EPISODE 172

[EPISODE]

[00:00:07] IP: Hello and welcome to Episode 172 of AvTalk. I am Ian Petchenik, here, as always with –

[00:00:16] JR: Jason Rabinowitz. What's going on, Ian?

[00:00:17] IP: Well, it took us four tries to get that interrupt down.

[00:00:21] JR: It did.

[00:00:22] IP: That's where I'm at right now.

[00:00:23] JR: Yeah. Unusual for us to have to break it all, let alone three times in the first –

[00:00:29] IP: Well, the first time through, I forgot my own name. The second time through, I forgot your name and the third time through, I forgot the name of the podcast, so it all worked out. The fourth time is a charm is what I always say.

[00:00:37] JR: All right, let's do it.

[00:00:38] IP: How you doing, Jason?

[00:00:39] JR: I'm good. It's hot. My air conditioner is on. I'm considering even going to the office for some free air-conditioning, and I don't think I'm alone in that. It's hot.

[00:00:50] IP: It is hot. I mean, it's a nice day here. Elsewhere, it is decidedly not nice, or will soon be not nice. I've never been excited not to be somewhere, but I'm glad that I'm viewing the Farnborough Air Show from very, very far away this year.

[00:01:09] JR: Yeah. I won't be going to the Farnborough Air Show, but I will be in London during the air show. Every time I look at the forecast, the temperature just keeps going up and up and up. Let's see. Now –

[00:01:21] IP: I think the highest was 38 last time I looked.

[00:01:24] JR: Yeah, Monday is a high of 96 American degree units, which is very high. What is that? Nearly 40?

[00:01:32] IP: Nearly 40. Yeah. 38. It's not going to be pleasant.

[00:01:34] JR: 35 or 36. Yeah.

[00:01:36] IP: 35 or 36. Okay.

[00:01:37] JR: Not great.

[00:01:39] IP: The high went down, I guess is the – or, maybe I was looking at the heat index.

[00:01:42] JR: Yeah, you were probably looking at that. Yeah. Thankfully, I will hopefully be in a very air-conditioned office that whole time if I get there at all.

[00:01:50] IP: All right, well, I wish you nothing but the best in your journeys. Anyone who is going to Farnborough, good luck.

[00:01:57] JR: Or anywhere.

[00:01:58] IP: Stay dehydrated.

[00:01:58] JR: Good luck.

[00:01:59] IP: Yeah, really, if you're going anywhere. That's an excellent segue into our continued coverage of what we titled last episode, the summer of suck.

[00:02:08] JR: It continues.

[00:02:10] IP: It does continue. I mean, there's new bits and pieces, but the trend is roughly the same. It's not great flying right now. Airlines are struggling, airports are struggling. There are myriad problems getting people from point A to point B, where they need to be, when they need to be there. We continue our coverage with some interesting and novel problem solving. This comes to us from Icelandair. As we've covered, I think, over the past month, almost two and a half months now, Schiphol Airport in Amsterdam has been, I don't want to call it a disaster area, but it has been extremely difficult to fly into out of, or through the airport in Amsterdam.

Icelandair came up with a novel solution to ensure that their flights are operating on time, because one of the issues has been baggage handling. Icelandair since last Friday, has been flying in two of its own baggage handlers on every flight to Amsterdam, to ensure that the bags are loaded, and the aircraft departs relatively on time.

[00:03:29] JR: Yeah, that's quite the novel situation. Typically, when you have airline employees tagging along on flights, they're like mechanics, because they're flying to some far-flung exotic location, like the United Island Hopper on the 73. If you break down on one of those islands, you're going to want a mechanic with you. Typically, you don't need to pack your own ground handlers. I'm sure it's been done before, but this is a desperate move to bring back some operational reliability here for Icelandair. Hats off to them, because I've definitely seen that anyone checking a bag that happens to go through Amsterdam, it's just not happening.

Even if Icelandair brings their own baggage handlers into Schiphol, there's no guarantee that their bags there at the side of the plane for them to load. They might be stuck somewhere else in the system. Good on them for going well above and beyond the bare minimum here to get something done.

[00:04:26] IP: Yeah. I mean, they were just they were just having such a tough time that I don't know who at the airline came up with this, but I think, if this is in fact helping, which it seems to be, since they've continued to do it since last Friday. This seems like a great idea and really, a novel approach to making sure that the aircraft leaves on time. Because with Icelandair

schedule, aircraft goes out, aircraft comes back. If the aircraft doesn't come back, it then can't go out and it's one of those cascading delays situations. Anything they can do, good for them.

[00:05:02] JR: Yeah, especially at Amsterdam, which continues to be one of the worst bottlenecks in the global aviation system right now. I know we talked last week about how my parents are departing shortly, tomorrow actually, for a cruise that leaves to Europe. They had the honor of being booked on KLM through Amsterdam, and then they rebooked on Delta an hour early to give some extra time. Then KLM canceled their connecting flight out of Amsterdam. They didn't tell anyone really.

I tweeted about this earlier today, where KLM is really not even going beyond the bare minimum here of trying to make its irregular operations, less of a pain than it needs to be. Basically, what they did is Amsterdam put the cap on the number of fights and KLM has to cancel thousands of fights. Unfortunately, my parents were booked on one of those flights. While KLM canceled the flight, they didn't update the schedules that gets distributed to pretty much everyone, including flightradar24. If you look at the status for their flight, it's still shown as operating scheduled by everybody, except for KLM. Had my dad not just happen to go look at their reservation, he probably wouldn't have known that the flight was canceled and would have been way later in getting rebooked to an Air France flight through Paris. Thankfully, there was still an option.

Really, another one of those circumstances which goes to show, be more prepared than you have ever been before. Definitely make sure that the airline has your contact information. There's a chance that if you booked on an OTA, like Expedia or Kayak, that the airline might not have your direct contact information, and you might not be notified when something changes, even if you use flight tracking app. Go out of your way and keep an eye on your flights this summer.

[00:06:55] IP: Yeah. I fielded a few questions from people asking, should I book travel? My answer lately has been, maybe not if you don't have to. The one thing I have recommended to people is do not book on an OTA. Book directly with the airline and make sure that all of your information is available. Fill out all of those text me if anything happens. Fill out all of that email me if anything happens. Because like you said, airlines are doing a lot of things to try and manage this. One of the creative things, and I am using creative in scare quotes here. Things

that they've done is zero out inventory, but not actually canceled flights. They might be moving you, but they might not be telling you right away.

[00:07:40] JR: Yeah. Particularly with this flight for my parents, KLM canceled the flight and then Delta didn't do anything. They just dropped the segment off their itinerary. Instead of going to their destination, it just terminated their outward flight at Amsterdam. Had they not realized that until they got to the airport, it probably would have been a very bad day.

[00:08:00] IP: You live in Amsterdam now. Congratulations.

[00:08:03] JR: Okay, yeah. You're a bag handler now. You've been drafted by Icelandair. Get to it.

[00:08:08] IP: I mean, worst things have happened, I guess.

[00:08:10] JR: They probably have good benefits. I don't know.

[00:08:12] IP: There you go. Let's go from Amsterdam to London, or back to London, I guess, and talk about what happened earlier in the week. London's Heathrow Airport is saying that they will cap operations at 100,000 passengers per day for the next couple of months. That brings the stress on the airports down a little bit. Our good friend Seth Miller notes that there's a hitch. Airlines to meet that cap, or get under that cap can either cancel flights, or just have fewer passengers on their existing flights. Seth and I think most of us would agree that canceling some of those flights and having full flights for the remaining flights are the most economic choice for the airline. What makes the most sense as far as having the number of flight crews and cabin crews and ground crews and all of these things, because you're handling fewer flights.

The regulators in the UK said, well, that's all well and good, but the slot rules for Heathrow still apply. You need to use 80% of your slots, or you risk losing those slots. As we've talked about before on the podcast, slots at London's Heathrow Airport are among the most, if not the most coveted slots in the world. Airlines have traded and begged and borrowed and I don't want to accuse any specific airlines, but some have probably stolen to get slots at Heathrow Airport. For

them to say, well, you need to use them all or, or you're going to lose them, you're going to end up with not necessarily fewer flights, but fewer flights total, but not as few as would be economically sensible.

[00:10:18] JR: Yeah. This whole thing is ridiculous. This has been an ongoing theme for years now, whole throughout COVID with landing slots, especially at Heathrow. Here in New York, we have two slot-controlled airports. Really, it seems like, we we've worked around most of those issues. The regulators in the UK, they are just being incredibly inflexible. At the same time, mercifully going after the airlines and Heathrow for their poor performance, but not letting them cancel flights at the same time. None of this makes any sense. Honestly, I'm just surprised as anyone who left in the UK Government to tell them they can't cancel any flights. I thought everyone quit last week.

[00:10:59] IP: I think these are civil servants, so they're sticking around.

[00:11:02] JR: That's good.

[00:11:04] IP: I don't think that's a problem here.

[00:11:08] JR: Why? Why are they being so inflexible here? This helps nobody.

[00:11:12] IP: Is it institutional inertia? I don't even know what you would call it. But the lack of flexibility here in order to ensure that people buying airplane tickets and traveling, airlines operating flights are doing their best to make everything work. They're saying, no, this would be an easy thing to do.

[00:11:38] JR: Yeah, not great. Not a good look. Good luck to the airlines, especially BA, since obviously, they have an outsized presence at Heathrow. Good luck trying to meet the passenger cap, which honestly, isn't all that much lower than what they're actually operating at now.

[00:11:58] IP: Which makes the whole not allowing any flexibility on the slots even more ridiculous.

[00:12:03] JR: I mean, we're talking about a few 1,000 passengers a day, isn't it? The cap isn't significantly below what they're operating at. It's not like Amsterdam right now. It seems like an idea they want to do, but they have no practical way of actually doing it.

[00:12:19] IP: Common sense. Just common sense, people.

[00:12:21] JR: You know who has a lot of common sense?

[00:12:23] IP: Dare I ask?

[00:12:25] JR: The Germans.

[00:12:26] IP: Go on, sir.

[00:12:27] JR: Lufthansa is canceling another 2,000 flights. That comes on top of their already reduced schedule. Yeah, things are not getting any better, really anywhere you look in Europe. But 2,000 connections at both Frankfurt and Munich hubs will be affected through the end of August. That's on top of the, what was it? 770 other flights before that that were already canceled. This is a significant increase, not just a slight increase over what was already done. Really, it's not good anywhere.

[00:13:03] IP: Well, don't forget the initial cut, which was in the thousands. It was 2,000 and change was the initial cut at the beginning of the summer through July and August. Then there was that mid-July cut. Now, there's the next cut into end of July, through the end of August. The Lufthansa group really, has basically done the same thing BA did, but piecemeal. Where BA just came out and said, “You know what? We're going to do 10,000 flights off the top.” Where Lufthansa said, “Well, we're not going to cut that many. Yeah, we are.”

[00:13:45] JR: They were hedging their bets at Lufthansa. Clearly, they have recognized that there is nothing to hedge. Everything is terrible and they need to reduce the schedule by another factor of 2,000 flights. Good try. Having flown through a couple, or Hamburg last month, it was very evident that their airports cannot take the load of passengers going through their airports right now.

[00:14:11] IP: We'll get to this later in the show from Delta today, when we talk about some earnings reports, but some of the things that came out in Delta's earnings report, a lot of the – a lot of what we've been saying was finally acknowledged by Delta CEO, Ed Bastian. We'll get to that a little bit later in the show. Let's move on now to a few updates on accidents and investigations that we have previously covered –

[00:14:40] JR: Or not.

[00:14:40] IP: A new one. We'll start with the new one that we haven't talked about at all, and then move on from there. First up is, we always talk about accidents, or incidents and talking about how there's never just one thing. It's always is a series of incidents that lead to a dangerous situation. That certainly is what happened here. This concerns a – I'm using the BEA, the French BEA accident Investigation boards classifications here. This is a serious incident to an Airbus A 320, registered 9HEMU. This is an air hub airlines operated A320. They were operating for –

[00:15:30] JR: Norwegian, I believe.

[00:15:32] IP: Norwegian. The flight was coming from Stockholm to Paris. Things start to go downhill when they're setting up for the approach. The approach controller gave them the wrong altimeter setting. When you're above a certain altitude, you use the standard altimeter setting, which in hectopascals is 1013.25. That's the standard atmosphere. All aircraft operating above that are using that. Even if you're not exactly at the altitude that the standard pressure indicates, everyone agrees on it, so you're not going to crash into each other.

Once you go below that transition altitude, you switch over to the local pressure, so that everyone is in agreement in that area. Again, so aircraft don't crash into each other and also the ground. The problem here is that the controller gave them the wrong altimeter setting, known as the QNH, which is the local reference value. What the controller should have said was 1001. What the controller did say was 1011.

[00:16:57] JR: Yeah. The pilot on the radio of this particular flight read back the incorrect altimeter setting and then that was not corrected by the controller. The controller then gave the incorrect altimeter setting to the following flight, which I think may have been easyJet. The pilot of that aircraft actually caught the mistake and read back the correct altimeter setting, which yet again, was not caught by the controller, unfortunately.

[00:17:24] IP: There was also an Air France crew that the controller gave the correct QNH. Air France read back the correct QNH. Then the crew from the incident aircraft was still operating with the incorrect value. They made a first approach. The first approach put the aircraft, due to the – and I'll quote from the report here. Due to the incorrect QNH setting, 10011, instead of 100 –

[00:18:02] JR: 01.

[00:18:02] IP: 01. Or 101001. The altitude value displayed on the aircraft instruments was around 280 feet above the real aircraft altitude. The flight crew were thus conducting an RNP approach with **[inaudible 00:18:17]** minima around 280 feet below the published approach to set profile.

[00:18:22] JR: Yeah. It's basically the plot from Die Hard 2.

[00:18:25] IP: Yeah, basically. That's what it is.

[00:18:28] JR: Yeah, not great. What transpired beyond that point when the aircraft was on approach, this was in bad weather with very minimal visibility. For whatever reason, the controllers did not have the approach lights on into De Gaulle that day for that particular runway. As the aircraft descended through a rather dangerous altitude, we'll get to that in a second. Something called, I guess you would say MSAW. I'm not sure how to pronounce the abbreviation, but MSAW, the minimum safe altitude warning was displayed to the controller at De Gaulle, or I'm not sure if this was on the De Gaulle's controller, or the approach controller, but the minimum safe altitude warning was displayed to the controller who didn't really convey the urgency of just how serious that warning is to the crew. Yeah, there's a lot of breakdown in

communication. A lot of breakdown in procedure, but Ian, what happened next after the alert was issued?

[00:19:26] IP: After the alert was issued, it took the controller nine seconds to ask the air hub crew if they were okay. Air hub said that they were going around. They commenced their go around about one nautical mile from the runway threshold, and they continued to fly. I'll quote again from the report. Three seconds later at 1140150, at an indicated altitude of 679 feet, QNH 1011, which would be 405 feet, QNH 1001, the correct QNH. The minimum radio altitude height was recorded at 6 feet above the ground. The aircraft 6 feet above the ground. The aircraft was 0.8 nautical miles from the runway threshold. At the same time, the captain moved the thrust levers forward into the toga detent. Then the aircraft began to climb.

[00:20:27] JR: Yeah. Six feet means if I were standing in that spot, the aircraft would have hit me in the head. That is how low the aircraft was and how close it was to impacting the ground. There were a couple of minimum safe altitude warnings issued. There was a delay between the flight crew hearing these, or being told of these warnings and activating toga that take off go around mode. Most concerningly, and this is called out by the investigation here by the BEA. For some reason, the terrain altitude warning system did not activate on this approach, which is something they're definitely going to want to look at. Basically, the only warning this crew had that they were dangerously low and nearly impacting the ground was the controllers, the ATC site warning system. The aircraft's own alert system, TOS, terrain – what is it? Terrain awareness warning system?

[00:21:31] IP: The acronym escapes me at the moment.

[00:21:33] JR: Yeah, me too. The thing on the plane that the radio altimeter should be using to alert the crew that hey, you're about to hit the ground, didn't activate. That's not great. The BEA goes on to say that they're looking into the triggering of radio altimeter auto call outs in the aircraft. The settings and configuration for MSAW at CDG. The MSAW phraseology used by the air traffic controllers, which is definitely not up to standards. The flight crew air traffic controller training and procedures, additional ground and onboard systems to prevent controlled flight into terrain during approaches. All sorts of other things.

Basically, sheer luck saved this flight from being flown into the ground. Maybe not luck, but impeccable timing that the crew decided to go around exactly when and where they did. This should have been in probably could have been extremely bad. We didn't know about this really until the BEA published this report this week.

[00:22:32] IP: Yeah, so two things. Terrain alert and warning system.

[00:22:36] JR: Thank you.

[00:22:36] IP: Terrain awareness and warning system is the generic name. The one that we're more familiar with is Honeywell's branded name. I didn't know that this was a Honeywell brand, the ground proximity warning system, or enhanced ground proximity warning system. I didn't know that was a brand issue.

[00:22:53] JR: I didn't either.

[00:22:53] IP: You learn something new every day. That is what I have learned today. The interesting thing about the first approach, and then we'll get to the second approach just in a second. The first approach, the controller could not see the aircraft. Could not physically see the aircraft. There was no visual connection between the controller and the aircraft, because of the poor weather. That's the mistakes compiling themselves. Then that little bit where they just couldn't see the aircraft. Because if they had been able to see the aircraft, I'm sure they would have said something there. A few things there.

The aircraft climbs, they're still operating with the incorrect QNH. Everything that just happened in the first approach is going to happen again. The aircraft circles back around. The aircraft lines up again, they had not switched on the approach lights. The second time around, they switched on the approach lights. They come back. The controller says, "You're a little low. Are you okay?" Then the pilot understands, because apparently, the visibility has improved ever so slightly, because they got another terrain warning. The pilot said, "No, we can see where we're going now." They landed fine on the second approach. Yeah, as Jason said, this could have been so much worse.

[00:24:26] JR: Yeah, this could have been, well, as bad as it gets. It would have been controlled flight into terrain, because of one little setting that unfortunately, a number of people did not catch. Yeah. I understand that when you're reading back something like that to air traffic controllers are probably just assuming you got it right. Especially the altimeter setting. It's such a minor thing. Turns out, it's really not minor. It can be really, really not minor. There's lots of recommendations by the BEA out here.

Whereas in the short timespan of this event, two controllers did not notice the read back of incorrect QNH. Whereas, MSAW system when available can be considered as one of the last barriers to avoid controlled flight terrain, whereas MSAW phraseology was not used and the QNH information was not repeated. Then they go on basically to say that ensure that without delay, that controllers actually reply, or get the right phraseology and make it very clear to the pilots that that alert has been issued and something is wrong. Not to take nine seconds and ask, “Are you okay?” Lots of, let's say, retraining. Maybe not retraining, but lots of –

[00:25:36] IP: Modifications.

[00:25:37] JR: Lots of brushing up on procedure will need to be done.

[00:25:40] IP: I think, the interesting thing here is the problem that the callsign confusion, or the work on callsign confusion, all that work has gone into – is basically the same thing here, where the difference between 1011, or 1011 and 1001. I mean, over the radio, they sound close enough. If they're confused, once you can go back and think, “Okay, I heard what I heard, or I didn't hear what I didn't hear,” and in without asking for clarification, because you think you heard what you heard, you ended up with an incorrect setting.

[00:26:17] JR: It’s an easy mistake.

[00:26:19] IP: Yeah, and problems. I'm very glad everything ended well. This is one of those things where the investigation into an incident is so thorough. Whereas, we could just sit here and go, well, they heard 1011, when they should have heard 1001. Being like, “Oh, yeah. That's an easy mistake to make.” And left it at that like, “Oh, don't do that again.” No, the investigation by the BEA is so thorough to look at what happened, how it happened, and how you can fix it. I

just think, there is so much to learn outside of aviation by looking at how aviation incidents and accidents are investigated. I know I've harped on this before and called out the NTSB in the US and the BEA in France, but I'm never not impressed by how detailed and thorough these investigations are, even for what seems like a minor error.

[00:27:25] JR: Yeah. We have two more to cover. The next one, the conclusion by the NTSB is a little more a simple, isn't it? This one still just, you got to laugh at this one, right. I mean, not laugh because a plane did crash and thankfully, no one was injured, or seriously injured.

[00:27:52] IP: Runway excursion. To use the technical phrase here.

[00:27:57] JR: The defining event was wrong surface, or wrong airport by the NTSB. Aircraft damage was substantial. Back in March 4th, 2019 in Presque Isla, Maine. I think I got that right. Who is operating this? I don't even know. It doesn't say. But an E145 out of, I think, it was Newark operating for United Express was on the ILS and was approaching runway one and appeared to be proceeding normally. I'm quoting the NTSB here, until the first officer who was the pilot flying, transitioned from instrument references inside the flight deck to outside references. During the post-accident interview, the first officer stated that he expected to see the runway at that time, but instead, saw white on white and a structure with an antenna that was part of the runway environment, but not the runway itself. I hope an antenna you see is not a part of the runway itself.

Goes on to say, the captain pilot monitoring stated that she saw a tower and called for go around. I'm going to skip a little ahead here and go to the second approach. The flight crew boarded the first approach. They went around and they came back again. They were attempted to turn the lights on for the runway using the pilot-controlled lighting, which uses a couple clicks of the mic key. They came back around. They disconnected the autopilot. Nine seconds later, they reached the decision altitude and the captain said, runway in sight 12:00. The first officer said, “I'm staying on the flight director, because I don't see it yet.”

A few seconds later when the airplane was below 100 feet above ground level, the captain and first officer expressed confusion saying, what the expletive deleted. I don't know what I'm seeing, but neither them called for a go around. What apparently happened was that there was

a buildup of snow in front of the ILS antenna, which basically shifted the radio transmission to the aircraft by an amount that actually put them well off the centerline and off to the side of the runway in what would have been, I guess, grass if there was no snow, but there was so much snow on the ground at the time, they couldn't really discern the difference between what was runway and what was snow, off to the side of the runway.

It's just a really weird localizer misalignment thing that they said the ILS localizer and glideslope revealed that the localizer was out of tolerance by about 200 feet to the right. After the accident, the airport conducted snow removal operations in the area around and in front of the localizer array. They discovered snow depth that ranged from about 2 feet to 5 feet. After the snow was removed, the flight check determined that the localizer signal was in alignment. Then it goes on to talk about how well the airport wasn't clearing any snow away from the ILS localizer, because nobody told them to.

Just one of these really, really weird procedure, things where the local airport authority didn't know they needed to clear the snow out of the localizer area, because nobody had reported any issues and they weren't going to do it unless someone from the FAA center probably in Boston told them to do it. Just a really, really strange accident here, caused by nothing but a couple feet of snow.

[00:31:11] IP: I mean, to be fair, and the NTSB does address this, the captain of the aircraft had a lot to do continuing the approach, even though they should not have.

[00:31:24] JR: Yes. I think, that's what I mentioned earlier where they said they couldn’t actually see the runway, but they continued below the decision altitude anyway and attempted to make the landing, which wasn't even on the runway, because they couldn't see where the runway was. Just some very odd circumstances there about snow removal procedures around critical infrastructure on the ILS localizer.

[00:31:47] IP: To note, as always, with the BEA report and this report, and the next one we're going to talk about, they will be in the show notes, if you enjoy a little light reading. The BEA report, I think, is a little over a dozen pages, and nearly two dozen pages and the NTSB report in this case, is comes in a brisk 23. By no means, the longest reports we've ever seen.

Let's go over to the UK and talk about their AAIB, and discuss an incident we covered right after it happened back in April of 2021. We didn't know much at the time. We knew there had been an accident with this aircraft. The AAIB's final report is now out and Jason, explain this one to me as if not if I'm a five-year-old, maybe three and a half, four at best, because we're talking about an aircraft that is being designed to operate on a hydrogen fuel cell. That's not what caused the incident.

[00:32:52] JR: No. I will explain it to you in words that I can read off the AAIB report that I'm just learning as I go as well. Because it turns out, there are not many experts in the field of hydrogen battery electric aircraft flight testing right now. But this one –

[00:33:08] IP: Not yet.

[00:33:08] JR: Not yet. The AAIB had a lot to say about this particular accident. It was a Piper PA46-350P. Registration G-HYZA, which is owned by ZeroAvia I think it is. Their hydrogen test aircraft. They have a lot to say –

[00:33:31] IP: Was.

[00:33:32] JR: Was. Because it doesn't have a wing and it crashed now, but maybe they'll patch it back up. What happened basically is it's an electrically powered aircraft with electrical power from hydrogen fuel cells. It suffered a loss of power to the electrical motors and that forced a – well, it eventually led up to a forced landing, which severely damaged the aircraft, though the crew thankfully was unharmed. I'll read directly here. "The loss of power occurred during an interruption of the power supply when as a part of the test procedure, the battery was selected to off with the intention of leaving the electrical motors solely powered by the hydrogen fuel cells." What they wanted to do was test, can this airplane fly purely off the hydrogen onboard not using the batteries?

However, anyone who's been on a propeller-driven aircraft where you turn off the engine, you'll know that the – or maybe if you're on a propeller aircraft, then you've shut down one of your engines, it windmills. Unless you feather it and stop the thing from windmilling, it will keep

turning. What happened here is during the interruption, their planned interruption, the windmilling propeller on the aircraft generated enough voltage that it was high enough to operate the inverter protection system. Basically, it back fed voltage into the system and the inverter protection locked out power to the motor, and the pilot and the observer were unable to restore the system and restore electrical power, which basically meant they had a total loss of propulsion and they couldn't restart it.

The AAIB goes in to saying, these factors contributed. Maybe not led, but contributed to the accident. The list is a doozy. It does not look good for this particular company. I'll start from the top. I'll be quick. Sufficient ground testing had not been carried out to determine the effect of back voltage from a windmilling propeller on the inverter protection system. The emergency procedure to clear an inverter lock out after the protection operated was ineffective and investigation had not been carried out into previous loss of power, resulting from an inverter lock, which occurred three flights prior to the accident flight.

Risk assessment had not been reviewed, following the loss of propulsion on two prior flights. Ad hoc changes were made to the flight test plan last minute, including the position where the electrical power sources switched without the knowledge of, and I'm quoting here, “the competent person.” The competent person's involvement was restricted in a number of areas that it probably shouldn't have been. The project tempo, they say, was too fast. Other work commitments and restrictions because of COVID at the time, impacted the test.

This is my favorite one, the operator’s chief executive and flight test director took on day-to-day management responsibility for much of the program. However, neither individual had the necessary safety and flight test experience for that role. Their focus was primarily on meeting key project targets. Nothing good here, as a lot of bad news. Very bad luck for this company that basically, they were running a very seemingly dangerous flight test program.

[00:36:30] IP: I mean, the balance of the factors contributing to the accident, are basically saying to me, at least, you're moving way too fast and you're doing it wrong. it led to this aircraft crashing into the ground.

[00:36:49] JR: Basically, yeah. You're going too fast. You don't have the right people doing the right things. You haven't addressed problems that have come up in prior fights, without reproducing those problems in the next test flights. Nothing good here. Nothing good happened.

[00:37:06] IP: No. Nothing good. Again, this run is in the show notes. This is one of the things where you start reading and you're like, “Oh, okay. That's interesting. I hadn't considered that. But I'm not building hydrogen-powered, electrically switched aircraft.” Then it gets into the people who are running the show have also no idea what's going on here. That gets very concerning very quickly.

[00:37:28] JR: Yeah, that's problematic.

[00:37:29] IP: Okay. Where do we go from here? We go over to Boeing. The FAA is mandating action regarding the Boeing 787. This is separate from all of the quality build issues, but it is not, Jason, separate from a lot of the issues that have been addressed in this particular system in the past. You noted this quite well, good, sir.

[00:37:53] JR: Yeah, thank you. The 787 has some odd history with the fire-fighting system onboard, dating all the way back to 2013, when a wiring fault could lead to an improper discharging of fire suppression into the wrong engine, which is not great. If there was a fire in the left engine, and one of the flight crew tried to discharge the fire extinguishing bottle to the left engine, it may have actually done that into the right engine. Then you possibly have an engine that's on fire and then an engine that doesn't work at all, because you've put out – you've used a fire extinguishing model. That was 2013.

2019 fire extinguishers, which has failed in a small number of instances. Then again, here in 2022, which I don't know, maybe it's related to the 2019 incident FOD, that's foreign object debris in the fire switches could lead to failure of, or uncommanded activation of the fire switches. Not great. It just seems like such an odd thing, an oddly specific thing to keep having issues with a particular system that you really don't want to have issues with ever.

[00:38:58] IP: No. When you have a fire onboard an aircraft, one of the most serious, serious things that can happen, you want to be able to put that fire out as quickly as possible. Not

having working fire protection is not great. I'm using not great here as a – I don't even know what you would call it. Understatement?

[00:39:20] JR: Yeah. Boeing is on it. The FAA is on it. The airlines are on it. Hopefully, this is a non-issue in a very short period of time.

[00:39:30] IP: Yeah. Yeah. This is one of those things where it's a problem. We saw the problem. We're fixing the problem. A problem that may not be fixed in short, or ever is the 737-10 MAX. Boeing is facing an end of the year deadline, or roughly the end of the year. I forget the exact date in December. The 737-10 MAX needs to be certified by a certain date at the end of December, or Boeing needs to add flight deck system changes that include a crew alerting system. Basically, an ECAS, into the MAX 10 if they don't have it certified by the end of the year.

In an interview with Aviation Week, last week, Boeing CEO, David Calhoun said, the dash – I'm quoting here. "The Dash 10 is a little bit of an all or nothing. I think our case is persuasive enough that we get there. This is a risk I'm willing to take. If I lose the fight, I lose the fight." The Aviation Week editors that were interviewing him followed up. Said, "So you would not build the Dash 10?" In that case, saying that if it's not certified by the end of the year, Boeing will just walk away. Calhoun says, "I think we'd end up having to face right into that question. We believe in this airplane, period. We believe the intent of the counterparties that negotiated the flight crew mandate timeframe wanted this airplane covered. I find very few voices that would suggest otherwise."

What he's saying is that between Boeing and Congress, which passed a law mandating crew alerting systems in future aircraft, he's saying that they did not have the MAX 10 in mind when they said that new aircraft have to include this. That's what he's up against. Boeing is basically at the mercy of Congress to change the law to allow the Dash 10 to be certified without the alerting system, if certification goes beyond the end of the year, which Boeing has basically said, "Yeah, that's not going to – We're not going to get this done by the end of the year."

It'll be very interesting to see what happens if assuming the aircraft doesn't get certified by the end of the year, does Congress act? Does Boeing act by not building the Dash 10? If Boeing

reacts by not building the Dash 10, what happens to A, all the orders that have been placed for the Dash 10? And B, what do airlines do to backfill those aircraft that they thought they were going to be able to have?

[00:42:15] JR: That's a doozy. This was, of course, something that came out just hours after we recorded, so we would have covered it last week, hopefully. Even just the idea that a major manufacturer like Boeing would roll out an aircraft like this, put it through flight testing for a long time and then not be legally allowed to certify and deliver it, is not something I saw coming. Yes, it is time that Boeing gets out of the 1960s with the 737, and puts the enhanced systems onboard that aircraft. Wow, it is literally going to take an act of Congress for Boeing to be able to certify the MAX 10, which may not happen. I don't know. Clearly, they want it to happen. They don't want to just throw in the towel and not be able to deliver. United alone has 250 of these on order. That would be a major burden for a number of airline fleets to not be able to have this aircraft. Keep an eye on this one. This is going to be fun.

[00:43:15] IP: Yeah. I mean, we've got six months to figure this out.

[00:43:22] JR: It's not going to happen. Congress is not going to slide the date on this.

[00:43:26] IP: I have a feeling there's going to be some Frankenstein-like compromise. I can't even imagine at this point, what it is. I can just imagine a Frankenstein-like compromise. I mean, this is a real tough spot for both Boeing and for the US Congress. I mean, because you're coming up and saying, these are things that are necessary for safety, was the object lesson of the congressional action and passage of this law. These are things that are necessary for aviation safety. Then to come back and say, but not for the 737 MAX 10. Not for the Dash 10. That's not what this is. That's not what we're talking about here. This is a different story. That's a tough sell to me.

Although, then Boeing comes back and says, “Well, but it's a question. United has 250 of these in order. What do you think about that?” There will be some Frankenstein-like compromise, and no one will be happy outside of Boeing and some folks in Congress. That's my prediction for this. I will be very interested to see how wrong I am.

[00:44:33] JR: If the deadline for this is January 1st, 2023 at midnight, a deal will be struck on December 31st, 2022 at 11:59 p.m.

[00:44:41] IP: At 11:59. Yup. Yeah, exactly. Speaking of striking deals and the economics of it all, let's move to a section of the podcast that we have titled, Money, money, money. Airline earnings season is in full swing as is air framers. Jason, I'm going to go a little bit out of order here and talk about, stick with Boeing and talk about their second quarter deliveries. Tell me how many planes, where did they go, all that good fun stuff.

[00:45:10] JR: All right, second quarter delivery is 121 from Boeing. The most by far, of course, 103 737s. Good to see the MAX getting out the door these days. That's 189 total year to date so far. Two 747s, three for the year. Seven 767s. Yeah, they're still making those, 12 for the year. Nine 777s, 12 for the year and a big fat 787s delivered both in the second quarter and year to date, but we already knew that.

[00:45:42] IP: Yes. Still no 787 deliveries. But –

[00:45:45] JR: But this was the best quarter since 2019 for Boeing delivery-wise, somehow doing that without a single 787 delivered.

[00:45:54] IP: On the 787 front, photos of Lufthansa's first 787 in its German registry have been seen. The bowing temporary rag has been peeled off. The German permanent registry has been painted on and that is another good sign, I dare say, for the 787 – resumption of 787 deliveries.

[00:46:20] JR: Excellent.

[00:46:20] IP: I will hope that that happens. Delta was the talk of the Wall Street town today with a 735-million-dollar profit. They in their earnings call, some really interesting stuff came out. One of the things was that Ed Bastian saying that not hiring, not having enough people isn't the problem. Having people who are trained and know what they are doing is.

[00:46:56] JR: Yes, but they are certainly not alone in that regard. This is pretty much industry-wide, where even airlines and airports that are fully staffed, they're not operating at capacity like they should be, because everyone's new and they don't really have the experience to know what – how to do things most efficiently. Not great.

[00:47:14] IP: Yeah. Everything we say about Delta over the next few minutes applies basically to the entire industry. Delta was the first to have their earnings call, and so we get to pick on them just a little bit. By no means is any of this really Delta specific. It's industry-wide, but Delta was the first to have their earnings call and really come out and say these things. What Delta also said, is basically, we've been we've been working our narrowbody aircraft too hard. What they didn't say is because they got rid of most of their wide bodies at the beginning of the pandemic, but that's what happened.

They're having trouble with operating the requisite number of flights. They said, they overextended their schedule, they're learning from that. They're paring back, and they're trying to get as many flights back to where they want to be operationally from where they had been. One thing that caught my eye that was just confusing to me why this happened, or for what reason this happened, Delta operated – and on the earnings call, they said it was a charter flight. They didn't send the plane just for this. The plane was already there. There was a flight from Detroit to London that landed. The return flight from London to Detroit was canceled, part of the operational disaster show that Heathrow is.

Instead of flying the passengers back to Detroit, they loaded up a 1,000 bags that were supposed to be already in Detroit, or elsewhere from London, because the operation has gotten so bad that there were a 1,000 bags left at Heathrow. They flew those 1,000 suitcases to Detroit and then onward from Detroit to wherever they were supposed to be. My question, I guess is they were just going to leave them otherwise?

[00:49:17] JR: I guess, there are –

[00:49:18] IP: This is a weird thing.

[00:49:19] JR: Yeah. Well, I mean, you can rebook passengers if the plane is there, well, why would you do that? I mean, you can get the bags back to Detroit in other ways. We spread them over other flights, but –

[00:49:31] IP: The whole thing didn't make any sense. The way that it came out on the earnings call was they were bragging about it. We chartered a flight just to go get this back. No, that's not what happened. The plane was there. You canceled the flight. People were reaccommodated on other flights, which I'm not sure why. Then you use that aircraft to bring the bags back when they should have been brought back anyway. I don't understand.

[00:49:53] JR: Prioritizing bags, instead of passengers and then bragging about it. It's a weird flex.

[00:49:59] IP: I just didn't understand. Let's see, what else we've got going on? This was a fascinating example of things that are old, are new again. Jason, tell me about the McDonald's coffee, but this time, it's hot chocolate on an airplane.

[00:50:17] JR: Yeah, there's this story from decades ago that many people don't actually fully understand. The infamous McDonald's hot coffee incident where people think, “Oh, some woman carelessly spilled coffee on herself and sued McDonald's and won millions.” That's not really the full story. Not at all the full story. What actually happened was that McDonald's was knowingly brewing coffee far hotter than it needed to be, and this poor woman had third degree burns all over herself, and she ended up suing McDonald's in that case. One, rightfully so. We have here a case of an 11-year-old boy who was burned by hot chocolate on an Aer Lingus fight recently, and was awarded a settlement in the High Court of 66,000 pounds, which is –

[00:51:00] IP: Euros.

[00:51:00] JR: Euros. Sorry, not pounds euros. A very interesting case. This dates all the way back on a flight, October 2018, where as a part of – familiar with this product, but as a part of how you assemble it basically, is you're given a cup of hot water, and then you have to take the lid off of the cup, and then you add milk to the drink. In this case, unfortunately, due to whatever circumstance, the boy spilled the liquid on his thigh, and it cause burns. He was taken to the

hospital at their destination. He was kept overnight, received painkillers, anti-inflammatories. A nurse assisted him onboard the flight. His wounds had to be addressed for a number of weeks.

It's just very interesting to see a case very similar to the McDonald's case of basically, ancient lore at this point, happening onboard a flight. Very interesting. He sued Aer Lingus, alleging a failure to provide a safe method of service of hot drinks, in particular hot chocolate and failure to warn the boy of the danger posed by the temperature of the drink. I mean, I assumed the lid said, “Caution, hot contents,” or whatever, because the coffee is similar. But somehow, I have a feeling the coffee brewed on this – or the water boiled on the aircraft is probably hotter than it needed to be.

[00:52:16] IP: Yeah. I mean, just an interesting set of circumstances. One that is not out of the realm of possibility, but interesting to see actually happen. Bright side, the boy was okay. He wasn't too severely burned. There was luckily a nurse onboard, and he was he was okay after a few weeks. Glad to see that all is well now.

We now turn our focus to a story that we've been covering on and on and on and on again. We are of course, referring to the Spirit Airlines merger acquisition with Frontier, JetBlue. Who knows what's happening? We're not going to get into anything that's happened, because nothing has really happened. But we do want to get an official update from our chief mergers and acquisition correspondent, Airline Weekly editor now. Congratulations Ned on the recent promotion, Ned Russell. Ned, has Spirit held a vote yet?

[00:53:21] NR: Not even close, Ian.

[00:53:23] IP: Thank you, Ned.

[00:53:24] JR: Thanks, Ned.

[00:53:25] IP: In other news.

[00:53:25] JR: That’s my new favorite segment.

[00:53:27] IP: Hopefully, we only have to do that one time. In other news, there is a great report out on the future of electric aircraft, or the potential future of electric aircraft, that is both good news and bad news in the sense that the good news isn't, I guess good enough. The report from the International Council on Clean Transportation, ICCT, entitled Performance Analysis of Regional Electric Aircraft Out Today. Hey, this is breaking-ish news. They looked at the CO2 mitigation potential of evolutionary electric powered aircraft that could enter service by 2030.

They basically modeled a nine-person, 19-person and 90-person aircraft to see how those aircraft could be more efficient and how they would affect the CO2 emissions. Good news is electric aircraft, they modeled, could provide an estimated 49% to 80% reduction in CO2 relative to current fossil fueled aircraft. They can be 2.1 to 3.2 times more energy efficient overall.

[00:54:41] JR: Even when powered, or charged off of the existing electric grid, which itself is often unfortunately, powered by fossil fuel. An interesting point.

[00:54:51] IP: Yeah, that was. Even if everything else remains the same, that helps things quite a bit. Battery technology improvement will be needed – continued better improvement will be needed to make this any electric aviation possible at scale, and then reducing the weight of the aircraft could significantly increase the range and make this a purely electric aircraft much more feasible. One of the things that they point out as a limiting factor is the range of the aircraft limited to a 100 and some odd kilometers with current type batteries. They could enable emissions up to 280 kilometers carrying 90 passengers, if they –

[00:55:35] JR: By 2050.

[00:55:37] IP: By 2050, if battery technology continues to improve. There's good news. There's bad news in the in the respect that there is not good enough news. The report is worth reading. again, we will link to that in the show notes. Wow, there's a lot of homework in this episode.

[00:55:59] JR: Yeah, there is. The TLDR here is that current battery technology and even the trajectory of battery technology progression is just not good enough to make any practical use –

[00:56:12] IP: Pure electric right aircraft.

[00:56:13] JR: Right. Maybe if some certain flight test programs can clear up their act, a hydrogen hybrid battery powered aircraft could be the future. Looking right now, that a pure electric battery electric aircraft, just it ain't it.

[00:56:30] IP: Yeah. The report is worth reading, but a little not unexpected, but still disappointing nonetheless.

[00:56:37] JR: Now, give me some good news.

[00:56:39] IP: We close the show. We close the show with Rowdy.

[00:56:43] JR: Tell me more.

[00:56:45] IP: Rowdy the cat was at Boston's Logan Airport for a few weeks and kept giving employees, the family, animal experts, anybody you can think of this slip. This cat was coming home with its family from Germany, Lufthansa landed in Boston, the Lufthansa flight landed in Boston, the cat escaped and went chasing birds.

[00:57:16] JR: As one does.

[00:57:17] IP: Let's see. They had Lufthansa personnel, they had construction workers at the airport. They had animal welfare folks. They had wildlife cameras. They had non injurious traps. They kept finding the cat. The cat could never be caught. Now, the cat has been caught and is reunited with their owners and their family. Rowdy, you had a good run. It was fun while it lasted. It's time to go home.

[00:57:48] JR: All right. Good for Rowdy. Good for the owners. This happens every now and then. Typically, when someone is taking a cat through security, since you have to take the cat out of the carrier to walk through the metal detector, and that point the cat might see a bird and I'm looking at my cat right now looking out the window at a bird. I'm sure if the door was open, she would have to go out there and attack the bird.

I think, I remember what a case at JFK a couple years ago where a similar situation where a cat got in the rafters and was on the loose for weeks and weeks, until it just decided to do what cats do and say, “Okay, I'm done.”

[00:58:23] IP: Yeah. The cat decides. That's exactly what happened here. The cat just was like, “Okay, I'm ready to go home.” That's exactly what happened. That's our show. That's the podcast for the week. That was a full show. I am either sorry about all the homework, or you're welcome, in case you were looking for something to do over the weekend.

In any case, if you are listening and are off to Farnborough, good luck. Stay cool. Drink lots of water, which is really good advice whether you're off to a sweltering air show or not. Everyone, thank you so much for listening. This has been episode 172 of AvTalk. I am Ian Petchenik, here, as always with –

[00:59:06] JR: Jason Rabinowitz. Thanks for listening.

[END]