CAAF LOGO

SPECIAL POINTS OF INTEREST:

- **CAAF keen for feedback**
- **This is the season for fireworks … Be alert to the danger.**

Aviation Safety Bulletin

THIRD QUARTER 2017

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Aviation safety in the GNSS environment

As we move closer to full utilization of the ADS-B environment, the following article from CASA should be considered useful. The following airmanship tips aim to highlight some of the human factor issues that may impact those operating a GNSS.

A lack of mode awareness is a common hazard in computerised flight systems. You must be able to recognise the correct mode of operation for each phase of flight, particularly during instrument approach.

- Ensure you are familiar with the operating procedures before using the GPS in instrument meteorological conditions (IMC)
- Check the receiver operation, the database validity and your approach chart before flight
- Make sure the receiver is set up with the required navigation settings – distances in nautical miles, QNH in hectopascals, etc. Also check the CDI scaling for enroute operation.
- Ensure the GPS is included in your instrument scan but avoid fixating on the receiver.
- Review the functions of the GPS receiver before each flight be entering the complete flight plan, including the instrument approach procedure to your destination.
- Do a confidence check of all tracks and distances.
- As you become more familiar with the unit, guard against complacency, and use all navigation information available to cross-check

INSIDE THIS ISSUE:

Key Points

- GPS can deliver gains in reliability, accuracy and system monitoring ability, but training and system familiarity is essential.
- The lack of standardisation of equipment can cause problems when pilots move between aircraft with different displays
- You might lose situational awareness if you are struggling with a GPS in flight, such as flicking through manuals or cycling through controls.
- The amount of information humans can deal with at any one time is limited and at times, particularly in the IFR environment during high workload phases of flight, it is possible to exceed individual processing capacity.
- Modern challenges in the human-machine interface include cockpit design, which covers how to present information to the pilot, and automation design, covering the question of who should do what, in dividing the task of flying between human and computers.
- A lack of mode awareness is a common hazard in computerised flight systems. You must be able to recognise the correct mode of operation for each phase of flight, particularly during instrument approach.

The Value of Defect Reporting

An engine failure on the runway can have an entirely different outcome to the same engine failure at 500 feet. Reporting defects, even seemingly innocuous ones, can prevent a minor incident from becoming a major accident.

One of the requirements under part 12 Accidents, incidents, and statistics is the reporting of defects. A defect incident is described as one "involving failure or malfunction of an aircraft or aircraft component, whether found in flight or on the ground."

"A defect could be something found during scheduled maintenance, or something that came to light through an Airworthiness Directive or Service Bulletin. It could be structural or mechanical, or resulting from a maintenance programme failure where a part goes beyond its overhaul time," says Michael Campbell, NZCAA team Leader Safety Data Management.

One defect that recently came to light was the failure of non-conforming small end bushings in some Lycoming engines.

"We saw two failures in close succession, and felt a trend may have been emerging," says Alan Thomson, Business Development Manager at Oceania Aviation.

"We saw signs of bronze deposits in one engine, which only increased after a ten hour re-release to service. In the other instance, we noticed a loud tapping noise in an engine, and found the conrod bushing had badly migrated."

Following this discovery, Oceania had discussions with both Lycoming and CAA Aviation Safety Adviser, John Keyzer. These discussions, and subsequent defect reports from other participants, resulted in the issue of continuing Airworthiness Notice 85-008 in New Zealand.

Lycoming issued their own service Bulletin 632 addressing the problem.

"An issue might not seem important today, but could become important in three months, or in five years. If you don't tell us about it now, we can never do anything about it," says Michael.

Reporting the Defect

"We find that if somebody is worried enough about an issue to call us, it's usually worth reporting," says Michael.

After a report is received, it is assessed and classified by the safety analysis team. It could, for example, be classified as a major defect, which was the failure of a complete system, or a critical defect which had immediate risk to life and limb.

"From there," says Michael, "it is distributed to CAA operational groups and investigators, who decide whether they want to take further action."

CAA Intelligence, Risk and Safety Analysis Manager, Jack Stanton, encourages those submitting a defect report to include as much detail as they can. "It's useful to receive a nice clear description of the fault, with information like the part number, serial number, and ATA chapter. "Photographs of defects are worth a thousand words, but only if they're in focus. Often people will take a photograph but so closely it's hard to tell which part of the aircraft you're looking at."

While it is true that most directives about defects are firstly issued by the State of Design or manufacturer concerned, the CAA in New Zealand still collects data that can be used by those foreign agencies to build a better picture of the problem. "If we're seeing a significant issue with a foreign part, we can also initiate action and contact the appropriate State of

Design directly," says Jack. The distribution of this information globally proves the value of defect reporting, but also shows that a reporting system is effective only when it is supported by the participants. As Alan notes, "A good defect reporting system increases awareness. If we're seeing a trend emerging we should be alerting the whole industry, because knowledge is power."

In New Zealand defects can be reported through the Here and Now app available from Google Play or Apple iTunes, with the online reporting tool at www.caa.govt.nz/report, or the CA005D form. If you're unsure of the reporting requirements, you can always call the CAA on 0508 4 SAFETY (0508 472 338) with your queries before submitting a report.

In Fiji, defects can be reported to any airworthiness officer and an MOR filed which will be added to the CAAF AQD system.

Occurrences which shall be reported to the Authority under the ANR include but are not limited to the following :

⇒ damage or the likelihood of damage to an aircraft that affects or could affect the safety of flight;

⇒ death or injury of a person involved in an aviation activity;

⇒ impairment during a flight of the capacity of a member of the flight crew of an aircraft to undertake the functions to which his licence relates;

⇒ the use of any procedures taken for the purpose of overcoming an emergency;

⇒ the failure of an-aircraft system including failure of the flight controls, power plant, hydraulic, pneumatic, pressurization, electrical, navigation or electronic systems or is an equipment of a type notified by the Authority;

⇒ impairment to the control of an aircraft in flight by its flight crew;

⇒ the failure or inadequacies of facilities or services on the ground used or intended to be used for purposes of or in connection with the operation of aircraft;

⇒ arising from the loading or the carriage of passengers, cargo or fuel; and

⇒ any other occurrence which, in the opinion of such a person constitutes an occurrence endangering, or which if not corrected would endanger, the safety of an aircraft, its occupants or any other person.

Lithium Batteries — the good, the bad, and the ugly

Air transport operators need to be aware of the danger presented by lithium batteries, because often their passengers are not.

The Ugly

To date and globally, there have been more than 150 occurrences in the air involving lithium batteries, including fatal accidents. Consequently, both lithium ion and lithium metal batteries are considered Dangerous Goods when transported by air.

From cell phones to self-propelling baby strollers, lithium batteries are increasingly powering goods transported by aircraft.

There is a growing number of reports of such goods spontaneously combusting as the lithium battery contained in them explodes.

A current study of such incidents suggests that when an aircraft takes off, the noise of its engines and associated sonic vibrations may upset the internal structure of the batteries. That's thought to cause a battery to short circuit, heat up, and eventually burst into flame.

The likelihood of such an occurrence is still rare, but the consequences are, of course, potentially catastrophic.

Traditional extinguishers are impotent against a lithium battery fire, because if one cell of the battery catches fire, it'll generate heat in the others. Halon extinguishers may suppress the fire for a moment, but it will erupt again in the same, or another, cell. The only way to effectively put out a lithium ion battery fire is to submerge it in water.

One of the more common lithium powered products to explode is the electronic cigarette. E-cigarettes are forbidden in checked-in luggage, because if it's in the cabin and 'detonates', at least any smoke will be obvious to passengers and crew who can take action. But many people don't appreciate the danger, and such products are often not discovered unless a bag is screened and searched for a separate reason. They are usually an incidental find.

The Bad

There are many lithium batteries produced with no regard to manufacturing standards, including counterfeit batteries.

"They're the ones with realistic labels on them indicating they've been manufactured by a known and approved maker, but can be fake," says Clayton Hughes, the CAA's avionics specialist. "But even properly manufactured batteries can be subject to failure, as mainstream device manufacturers have discovered."

Clayton says rough handling is another danger. "It can damage the lithium battery inside the product even though the outside looks fine."

The Good

Lithium batteries are increasingly popular because they are low weight, high-density, and very high performance. For that reason some aircraft equipment is actually fitted with them, and approved lithium main aircraft batteries are now also available. "But those batteries need to be TSO-certified, which includes safety testing. They come under airworthiness requirements and often have service life airworthiness limitations," says Clayton.

"They're also sited inside, or with, components which normally contain associated battery protection circuitry, reducing the risk of fire and explosion.

"Regulation of the manufacture and

use of those batteries means they provide the least risk, as long as they're maintained according to the manufacturer's instructions."

The 'Regs'

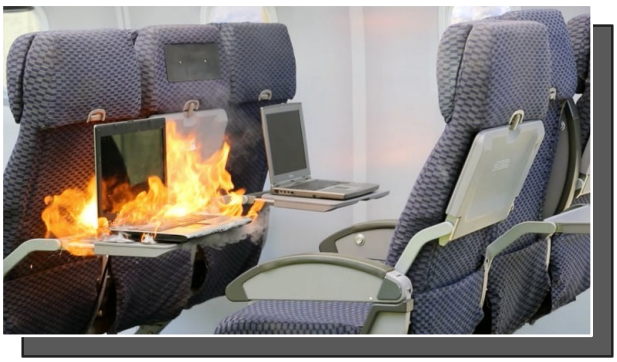
CAA's dangerous goods specialist, Kate Madden, says it's sometimes hard for people to comprehend that the lithium batteries in their cameras, power tools and cell phones are considered Dangerous Goods when carried on aircraft.

"For obvious safety reasons, ICAO has regulations covering how lithium batteries are carried by air," she says, "including restrictions on the maximum power – or 'Watt hours' – of the battery, and where in the aircraft they may be carried.

"Lithium batteries fully contained in the equipment for which they were designed, and under a certain power limit, are allowed in the cabin or in checked-in luggage. But if in the cargo hold, the product they're powering must be fully switched off, not in 'hibernation' or sleep mode.

"Batteries may be taken on board the aircraft if they are packed externally to the equipment they are powering. The equipment, however, has to be stowed in checked-in luggage. "Similarly, if the battery is on its own, and that includes power banks, it must be taken as carry-on, and individually protected by insulating the terminals to prevent short circuits. "That can be done by placing the product in the original retail packaging, taping over the exposed terminals, or placing each battery in a separate plastic bag or protective pouch." Kate says there are some batteries or products powered by batteries that cannot be carried anywhere on an aircraft. "The capacity of lithium batteries is measured in Watt hours (Wh). If you have a 100 Wh battery, and your product uses one Watt an hour, it will last 100 hours. If it draws 100 Watts an hour, it will last an hour. "The higher the capacity of the battery, the more lithium contained in it, the more dangerous it is. "Batteries must have capacity of no more than 100 Wh to be carried anywhere on the aircraft. If the battery's capacity is more than 100 Wh, the operator should check ICAO's Technical Instructions for the Safe Transport of Dangerous Goods by Air and IATA's Dangerous Goods Regulations. Passengers with such batteries also need to seek operator approval to have them on the aircraft.

Some battery labels describe capacity in ampere hours (Ah) or milliampere hours (mAh) instead of Wh. You can calculate the Wh by multiplying the Ah by the voltage. If in mAh, multiply by voltage and divide by 1000. If an air transport operation has a self-check in system, passengers need to be made very aware of what they can, or cannot take on board, and why. And why not. Clayton Hughes recounts a story of a videographer who removed the battery from his camera and packed it in his checked-in luggage. "The plane was delayed for ages, while they searched for his bag and removed the battery. They took it very seriously," he says.



The Advice

"In some ways," says Clayton Hughes, "the risk of lithium battery fires is, overall, decreasing because the major airlines are so aware of the issue. "However, it's the small passenger operations that need to be very aware of the dangers, and to make sure their passengers are too.

The likelihood of such an occurrence is still rare, but the consequences are, of course, potentially catastrophic.

"That might mean some really close questioning of passengers at the time of embarkation. Or noticing a comment from a passenger about their cell phone not charging very well, which can indicate a damaged battery. Or by having posters in prominent positions in the check-in area, or information posted to a web site or other publication." It's important for operators to keep current with the increasing array of products powered by lithium batteries. They include motorised suitcases, or electronic bikes that can pass for ordinary ones. "The Aviation Security Service (Avsec) web site, www.avsec. govt.nz, is a good place to start," says Kate Madden. "This is a fast-moving issue because of changing technology, and Avsec will have the most up-to-date information." Clayton says pilots and operators should be proactive and alert. "A pilot or operator of a small airline carrying the occasional piece of cargo should be very sure they know what is actually in that cargo. "And if a pilot knows that a product has been recalled because of the risk of a lithium battery fire, don't wait for the regulators to make a comment, just don't carry it!"

For more information, read Part 92 Carriage of Dangerous Goods at www.caa.govt.nz.

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FUEL FOR THOUGHT

The runway behind you, the air above you, and the fuel you left behind...

Forty per cent of engine failures are caused by fuel exhaustion, starvation, or contamination. Of that 40 per cent, starvation occurrences are the most common.

The fact that the majority of those likely resulted from pilot error illustrates the need to improve pre-planning, inflight fuel monitoring, and aircraft knowledge.

These statistics were presented to New Zealand airmen in a recent AvKiwi seminar run by the NZ CAA. Check out the Fuel for Thought online course at www.caa.govt.nz/ avkiwi which has a lot of information and videos from airmen who have volunteered their stories so that you can benefit from their experience. The following article is reprinted here in Fiji with CAA NZ permission.

Contamination

When asked to give examples of fuel contamination, AvKiwi crowds often responded first and foremost with "water".

The following account, involving CAA Flight Examiner, Marc Brogan, shows that contamination isn't always that straight forward. "Around May 2005," begins Marc, "a young CPL student decided to lease an aircraft from down south to build his CPL hours. "When he and a PPL mate picked up the aeroplane, they were told that at lower altitudes, the aircraft could run rough. If that happened, they were to just lean it out. Apparently that was the approved 'fix'. "They headed for home, and on the way found that the aircraft was no well-oiled machine. "The two pilots stopped for fuel and did a bit of a logic check on what was wrong. A local engineer assured them it was carb icing, as did a senior instructor at the aero club where they had also stopped."

They eventually reached home base without further drama, and a day or so later, the CPL student suggested to Marc, that the two of them go for a fly. "Sure enough, at low level, approximately 1500 feet, it needed to be leaned out," continues Marc. "But it seemed to perform fine and there were no further issues. We did what we needed to then headed back to the aerodrome. On arriving back we decided to do a touch and go, but passing 200 feet after climbing out, the engine started to run alarmingly roughly." As there were very light winds and no traffic, Marc called the tower and requested they be allowed a dumbbell turn, landing back on the runway. After a safe landing, Marc committed the machine to a thorough inspection before any more flying was done. The duty engineers stripped the engine down. A piece of hose clamp 4.3 cm

long was lodged in the carburetor throat, meaning there wasn't enough air getting in, hence the need to lean the mixture out. There was no logical explanation as to how it had got there but it had obviously been there for a significant period of time to cause that rough running.

Lessons

The main lesson from this occurrence surrounds the danger of normalising the abnormal, and over a period of time, developing a 'she'll be right' attitude. "Over a period of time," says Marc, "this organisation got used to the fact that this engine was running rough. They'd never thought why it might be running rough, they just came up with an immediate solution which was quite a long way from normal practice. That risk then shifted onto the next operator using the machine. "When we found out what was wrong, it was something that could have been remedied quite quickly with the correct technical knowledge – just thinking about it logically."

Know your aircraft

To help you understand more about the fuel system in your aircraft, the NZ CAA has created the Know Your Aircraft app. You might think you know your aircraft, but when you begin to work through a series of questions, helping you build a mental picture of your fuel system, it can be surprising to find out how much you rely on the aircraft's flight manual to fill in the blanks. Using the user-friendly drag and drop tool, you will be able to build a schematic picture which you can print out and email to yourself, and others who might be using your aircraft. The app allows pilots to collect, understand, and retain data on all of their aircraft's fuel-based needs, ranging from how many fuel tanks and vents the aircraft has, to how much fuel is required to climb to a certain height. It's also handy for those who are undertaking a new type rating, ensuring their knowledge is sufficient for any situation. It's available, free, on the Apple App Store and Google Play. This is a planning tool and not available to download on your phone. It is for tablets (including iPad) only.

More Lessons

One of the key lessons promoted in Fuel For Thought was to know your dipstick. A pilot who attended the seminar wrote in with his feedback. "You will be happy to know that our dipstick was recalibrated and found to be eight litres out (on one side). That's nearly 24 per cent. I couldn't believe it. You could well have saved someone's bacon!" The dipstick has now been engraved with useable fuel and the aircraft registration. Most importantly, it reads accurately.

Swiss Cheese Model

In Professor James Reason's Swiss cheese model of accident causation, an organisation's defences against failure are represented as slices of cheese. The holes in the cheese represent weaknesses in the system. When those weaknesses line up, a hazard passes through the holes, leading to an accident.

Fault Recognised and Questioned?

Was this fault ever properly recognised as a reportable fault or even a fuel issue? It doesn't seem so.

Work-Around Plausible?

The work-around seemed reasonable and plausible, and was implemented without too many questions being raised. It also seemed to fix the problem. We all use work-arounds, such as knowing the aerodrome gate sticks and you 'need to lift it when you open it'. But when the work-arounds concern the primary systems of your aircraft, they deserve more thought:

» Why is a work-around needed?

» Who suggested the work-around?

» How long has it been in place?

» How long is it planned to be in place?

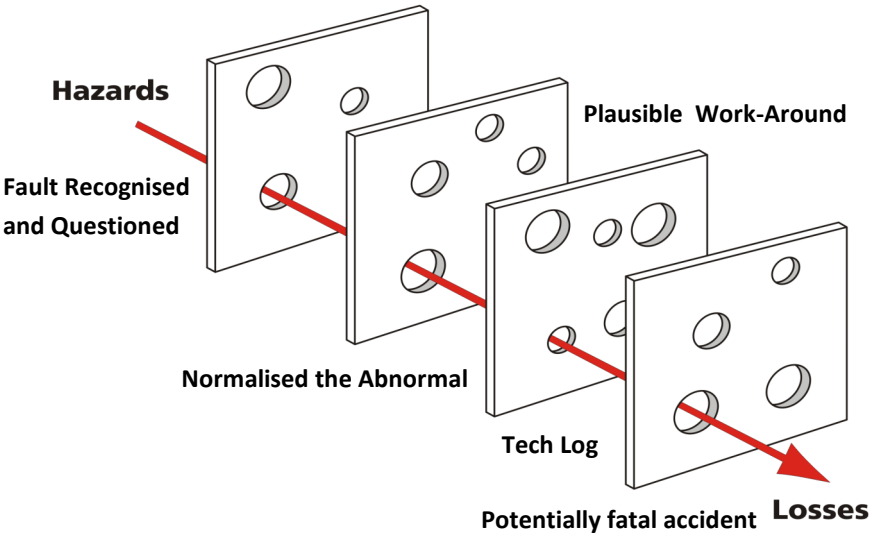
» Is there any remaining risk?

Normalised the Abnormal

This fault became normal. It was simply accepted that in this aeroplane the pilot needed to lean the mixture at 1500 feet, and then everything was fine.

Tech Log

If this defect had been entered in the Tech Log, the fault would have been investigated, isolated, and rectified, removing the risk.



SMS in practice

A Study in Safety

A whiteboard exercise was a catalyst for a highly successful – and safe – event amid the peaks of the Crown Range and Southern Alps. Here, a case study in ensuring safety at an aviation rally.

The New Zealand Association of Women in Aviation (NZAWA) has held a three-day rally during each Queen's Birthday or Labour Day weekend since 1960. With that longevity, the organisation decided that, prior to its 2017 event in Wanaka, it needed to take a fresh look at safety. "We don't officially have to have a formal Safety Management System (SMS)," says Sue Telford, who organised this year's event. "But with the focus these days on SMS, and the new health and safety laws, we felt we had to raise our game. "We set out to communicate more widely and more effectively, to have a more streamlined competition structure, and to put in place enhanced airside safety." Sue was reaching out to allies of the event a full year before it was to be held.

"Communication was key," she says. "Very early in the process I was talking with Wanaka Airport's manager, Queenstown Airport Corporation. "They wanted a safety management plan for the event, including a hazard sheet and what systems we were putting in place to manage the risk presented by those hazards. That was a good exercise for me, to be thinking early about any hazards associated with the event." Sue says the administrator of the airfield where such an event is to be held, needs to be brought on board early. "Especially in terms of their SMS. It's good to work with them on that. And you don't take it all on yourself – it's really important to delegate." She also met and briefed the Wanaka Airport management team, who in turn briefed the user group about what they could expect during the rally.

A smoothly running event is a safe event. A more organised and condensed grid competition reduced the risk of an incident.

"In response, I was contacted by the parachuting company, Wanaka Skydive, and between us, we worked out how we could both use the dual runways at Wanaka safely and efficiently. That demonstrated the success of an established user group within an airport community."

Elsewhere, a keen group from the NZAWA attended a CAA-sponsored seminar created for them.

Included in the day was a whiteboard brainstorming session, led by CAA Aviation Safety Adviser, Carlton Campbell, on every threat to safety they could come up with, and its associated mitigation. Some items were threats to the event no matter where it was held, and some were peculiar to Wanaka: for instance, the possible conflict with the parachuting operations there. "What I found really pleasing," says Jeanette Lusty, CAA team leader of sport and recreational flying, and long-

time member of the NZAWA, “is that the organisers were so open to different ways of approaching safety, even though the event had been going for so long without real incident. “The particular issue the airwomen have is that each year, the site of the event changes. So every Queen’s Birthday weekend brings new topography, new weather conditions, new aircraft, new people organising it. On top of that, the event is run by people who don’t have a specific ‘home’. They often don’t see each other from one year’s rally to the next. “These are all special challenges that your average aero club doesn’t have to worry about when they run competitions.” “As it turned out,” says Julie Bubb, the NZAWA president, “some of the things we anticipated did not eventuate. For example, early morning ice on the wings. The frost hit the day after competitions finished, but mitigations were in place should ice have been a problem.” The most obvious of the new safety initiatives was the use of a handful of Air Training Corp (ATC) cadets. “They marshalled people on to the apron, oversaw competitions, and acted as ‘gophers’. They were just fantastic,” says organiser Sue Telford. The main job of the cadets was to escort all competitors and judges airside. “One of the problems we’ve been increasingly aware of,” says Julie Bubb, “is people wandering around airside. We knew it was a safety issue, and the use of the cadets minimised the risk.” “Your ATC or St John cadet is the perfect person to get involved in these sorts of events because they like the flying gigs,” says Sue. “Again, we had good early communication with the local ATC. They knew they were needed for this date, so their leader put in place a course of study on safety management. Then the cadets were able to practise that programme at the actual event. It was great foresight on the part of the ATC. “Some of the cadets were only 13, but they were very mature, very capable. We told them, ‘you have to wear your high visibility vest, you don’t let anyone through the gate to go by themselves to the aircraft’. “It all worked really well, and I think it was also good for the cadets to see how seriously we were taking safety. They will hopefully take that culture on for themselves.” Sue says everyone today is more aware of their personal responsibility for safety. “We had a stack of high-vis vests from the airport manager to distribute. But, oh my goodness, it was astonishing how many people now have their own!”

Carlton Campbell says a more organised and condensed grid competition also enhanced safety. “When you’ve got aircraft trying to make a precision or forced landing, the pilot is focused on being very accurate. When you’ve got other traffic in the same area, it can distract the competition pilots, and that obviously heightens the risk of an incident, or worse. “So making sure those competitions were out of the way in the morning lessened the chances of having aircraft competing for the same bit of runway.”

Carlton says clear, methodical briefings for both judges and pilots are essential, particularly for those who are not local. “A checklist of items should be gone through systematically and formally so that everyone taking part is quite clear about what will happen and what they are expected to do. “The briefings also need to be free of time constraints. While it’s important to event organisers to keep to schedule, that should not be at the expense of a thorough and coherent briefing.” Sue Telford said a ‘run sheet’ also helped to streamline the event and improve safety. “It accounted for every hour’s activity from Thursday to mid-Monday afternoon – what needs to be done now, what needs to be done next. “When things are so well organised, safety can only be enhanced. For us that was particularly so on the Saturday, which is the important day of the rally. Everyone wants to compete, and you need to run the ship on that day fairly uninterrupted. “So you have all your prior communications done months before, and you’ve got your marshals in place, your executive, management and organising committee fully informed. Then that run sheet gathers up what’s been discussed, what’s been put in place, and what needs to be chased after. “It’s definitely part of safety management. Because you’re tired! And you can forget things, and if you don’t have something to refer to, you run the risk of not having something essential in place.” A formal debrief about what worked, and what didn’t, including safety measures, is following the 2017 event. It will be more analytical than in previous years. “One of the things we can still improve on,” says Julie Bubb, “is providing our competition organiser with a second-in-charge. The organiser this year was really pressured, and in future years, we’ll remove some of that burden by having someone to help her. That will also enhance safety.” Sue Telford says everything new learned at Wanaka about safety is now officially templated so future event organisers can follow the routine. That ‘kit’ is online so it can be easily accessed. “And we’ll see how flexible it is. Next year the rally is at Whitianga, which is a totally different environment from Wanaka. “So while some of those templates will be useful for Whitianga, we will need to go back to the whiteboard, and look at the special challenges staging the event there will bring.” Jeanette Lusty says the success of the rally showed that safety can be taken seriously without compromising fun. “We don’t want to get so nit-picky that it all becomes too difficult. People will just back off, saying ‘it’s too hard, I won’t do it’. And of course that defeats the purpose. “But they really raised their game this year, and it seems like everyone also had a great time. So being careful to identify hazards, and mitigate their associated risks does not mean fun is sacrificed.”

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Article courtesy of NZ CAA

ROGER THAT.....

Do you speak pilot

DO you know what a deadhead is? Or a squawk? Or how to respond to a pan-pan?

Pilot-speak is a 300-word language that senior air crew must speak - WHATEVER their nationality!

While the Aviation English is continually changing, pilots are required to pass strict language tests in order to fly planes safely.

The language of flight, or Aviation English - which consists of around 300 words - is a combination of professional jargon and plain English.

It was created to avoid pilots and air controllers mishearing each other - to avoid potentially fatal accidents taking place.

Pilot speak... and what it means

Do you know your squawk from your pan-pan? Affirm -

Contrary to popular belief, pilots do not say "affirmative" when they mean yes - the correct term is affirm, pronounced "AY-firm".

Mayday - This is one you don't want to hear. The distress call for life-threatening emergencies, such as complete engine failure. It comes from the French 'm'aidez' ('help me'). Pilots must stay it three times at the start of a radio call.

MEL - Minimum Equipment List - this means a particular aircraft appliance is broken but is not needed for safe flight - such as the coffee maker.

Pan-pan - The next level of emergency down from a Mayday; used for situations that are serious but not life-threatening. Originating from the French word 'panne', meaning a breakdown. You say it three times: "pan-pan, pan-pan, pan-pan".

Roger - This means 'message received', but it doesn't necessarily mean that you'll comply.

Squawk - To squawk is to set your transponder (a device for receiving a radio signal) so that your location can be identified on a radar. Pilots might be asked to 'squawk Mode Charlie' or 'squawk ident', which are unique settings to help air traffic control to see where you are.

Standby - This means "Please wait" and this is usually said when the air traffic controller or pilot is too busy to take a message.

Wilco - An abbreviation of "will comply", meaning received the message and will comply.

One of the deadliest plane disasters in history was partly caused by language confusion.

In 1977, the Dutch captain on a flight to Tenerife told air traffic control: "We are at takeoff". Tragically, the Dutch and English words were confused and due to poor weather conditions, the control tower could not see two planes headed for collision. At least 583 people were killed.

Following several such air traffic accidents the International Civil Aviation Organization (ICAO) suggested that English should be the international language of aviation - and that pilots and air traffic controllers must have at least a basic knowledge of it.

But it's not English as we know it. According to the Oxford Dictionary blog: "Learning to speak on the aircraft radio is one of the most challenging aspects of learning to fly, and new pilots must sit written and practical exams to prove their proficiency."

To understand pilot speak, you must first learn the international phonetic alphabet.

While the language of aviation is continually changing, pilots are required to pass strict language tests in order to fly planes safely.

Fiji to host Performance Based Navigation Implementation meeting

Fiji will host ICAO workshops in 2018 focusing on Pacific Island Performance Based Navigation issues and Instrument Flight Procedure surveillance in a bid to meet the Asia Pacific region's target of a seamless ATM region.

Also in 2018, Fiji will host the next meeting of the Asia Pacific Performance Based Navigation Implementation Coordination Group; the date tentatively set for March.

Implementation of PBN in the region is slow generally with a tenth of the APAC States falling below the ICAO implementation targets. Whilst Fiji is close to meeting its target of 70% implementation in a phased approach, PBN requires a seamless ATM environment and coordination between neighbouring States so as to prevent rejection of flight plans, to configure the ATM system parameters, thus to ensure a seamless ATM environment.

A recent objective, set by the AAPC PBN Implementation Coordination Group, chaired by Fiji, to move forward the PBN implementation in APAC in the spirit of the ICAO's 'No Country Left Behind' initiative, has seen a number of activities drawn up which will assist States through guidance, training and funding.

These activities include monitoring of PBN implementation by APAC States/ Administrations on PBN related Assembly Resolution and the Seamless ATM items relating to Optimal trajectories, associated regional priorities and targets, and making recommendations as necessary in areas where ICAO and international organizations can provide their assistance.

Through ICAO APAC Regional Offices, APAC PBN ICG provides guidance to States on methods of updating their PBN implementation plans, identifying challenges within State PBN Implementation Plans and PBN implementation activities and advising States on how best to address these challenges in a harmonized manner. The multi-disciplinary approach promotes more efficient flight operations trajectories and addresses related topics including Air Traffic Services (ATS) route network which is analyzed and reports on operational benefits of PBN implementation and the provision of these PBN implementations is updated to ICAO for inclusion in air navigation reports and regional performance dashboards.

The Asia Pacific (APAC) Performance Based Navigation Implementation Coordination Group (PBNICG) serves as the primary APAC Regional Body to support PBN implementation, harmonization and prioritization with the goal of enhancing safety and efficiency of aircraft trajectories and operations. The forum also takes into account activities related to the implementation of relevant ICAO ASBU elements, with initial focus on B0-CDO, B0-FRTO, B0-CCO, and B0-APTA. The PBNICG reports to APAC CNS/SG who coordinates with ATM/SG on PBNICG matters.

PBN ICG also emphasizes the identifying of issues/action items which are related to the regional implementation of PBN and related ASBU elements, and where appropriate, communicates these with related regional groups. The continuous review of APAC regional priorities/targets and relevant regional plans relating to APAC PBN implementation also helps PBNICG to Identify, propose and facilitate where necessary, the appropriate corrective action to be developed and implemented by States in order to resolve those identified deficiencies. PBN ICGS regularly reviews and updates States Air navigation deficiencies in the field of PBN which is listed in the APANPIRG database.

The APAC PBNICG members are composed of multi-disciplinary experts with knowledge of and responsibility for PBN implementation as nominated by ICAO member States/ Administrations in the Asia and Pacific Regions and International Organizations. The PBNICG has adopted the project management principles for action items as necessary and the Secretariat support for the PBNICG is provided by the ICAO APAC Regional Sub-Office (RSO) Beijing with close assistance from ICAO APAC RO and the Air Navigation Bureau (ANB).

Representatives from ICAO programmes such as Co-operative Development of Operational Safety and Continuing Airworthiness Programme (COSCAPs), Flight Procedure Programme Beijing (FPP) and other professional organizations are usually invited to participate as the scale of the APAC PBN ICG is regional.

The ICAO APAC PBNICG is currently Chaired by Fiji.

Woman's Round-the-World flight lands in Fiji

Dreams Soar is the brainchild of Shaesta Waiz, Afghanistan's first female civilian pilot. She is attempting this endurance feat as a way to encourage woman to reach their potential if they want to pursue a non-traditional role in life.

With support provided through ICAO's Next Generation Aviation Professionals programme, Shaesta is undertaking a solo round-the-world flight this year in her Beechcraft Bonanza 2001 A36 aircraft, travelling the globe to raise awareness for greater global access to Science, Technology, Engineering and Math (STEM) education for women and youth.

Shaesta's mission began in May 2017 and she is flying across 18 countries, 5 continents with 30 planned stops, one of which was Nadi International Airport on 24th August.

She also spent a week of outreach in Montreal with ICAO and other local aviation partners.

In every country she visits she works with women encouraging their participation in careers that are still considered non-traditional.

"I have a very strong passion for aviation that I want to share. But it's more than that. I want to show women that they can succeed in anything – including flying around the world," Shaesta has remarked. "My aviation dreams have had a huge impact in making me the pilot and the woman I am today, and I'm very grateful for ICAO's recognition and support as I embark on this incredible voyage for STEM."

By the time the Dream Soar Global Flight for STEM ends later this month with Waiz' return home to Daytona Beach she will have flown more than 25,000 miles in total. But its nothing compared to the journey that this 30 year old aviator has already persevered.

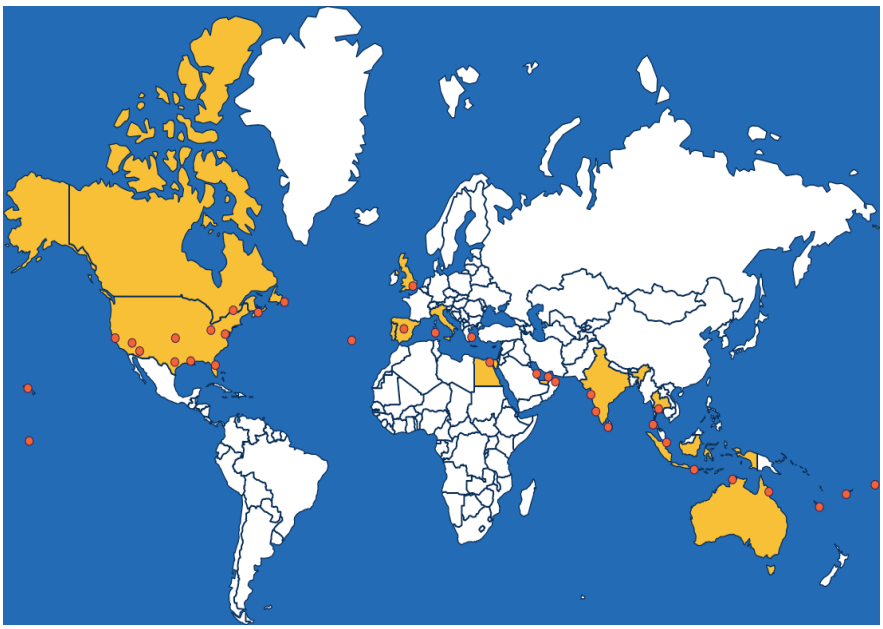
Born in a refugee camp in Afghanistan in 1987, Waiz and her family fled to America to escape the Soviet-Afghan war. One of six sisters gowing up in Richmond, California, she early discovered her interest in

While a student at Embry-Riddle Aeronautical University, Waiz founded the Women's Ambassadors Program in 2011 to increase female enrollment through a modeled mentor program. In less than three years, under her leadership, the program helped increase female enrollment from 13 to 22 percent. With a mission to encourage more women to pursue STEM and aviation-related degrees, Dreams Soar was started in 2014 by Waiz, and the team celebrated its first year operating as an established nonprofit organization with the launch of the global flight.

"This moment is dedicated to the dreamers, the believers, the ones who aren't afraid to go after their dreams and fight for them to Soar," Waiz shared upon her landing at Nadi Airport.

Whilst in Fiji, Waiz spent time with female aviators talking of her experience and hopefully inspiring many of our woman to challenge themselves .

Waiz landing at Nadi International (above) and her journey (below)



Dreamsoar Message from ICAO

Ensuring women have an equal opportunity to pursue careers in aviation is crucial to ensuring that the global civil aviation network has access to sufficient human resources to sustainably manage the tremendous growth forecast over coming years. And progress on gender equity in aviation supports the achievement of Agenda 2030 Sustainable Development Goals 4 and 5, which are directly related to women's empowerment. This, as well as how well Dreams Soar parallels the bold and adventurous spirit at the heart of all of air travel, are big reasons why ICAO is supporting the "Dreams Soar" project that aims to raise awareness of these important issues.

Thermal lesson learnt

It was a warm, sunny, late morning on an abandoned airfield surrounded by patchy red earth. You could almost see the thermals popping all around. It seemed like a good spot for winch-launch training, the instructor also being the country safety officer. It was almost 19 years ago now, at Dunottar Military Base, Gauteng, South Africa.

I was on a locally manufactured Fun2Fly Aztec, at the time a firm favourite with students. Looking at the historical data, it seems the glider was unrated and I think that the design was based on the Edel gliders. The material was Gelvenor with Dyneema lines, and they were manufactured from 1995 onwards. This would have been in about 1998.

I launched and was pulled up to maximum when I pulled the pin and released the cable, immediately starting to scratch around for a thermal.

Suddenly, my guts dropped like I was in a freight elevator and I knew I had flown into a strong thermal.

I pulled the right brake to turn into the thermal and spiral up, but as I pulled, I exited the thermal. The cascading air on the edge of the thermal pushed down on the side of the wing on which I was already pulling the brake hard. Half of the wing collapsed and I started to spin violently. I pulled the left brake hard to stop the spin, putting myself in a full stall.

I dropped like a stone, but at the time I was naively not worried at all.

The manufacturer stated that the glider would unfurl, unfold or otherwise correct itself within four seconds.

I looked up and saw that the downward motion caused by the upwards rushing air was pinning the folded part of the wing to the underside of the glider, and it was not unfolding as expected. The lines on the right were hanging slack, so there was no point in trying to pull on anything on that side. The left was on full brake to stop the spin, and when I released it slightly, I started spinning again. I still had height and was working through my options, but getting closer to the ground rapidly. I think it was at this point that I started getting concerned. We did not have reserves, something which was relatively unknown at the time, and the harness consisted of a basic seat-type arrangement with no padding.

I started making small pistoning movements with the left brake, from full to about 75% to push the air from the inflated area of the glider through the cross vents to inflate the right side. My fear at this time was that the loose-hanging lines would get caught over the wing as it inflates. I shouldn't have worried, the wing was not unfolding fast enough, and I hit the ground feet first. I did a parachute landing fall (PLF), something I was familiar with because of a skydiving course I did previously. It was my good luck that the field in which I fell had recently been ploughed, with huge sods of freshly turned earth, partly matted with grass, cushioning my fall. I guess it acted the way a modern harness with foam padding would. Despite this, it was still a huge hit and I was shaken and hurt.

I didn't move for a while, hoping that someone would come to help me determine whether there was any spinal damage before trying to get up.

But it seemed that no-one had even noticed—as soon

as I was released from the cable, their attention was focused on the next student.

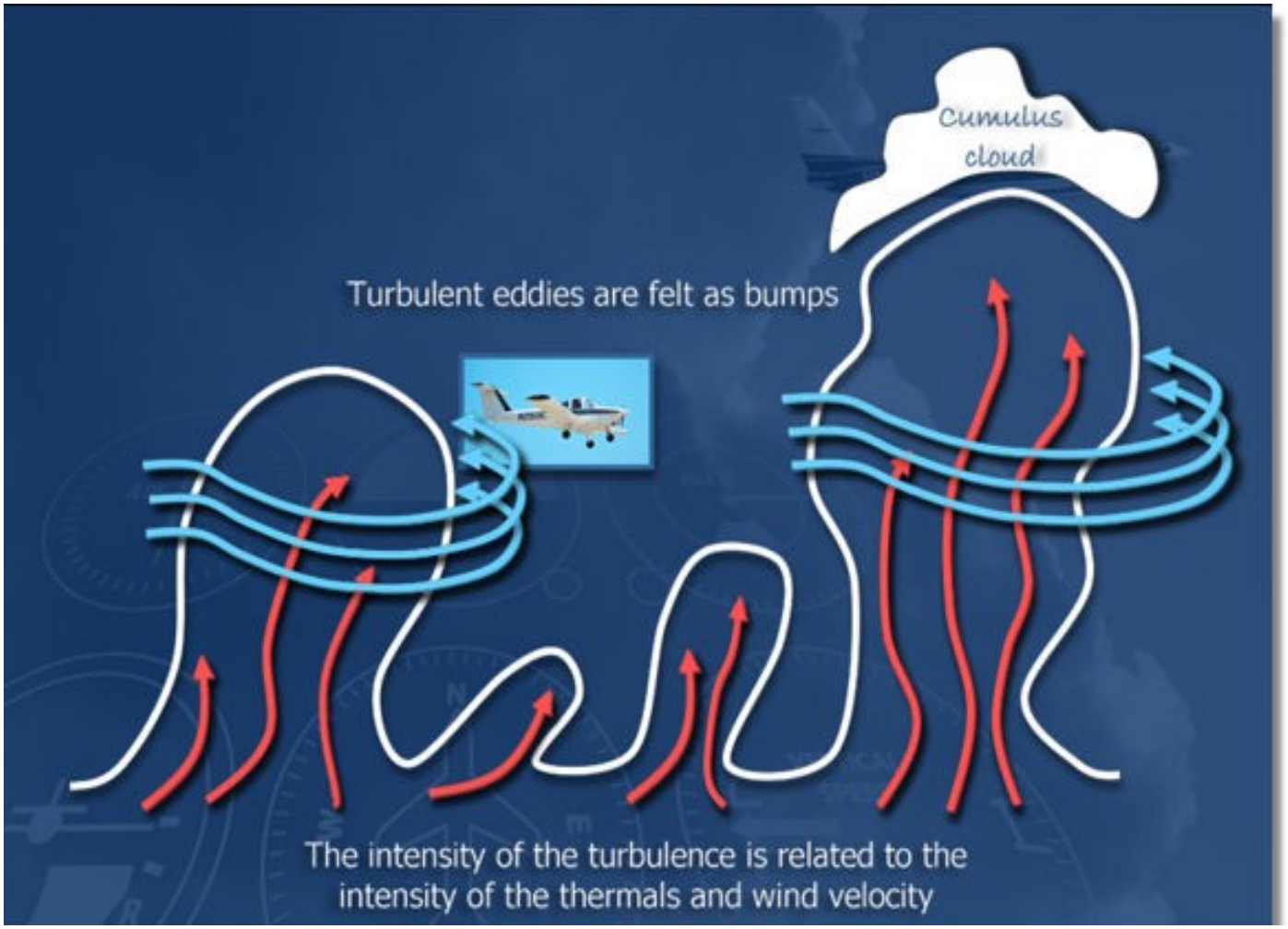
I slowly moved, first my arms, then my legs and then sitting upright. My lower back hurt like I was kicked by a horse, but there didn't seem to be any sharp pains, grating of bones or other signs of damage. I stuffed the glider into the bag and walked back to the launch area, my anger growing with every step. So many thoughts passed through my head—why did the manufacturer make promises that were not true? Why did my instructor not look after me, check that I was doing ok up there?

I handed the glider back to her and left—I can't remember what I said, but she passed it off as nothing, not filing a report. I left and didn't fly again for seven years. When I did return to the sport, I only flew coastal flights, and even in this relatively smooth environment, I would suffer from a debilitating fear every now and again. Inexplicably and illogically, I would fly along without any issues, no turbulence and all of a sudden I just had to be on the ground. It felt like a steel belt around my heart, pulling tighter and tighter. Fortunately, with time and regular flying, this phobia disappeared. I guess it was also a matter of confidence—with better information and easier access to it on the internet, I gained a much better understanding of how thermals work, what they look like, what to expect and what it feels like when you're up there.

I've been flying for 12 years now after the incident, and will continue to fly for many more years.

What I learned from the experience is that when you're up in the air, you are on your own—there is no-one to take responsibility for your safety and really nothing anyone can do to help you. Their involvement stops the moment you take off—no matter how good your training and how safe your glider, it is your own actions that determine your fate.

Secondly, you can never have too much information, and with modern technology, there is no excuse not to keep learning. Learn about aerodynamics, weather, learn from others' experiences, visualise potential situations and



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AN SMS update .....

Montréal, 5 October 2017 – ICAO Secretary General Dr. Fang Liu and the Director of France's École Nationale de l'Aviation Civile (ENAC), Mr. Marc Houalla, signed a Memorandum of Understanding today covering the development and delivery of new educational programmes and training activities within the framework of the ICAO TRAINAIR PLUS Programme.

The first outcome of the new partnership will be a Master's Programme in Aviation Safety Management, which is expected to launch in 2018. Its objective will be to provide future Safety Management System (SMS) managers with the fundamentals needed to systematically monitor and improve aviation safety, based primarily on ICAO Annex 19 and related SMS provisions.

"This new Master's Programme will be an important addition to ICAO's expanding portfolio of training offerings," highlighted Secretary General Dr. Fang Liu. "We are very committed to strengthening our collaboration with Members of our TRAINAIR PLUS Programme, and to raising awareness on the latest safety provisions for both current and next generation aviation professionals."

The new SMS Master's Degree, composed of 12 modules as well as an internship, covers all aspects of SMS concepts, processes, methods and operational management. It is specifically designed to address both executive as well as technical levels.

The course modules will support a wide range of aviation stakeholders, including aircraft and airport operators, manufacturers, maintenance organizations, air navigation service providers, and training organizations.

The Master's Programme will be delivered both at ENAC's Toulouse location in France and globally via other TRAINAIR PLUS Members.