like an aircraft that just landed and is rolling out, the controller should tell you about the traffic. Keeping the traffic in mind will help fight the instinct to take off due to the visual queue of being lined up on the runway.
- Minimize distractions by:

  🔧 Maintaining a sterile flight deck while taxiing onto and holding on the runway awaiting your takeoff clearance or other instruction. This includes not using personal electronic devices.

  🔧 Completing pre-takeoff checklist items before crossing the hold line — wait to complete any remaining items until cleared for takeoff.

  🔧 Responding that you are not ready and will hold short if you are not ready when ATC instructs you to line up and wait.
- Develop and use a memory aid to help you remember you are in line up and wait, such as:

  🔧 Turning on the landing light only when cleared for takeoff and then check the position of the landing light switch before adding power — if it's not on, you haven't been cleared for takeoff.

  🔧 Start a flight timer when you receive your takeoff clearance and check it before beginning your takeoff roll — if the timer is not running, you haven't been cleared for takeoff.

  🔧 Write down "line up and wait" — cross it out when you receive your takeoff clearance — and develop a procedure to check it before beginning every takeoff roll.

  🔧 For two-person crews — both pilots should concur that you are cleared for takeoff (challenge & response) before adding power.

One other point: No matter what instructions or information you hear while taxiing onto the runway or waiting in position, for example “on departure fly runway heading maintain 4000,” you are not cleared for takeoff unless you hear your callsign and “cleared for takeoff.”

So, what are you going to do to avoid departing when you are told to line up and wait?

As always, if you are ever unsure about your clearance, ask ATC. They would rather hear “Confirm N7241R is cleared for takeoff” than see you rolling down the runway toward a conflict.

Kent Koran is a program manager on the FAA’s Headquarters Runway Safety Team.

This article was originally published in the September/October 2024 issue of FAA Safety Briefing magazine. https://www.faa.gov/safety_briefing

Work Safe: No Place for Recklessness - Bad aviation decisions hurt more than just the person who makes them.

(Source: Zac Noble; POWER UP Magazine)

How many times have you reminded yourself or others that just because you can do something doesn't mean you should do it? For me, in my life and my career, the answer is "a lot."

In aviation, one bad decision can begin a chain of events that leads to an unwanted career change, the loss of one's pilot or mechanic certificate, or, worse, tragedy.

Lately, I've observed several instances of poor aeronautical decision-making that could have caused serious problems.

Taking Off in Confined Areas

In one case, a helicopter took off from a confined area at an airport. What made the area confined was the temporary placement of people, tents, and other aircraft in very close proximity to the running helicopter. Some people likely didn't comprehend the power of the aircraft's rotor wash and the hazards it presented.

Looking back, I think the person(s) who made the decision to take off under those conditions should review 14 CFR 91.13, Careless or Reckless Operation, a rule I'm sure most of us are familiar with. In simple terms, the regulation states that "no person may operate an aircraft in a careless or reckless manner so as to endanger the life or property of another." Paragraph (b) of the rule extends that language to airport operations.

Other, safer options did exist at that airport. For example, to ensure everyone's safety, authorities could have decided to tow the helicopter into another position for departure.

Did an emergency require the helicopter to lift off in that environment? I don't know. I can say, however, that the aircraft wasn't an air ambulance.

I can also say that the operator that day was very lucky. With them having forged the first link in the accident chain by taking off in a confined area with multiple hazards present, the rest of the accident chain didn't materialize—that time.

Obstructing Other Aircraft Movement

On another occasion, I saw a helicopter pilot occupying the runway of an uncontrolled airport seemingly without concern for other aircraft needing to use it. Pilots who were attempting to land were forced to perform go-around maneuvers because the runway pilot failed to respond to radio calls on the local common traffic advisory frequency.

What made this behavior reckless? We have a regulation, 14 CFR 91.113, Right-of-Way Rules, that instructs pilots on what to do in this situation. It says in part that, except in water operations, “aircraft, while on final approach to land or while landing, have the right-of-way over other aircraft in flight or operating on the surface, except that they shall not take advantage of this rule to force an aircraft off the runway surface.”

It’s not a requirement to talk on the radio—or even have a radio at many of our nation’s uncontrolled airports—but when there are other aircraft, especially fixed-wing aircraft, in the vicinity, “each pilot of a helicopter or a powered parachute must avoid the flow of fixed-wing aircraft,” per 14 CFR 91.126 (b)(2).

Setting the Standard

In aviation, we’re taught to think ahead and always consider the consequences of our decisions. That’s understandable. Some links in aviation accident chains are actions—like leaving behind an unsecured tool—that in other industries or situations do not lead to death and destruction.

However, aviation is the industry that we’ve chosen, and we must strive each day to meet its high standards.

We’re helicopter operators, pilots, and maintenance technicians. Let’s be the operator, pilot, or maintenance tech who sets the standard for others to follow.

***Zac Noble** is VAI’s director of flight operations and maintenance.*

SAFETY MANAGER'S CORNER

Safety Culture Surveys

We all understand the importance of safety culture, but it is and always will be one of those difficult to measure things. You can't hold it in your hand, look at it on screen, count it, or take a picture of it. Yes, you know when it's really bad and also when it's really good. What about everything else in the middle? Is it getting better, or getting worse? Who knows?

There's no perfect way to answer those questions, but one solution does exist: a safety culture survey. Surveys are not perfect, but they are useful. When viewed with perspective and in combination with other information, a survey can validate and refine existing outlooks. Used by itself or in conjunction with other tools, a survey can help identify what an operation is doing well and what it needs to improve upon in order to advance its safety culture.

A safety culture survey allows you to identify your operation's strengths and weaknesses by measuring employees' perceptions about the effectiveness of the current safety culture. This is the quickest way to gain the most information about employees' perceptions of the current culture. There are many reasons why a survey of your employees' perceptions makes good risk management sense. A survey can act as a leading indicator (proactive tool) to predict future outcomes or signal possible future adverse events. A survey that shows employees do not feel safe at work is a leading indicator that the safety process needs to be adjusted, or action needs to be taken to mitigate work environment risks. Another important reason to conduct a safety culture survey is to help bridge the gap between management's perception and reality. What do your employees really think? Are you on the same page when it comes to managing risk? Are you aware of any safety gaps?

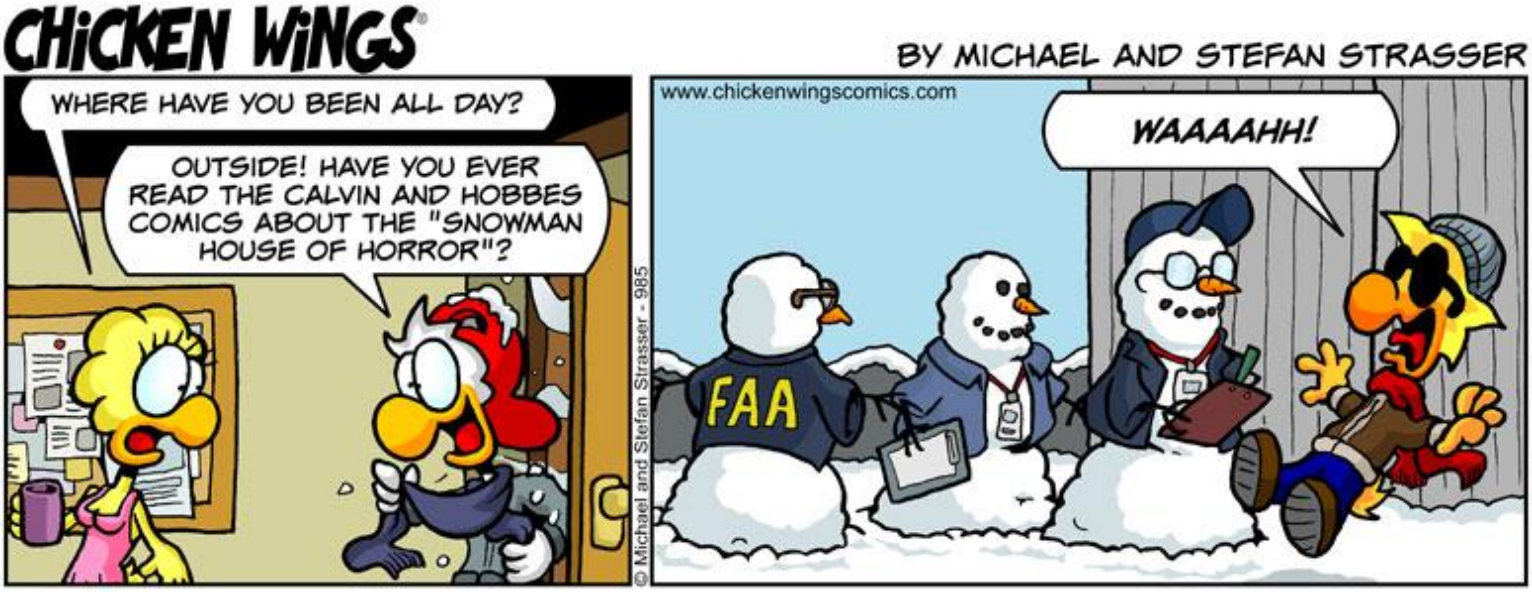
How can you conduct a safety culture survey for your operation? PRISM can help. Included with all PRISM Pro subscriptions is a safety culture survey. PRISM will create an online survey, where your employees are invited to participate via email, the results are calculated using PRISM's unique category scoring model, and an assessment report is created. If you are interested in PRISM conducting a safety culture survey for your operation, please contact prism@argus.aero for more information.

Quote of the Month

When you reach the end of your rope, tie a knot in it and hang on.

BY: Franklin D. Roosevelt

Maintain composure and rely on training and practiced behaviors. Getting loose and eliminating the annoying disturbance through fight or flight reaction might feel good and provide personal relief, but it worsens the situation markedly. Effectively managing personal reactions and behaviors starts well before actual interactions with others. Training, education and introspection all play significant roles in personal development. Very few of us are born with innate abilities to master situations and manage actions to maximum effectiveness. When the slack in the rope appears gone, grab onto the things that work and manage the situation as a team.



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