Emergency: We're all getting MAYDAYS wrong.

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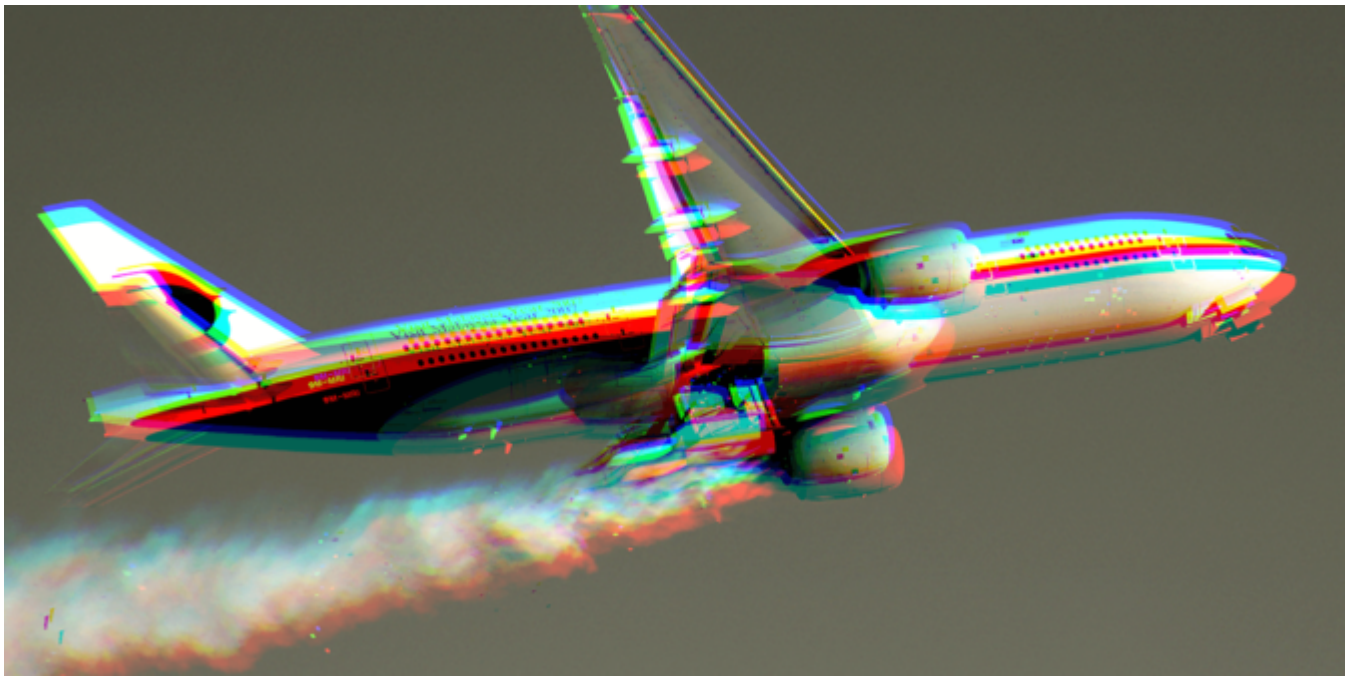

Pilots and Air Traffic Controllers communicate with each other every day. But it's not very often that we get to **talk to each other** in real conversation: sharing experiences, exchanging ideas, learning, and just having some fun and getting to know each other. Yesterday, in Danger Club #11, that's what we got to do, and it was eye-opening.

150 people came along to the meeting yesterday on **MAYDAY's and Emergencies**. For such a critical aspect of our intertwined worlds, we found a lot of unsolved mysteries, and a lot that we're getting wrong. We can both make life much easier on each other, it seems!

So, let's make this a starting point for figuring out some of these mysteries. With more collaboration, we can improve how emergencies unfold, and how we handle them in the cockpit and in front of the radar screen. In no particular order, let's jump in!

This is a living page. We'll update and revise this as we get more feedback, so please comment below ⬇ or email us with your thoughts!

~~Declaring an Emergency~~ □ MAYDAY! □

The first incident we looked at was a 747 on departure from Tokyo with a cargo fire warning. For two agonizingly long minutes, the crew tried to tell ATC they had a problem and neeeded to return: without success. Why? Primarily, **phraseology**. There was no mention of the word MAYDAY (or PAN-PAN). Key points on this:

- US pilots, in particular, tend to use the phrase "*Declaring an Emergency*". It's baked into the US aviation system, but it has **no legal or functional basis**. Officially, it's meaningless, but in

the US it's just the way we do things (more on this below).

- When we go international, that becomes a problem, because it's not something controllers are trained to understand. In airspace where English is not the first language, we must say MAYDAY, or PAN-PAN. That, and only that, is the trigger for ATC to understand and help.
- **The FAA** AIM 6-3-1 covers Emergencies. **The wording needs urgent improvement**. The opening paragraph essentially says "*Say what you want, really*". It follows with "*The ICAO way (MAYDAY and PAN) is better, however*", but it doesn't mandate using it. As a result, in the US, we have no solid guidance on how to handle emergency communications, and no phraseology guidance or examples. **This looks like the root of the problem**. **@FAA: fix this please!**
- If your GOM(Ops Manual)/SOP's suggest using "*Declaring an Emergency*" as the radio call, you're setting your pilots up for failure, especially when going international. Make it MAYDAY!

2. What does a perfect MAYDAY call sound like?

Like this:

- AAL001: "**MAYDAY, MAYDAY, MAYDAY, American 1, Engine failure, continuing straight ahead, STAND BY"**
- DFW TWR: "**American 1, Tower, MAYDAY roger**"

And especially internationally, these points are important (we cleared up some misunderstandings here as well):

- It doesn't matter if it's the first call or you're already in contact with ATC on the frequency, **always say MAYDAY**.
- **It's a trigger for ATC**. The frequency may sound quiet, but the controller may be on a phone call with another sector. Hearing "MAYDAY" will ensure immediate attention. Compare that to "*Uh, we gotta problem here, and blah blah*". There's no key phrase in there to force the controllers brain to listen immediately.
- **It's a trigger for other aircraft on frequency**. As soon as a MAYDAY call is made, everyone is listening and paying attention. If the controller doesn't come straight back with an acknowledgement, it's likely that another aircraft will jump in to try to get their attention. Also, everyone else will know to be silent.
- **Speak slowwwwwwwwly**. Like half normal speed. Say it once, say it clearly. When you describe the problem, use no more than three words, clear and slow "Cargo … FIRE .. warning".
- That ***STAND BY*** part is not in the books, but it's critical. If you're lucky, you'll get that ideal ATC response above which means "Got it, and I'll be quiet now for a bit, so you can do your thing". **You're not likely to be lucky**, so you need to ask for that silence. STANDBY will improve the chance of that happening.

3. Everyone's panicking for a minute

Listen to Shamrock 12G declare a MAYDAY here, just airborne from Orlando.

Listen to the voice change of the pilot. The physiological response, the startle effect: you can almost hear the increased heart rate. You can also hear the controllers stress response.

- Despite the startle, the Shamrock pilot makes a perfect MAYDAY call. **This is how it's done**. (And despite that, the controller asks "*Are you Declaring an Emergency*". Back to the FAA problem – very muddled guidance on emergency phraseology in the US. **@FAA: fix this please!**)
- As pilots, **we might not think** that "our emergency" is stressful for the controller. It is. The controller is just as startled as we are. Every controllers heart skips a beat when you say "MAYDAY".
- For both of us – pilots and controllers – once you've sorted out the immediate actions, a moment to **sit on your hands** and breathe is essential. For pilots, Aviate, Navigate, Communicate – get the airplane safe – and then take a moment to get your physiology into a more helpful place. For controllers, Ack the call, separate the immediate traffic, and then … **Three deep breaths**, perhaps (IFALPA have been discussing this recently, as the startle effect become more understood). Bottom line is we don't make great decisions when we are responding instinctivly.

4. Dear ATC, here is our 5 minute wishlist.

This one is going to be a work in progress, but we discussed a few things that might help a controller to understand what a pilot really wants in those **first five minutes**. We should try to distill this into a flash card, after some more discussion?

So, "*American 1, MAYDAY, STANDBY*", ATC says "*American 1, MAYDAY, Roger*" … what then?

- **MAYDAY** is just what we say to get attention. It very, very, very rarely means that we're going down in flames like a bad Steven Seagal movie. Even though we'll be startled for a moment, our training kicks in and **we know exactly what we have to do**.
- The biggest obstacle to us doing that is **distraction**. Hence, the greatest gift you can give us is **SILENCE**.
- Start by letting us know that you heard us. Acknowledge the call, and "MAYDAY Roger" is just fine.
- Depending on traffic, terrain, and when it happens, give us an **altitude** and a **heading**. "*Continue runway heading, climb 3000 feet*". We'll tell you if we need something different. A heading is the most helpful form of lateral navigation, because we just twist the dial and engage heading mode. Don't give us a direct-to point (heads down in FMS takes time). Don't send us off to hold somewhere, just yet. **Heading, heading, heading**.
- **SILENCE**. The less you talk to us, the more it helps. That MAYDAY call we make is just a small part of the **procedure** we're trying to run. Getting that procedure done correctly requires both

pilots to pay full attention, so stopping to talk to ATC is something we'd prefer to avoid.

- **The pilots will be having an essential conversation to** check the state of the aircraft, anlayse the issue, and decide on the appropriate action. A common workflow is *Power, Performance, Analysis, Action*: **Power:** Check Thrust, ATS engaged, set correct TOGA/CLB **Performance:** Flaps Up, Gear Up, Min Speed, Max Speed **Analysis:** MFDU Indication, OHP, Situation, Time Check, Priorities **Action:** [PNF] Memeory Items, MFDU, QRH, OMB, OMB Ch7, ILS minima conditions, MEL [PF] ATC call, Select approach considering situation, inform Cabin. For any engine issue, at the very least we will be retarding the throttle on the "bad engine". Pilot 1: "Confirm thrust lever 1"; Pilot 2: (points to Thrust lever 1) .. "Thrust lever 1, **idle**". If it's a failure, we might shut it down: ""Confirm fuel lever 1" – "Fuel lever 1, Shut". If it's a fire, "Confirm fire handle 1" – "Pull, discharge" – "Fire bottle 1 discharged" (Start timing) … **That's a lot, right!** So, until we've done all that, we can't really tell you much about our plans, we don't know yet. We just need the space to work through all that.
- **We don't want to land right way.** In 49 cases out of 50, even with an engine failure, even a fire, we're not going to want to enter a downwind or make a 180 to land immediately. That's not in our training. We take any immediate action needed, but then sit on our hands, run the process, assess, analsyse, run some checklists, talk to the cabin, and form a plan. So the **best thing you can do is give us vectors**, keep us near the airport (within 15 miles, say).
- **Don't ask us for souls and fuel** in the first five minutes. Our brains are engaged in problem solving, and distraction make that difficult. Save that for later, if at all (more on that below!)

Question: What else should we add in here? What else is on our ATC wishlist?

More to come! But, please comment below on what we have so far …