# Aviation Safety Bulletin

SECOND QUARTER 2017

A publication of the Civil Aviation Authority of Fiji

**SPECIAL POINTS OF INTEREST:**

- **CAAF keen for feedback**
- **Most aircraft accidents take place on the runway—ICAO**

**INSIDE THIS ISSUE:**



## The quarter in review

Much has happened this past quarter that may change the way we conduct our aviation business.

On May 17 a robotic copilot owned by Aurora Flight Sciences successfully flew and landed a B737 simulator, able to assimilate and respond to aural and visual cues, manipulate the controls and even understand and utter synthetically-generated voice replies to voice commands and directions given.

Then there was the recent communication systems crash in the United Kingdom which saw the cancellation of more than 200 flights. The breakdown was in the computer systems at the London Air Traffic Control Centre, the £623m headquarters of the National Air Traffic Service (NATS), which monitors Britain's airspace. Other airports were also affected, but it was Heathrow, the world's busiest international hub, that bore the brunt. The airport normally manages one departure every 90 seconds. On the Saturday morning this had slowed to one every five minutes. Hundreds more flights were delayed, and thousands of passengers stranded.

And in the USA the president is considering privatizing the ATC system.

Also at the global level, ICAO recently published the 2016 safety report. While the accident numbers are decreasing, the number of flights are rapidly increasing. As the ICAO data on page 12 explains, runway accidents far outweigh any other type of aircraft accident .

In Fiji our aviation world is also changing. The remotely piloted aircraft industry is flourishing, there are increasing numbers of requests for sky lantern releases, laser and fire work displays. This puts additional workload on CAAF inspectors and our runway approaches are busier.

Ensuring this approach area is safe for current usage is paramount . Another area where CAAF has focused its attention is the increase in applications for building heights at approval limits in the vicinity of an airport. Aircraft operating with improved technology such as performance based navigation capabilities would mean that these aircraft have improved approach abilities and can descend lower and closer to the airport runway. Foresight and planning is required to ensure that inspectors don't limit the airports potential to develop.

The air transport industry plays a major role in global economic activity and development. One of the key elements to maintaining the vitality of civil aviation is to ensure safe, secure, efficient and environmentally sustainable flight at the global, regional and national levels. It stands to reason then, that CAAF must work closely with industry to ensure that vitality.

In this issue, therefore, please find excerpts from the ICAO 2016 Safety Report, and the ICAO GASP report., and following the theme of this quarter we have articles on stabilized approach, situational awareness, and also improving our security. The AFL Environment Officer has provided a very informative article on bird strikes at our two main airports and an analysis of wildlife behaviour . We look forward to your contribution. Address correspondence to The Editor, Aviation Safety Bulletin, CAAF, PMB, Nadi Airport or email Mollymurphyfiji@gmail.com

# Stall — Spin — Crash!

This scary accident resulted in a wrecked aeroplane, but almost unbelievably, no major injuries. There are a number of important lessons to be taken from this pilot's experience.

**I had taken off from my farm property to fly to nearby Whakatane to refuel. Enroute I decided to practice a few stalls, so I climbed to 4000 feet and carried out the HASELL checks. I then closed the throttle and used progressive back pressure to maintain height. I have carried out numerous stalls in this aircraft before, and found it to be quite docile, however, this time I wanted it to develop a wing drop stall so I held the joystick back for longer than I normally would. The aircraft then stalled suddenly, with a wing drop, and flicked over. I reacted instinctively with opposite aileron, but then quickly realised my mistake and tried to apply the correct recovery procedure for a wing drop stall – centring the aileron and using opposite rudder, however, by now the aircraft was in a steep nose down spin. I have not been trained in spin recovery, so I attempted a variety of control inputs using stick, rudder and power to regain control, but nothing worked.**

**I did, however, manage to unwittingly manoeuvre the aircraft out of a nose down spin and into a flat spin. Once in a flat spin the engine stopped. At this point I realised I could do nothing more than wait for the impact.**

**Incredibly, I survived with only minor injuries. Mostly because the aircraft struck the slope of a small rise and then slid down it. In addition, the undercarriage collapsed and splayed outwards, helping to dissipate the impact energy.**

## Lessons to be learnt

But wait, if we step back a little further, it is clear that this pilot should have briefed himself better on stalls and stall recovery before even attempting the first stall. A little time spent refreshing yourself on the actions you will take to recover from a stall, and the actions you would take in the event of a wing drop stall (and even practising them while on the ground) is time well spent. It would have been even more prudent to explore the flight envelope of this aeroplane with an instructor before attempting it solo. There is plenty of debate among pilots and instructors about the benefits of practising these types of manoeuvres versus learning to identify the symptoms of a stall and recovering before one is entered. The NZ Flight Instructor Guide recommends instructors expose students to these types of manoeuvres in order to increase their skill level and their ability to deal with the situation if it ever arises.

This pilot, like many, had never done any spin training, but now thinks it would be a good idea if pilots could gain access to an approved aircraft and appropriately qualified instructor.

Here is how the Spin Avoidance GAP booklet describes an entry into a spin:

If the aircraft is yawed, a roll will develop in the direction of yaw because the outer wing has increased speed, which has increased its lift. The descending (inner) wing gains an increased angle of attack. If this wing is at or near the stall angle, its lift reduces. When one wing goes down, the other will rise, and exactly the opposite happens to the rising wing. The relative airflow now produces a reduction in angle of attack on the up -going wing, which may be below the stall angle (in effect it has become less stalled). The effect of these differences in lift will be to produce an accelerating roll rate in the direction of the initial yaw. These changing angles of attack also affect drag. The down-going wing with an increased angle of attack suffers increasing drag. The up-going wing gets a drag reduction. The difference causes even more yaw towards the down-going wing.

At some point, the spin in this accident sequence turns into a flat spin, probably due to the application of power. Here's a little more from the Spin Avoidance GAP booklet: Flat spins rotate at a slower rate than upright spins, but to the pilot they appear to be rotating much faster. That's because the pilot's line of sight is parallel to the horizon – you see much more going past. Yaw rates in a flat spin are usually very fast, but the rate of altitude loss per turn is usually less than in a steep nose-down spin.

Once in the flat spin the engine stopped due to fuel starvation caused by the low fuel quantity, and that fuel being flung out towards the wingtips, away from the fuel tank outlets.

This pilot was incredibly fortunate to have survived the accident. Through a lucky combination of a slower descent rate and a sloping hill in just the right spot, this pilot lived to tell this tale and has learnt a valuable lesson we can all learn too. Let's leave the last word to him…

***Do your homework – it is important to understand your aeroplane and its stall characteristics at different weights, and be familiar with what is in the flight manual. And if you are trying something new (in order to increase your experience) – get an instructor involved before you get in over your head.***

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**Photo attribute to Alan Marks, New Zealand Police.**

# Reducing the Risk of a Runway accident

**All flights must be stabilized by 1,000 feet above airport elevation when in instrument meteorological conditions (IMC) or by 500 feet above airport elevation in visual meteorological conditions (VMC).** An approach is stabilized when all of the following conditions are met:

1. The aircraft is on the correct flight path;
2. Only small changes in heading/pitch are required to maintain the correct flight path;
3. The aircraft speed is not more than VREF + 20 knots indicated airspeed and not less than VREF;
4. The aircraft is in the correct landing configuration;
5. Sink rate is no greater than 1,000 feet per minute; if an approach requires a sink rate greater than 1,000 feet per minute, a special briefing should be conducted;
6. Power setting is appropriate for the aircraft configuration and is not below the minimum power for approach as defined by the aircraft operating manual;
7. All briefings and checklists have been conducted;
8. Specific types of approaches are stabilized if they also fulfill the following: instrument landing system (ILS) approaches must be flown within one dot of the glideslope and localizer; a Category II or Category III ILS approach must be flown within the expanded localizer band; during a circling approach, wings should be level on final when the aircraft reaches 300 feet above airport elevation; and
9. Unique approach procedures or abnormal conditions requiring a deviation from the above elements of a stabilized approach require a special briefing.

An approach that becomes unstabilized below 1,000 feet above airport elevation in IMC or below 500 feet above airport elevation in VMC requires an immediate go-around.

# Security course for Fiji aviation

This quarter the Civil Aviation Authority of Fiji conducted a week long quality control course for Fiji's aviation industry. Thirteen participants took advantage of the opportunity to learn how to conduct a security audit within their own organisations, thereby improving their company's service delivery.

The course was developed by CAAF to provide trainees with theoretical and practical knowledge of fundamental aspects of quality control activities as a part of the National Quality Control system.

Participants can now conduct internal audits using standard methodology. The course gave them specific techniques to follow for a successful and thorough outcome. This also has the benefit that audits are harmonized within the Fiji aviation industry.

The course concluded with an audit exercise conducted at the airport which participants found challenging and beneficial.

In order to receive a certificate of successful completion, participants had to pass an exam based on Fiji Legislation, NCASP, NCASQCP and materials presented during the course.

CAAF can now authorize selected AVSEC Quality Control personnel to conduct internal quality control activities in their respective organizations.

# For the Record...

**Keeping accurate and up-to-date records is not only sound business practice, it is also a legal requirement for just about every aspect of a commercial enterprise. In the case of aircraft time-in-service records, the rules requirements apply also to private (ie, non-commercial) operators; and for flight crew logging of flight times, the rules apply to all flight crew, commercial and private. This article is printed with the permission of New Zealand CAA. It is equally relevant to the Fiji aviation environment.**

CAA auditors and investigators are still finding examples of poorly-kept or even non-existent records, with the operators concerned seemingly unaware of the requirements. A common deficiency is in the maintenance of daily flight records; another is the incorrect logging of flight times and aircraft time in service.

## What's the Difference?

There are two particular definitions in Civil Aviation Rules, Part 1 Definitions and Abbreviations (In Fiji this is found in ANR 24(2). In summary, flight time is 'chock to chock' time and is what goes in your flight crew logbook and flight and duty records. Time –in-service (not defined in Fiji legislation) is what you enter in the aircraft logbooks, and is 'takeoff to touchdown' time. Some years ago, an operator was using a logging system that involved subtracting 10 minutes from each end of the flight time, resulting in 'four-minute' flights (for time-in-service purposes) across Cook Strait. Point-to-point Woodbourne to Wellington flights would have to operate at Mach 1 to achieve this – and they weren't operating jets at the time. (Nor did the CAA receive any complaints of sonic booms in the area!)

## What's Required?

Pilot Logbooks

These are required by rule 61.29, (Fiji—ANR 122 and 124) and the main point here is that a pilot logbook is a legal document, and must be retained permanently unless the holder's licence is revoked. The rule requirements are quite prescriptive, and it would be worthwhile to familiarise yourself with these from time to time – the guidelines in the front pages of your logbook may well be out of date by now.

Apart from the usual basic details, the logbook must show for every flight, "the purpose of the flight, including the place of departure, any intermediate landing, and the place of arrival", although 61.29(c)(2)(iii) provides for the case where a number of similar flights (eg, agricultural, parachuting, glider towing) are performed.

Provision is also made in 61.29(c)(2)(ii) for computer-generated records, but note the requirements in 61.29(d) for a written summary. (Ed: not applicable yet in Fiji.)

Note also that incorrect entries must be altered only by putting a line through them and adding the correct information beside the entry or on a new line. This precludes the use of correcting fluid or patches.
On completion of each logbook page, the holder must total all columns and certify that all entries to date are correct. At this point too, don't forget to carry the totals over to the next page.

**Daily Flight Records (DFRs)**

This is a separate requirement from pilot logbooks, technical logs and aircraft logbooks.

Depending on the type of operation, these are required by one of rules 91.112, 115.455, or 135.857. (The current 91.112 reference to 137.503 is not valid at this time, the amended rule not having come into force.) An 'operator of an aircraft' is required to maintain daily flight records. As for pilot logbooks, the rules requirements are quite specific – and they apply as much to private owners as to commercial operators. (Fiji ANR 123(2)(d).

There is no standard form for DFRs – a computer spreadsheet would suffice, as long as all the rules requirements are complied with.

Some commercial operators use a 'duplicate' book that combines the functions of the daily flight records and technical log, and these are usually designed around the needs of the operator. These combined records are provided for in rule 91.619(c). Note that these are daily flight records – not a summary of several days' worth of flying, as has been found in some instances. The details of each flight must be entered, and the records retained for 12 months. (ANR 123(8) - 2 years in Fiji).

The proposed rule 137.503 listed additional requirements for agricultural operators, including the purpose of the agricultural aircraft operation, and for each applicable location, the name and quantity of the material that is dispensed. Most of what 137.503 would have required has to be recorded anyway, to comply with rule 19.103 Agricultural operators – statistical returns.

**Maintenance Records**

These must be kept (rule 91.617) except Class 1 (ie, single-seat) microlights, and for each component having a finite life or recommended TBO (time between overhaul). Time in service and cycles if applicable, as well as the maintenance records required by rule 43.69, are recorded in the appropriate maintenance logbooks.

Despite there being no requirement for maintenance records for a Class 1 microlight, it can only be beneficial to keep records – for instance, how would you prove the time in service to a prospective buyer? The claim that it was owned by a little old lady who used it only to fly to church on Sundays would sound a little hollow.

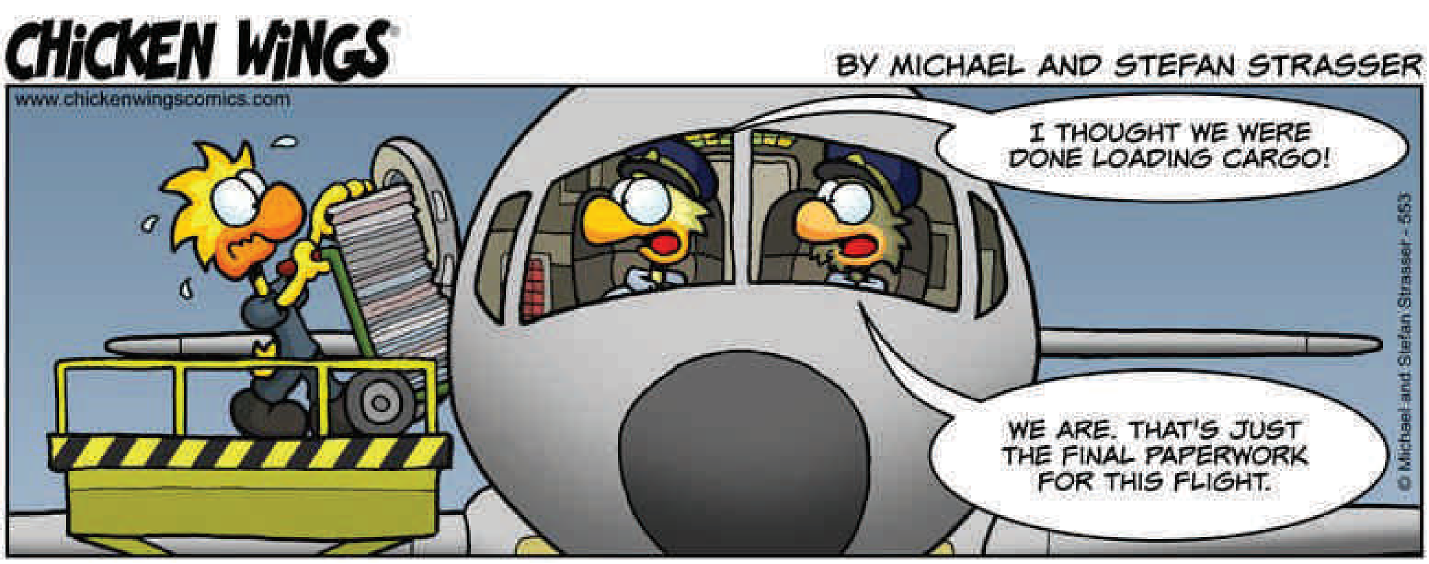
**Technical Log**

Rule 91.619 requires an operator to provide a technical log for the aircraft, and the most common type of technical log is the Form CA006.
The rule specifies the details to be entered on the log, but the CA006 is laid out so that it is pretty much self-explanatory. There is some further detail in AC91-6 if required.
Note that there is no provision in the rule that exempts Class 1 microlights, so you must maintain a technical log and it could be a de facto maintenance record.
The CA006 Technical Log has space for 68 entries, and when up to date, gives a 'snapshot' of the aircraft's current hours and maintenance status. Additional maintenance, such as agricultural role equipment changes in the field, can be recorded on Form CAA400 Maintenance Record Sheets, the duplicate being kept with the relevant technical log, and the original with the primary maintenance records. Instructions for completing the CAA400 are listed on the separator cards supplied with the forms. Technical logs, maintenance record sheets and separator cards are available free from the CAA – just email your request to info@caa.govt.nz.

## The Paper War

It seems like a paper war – but who's winning? You are, when you think about it. Keeping accurate and up-to-date records makes life easier for everybody: maintenance intervals aren't exceeded, you can justify needing the next two days off duty, you can prove you weren't where someone claimed you were at the time, and there are any number of other good reasons.

**One last request – write legibly, please!**



# Situational Awareness?

## There's always lots of talk about enhancing it, but what is it to begin with, and why do pilots need it?

Over the last couple of decades, there's been a growing realization within aviation's training and safety arenas about situational awareness. The conversation generally involves ways to enhance situational awareness in the cockpit and often concentrates on technological solutions, like moving maps, or displaying real-time traffic and weather. The presumption is that greater situational awareness is better and that all of us have at least some measure of this characteristic.

What's often omitted from these discussions is some base definition of what situational awareness, or SA, actually is and how it contributes to safety. Pilots usually are ready and willing to embrace something that enhances safety but so much of the jargon tossed around fails to provide the kind of context and explanations needed for complete understanding. Put yet another way, pilots truly are the creatures of (often bad) habit we've been told about since primary training, and we often need a whack or two to get our attention when something different comes along.

### Defining SA

The FAA's *Risk Management Handbook* (FAA-H-8083-2) defines SA as "the accurate perception and understanding of all the factors and conditions within the four fundamental risk elements (pilot, aircraft, environment, and type of operation) that affect safety before, during, and after the flight." That's all-encompassing, but lacks detail and requires pilots to intrinsically understand it. It has too many syllables. For example, how accurate must a pilot's perception or understanding of "all the factors and conditions" be?

The U.S. Coast Guard defines it a bit differently: "Situational awareness is the ability to identify, process, and comprehend the critical elements of information about what is happening to the team with regards to the mission. More simply, it's *knowing what is going on around you*." (emphasis in the original). The Coast Guard's definition is a bit easier to digest—identifying, processing and comprehending are less vague than perception and understanding. The kicker at the end— knowing what is going on around you—distills the concept down to something simple enough that even pilots can understand it.

In our view, the FAA's use of the term "all" tends to be daunting for pilots. But "knowing what's going on around you" is simpler, cleaner and an easier demand for pilots to meet.

### Losing SA

A simple way to explain SA is to consider the classic controlled-flight into terrain (CFIT) accident in which a perfectly good airplane is flown into a mountain. That mountain didn't just pop up to the pilot's cruising altitude overnight. It's been there for millennia, it's been charted and the area's minimum en route altitudes consider it. How could the accident pilot not know it was there?

The quick answer is the pilot probably did know the mountain existed, but lost track of his own position. He assuredly displayed poor SA, but also ignored various clues that his SA was inadequate. Those clues can include confusion and ambiguity (where am I?), improper procedures and/or regulatory non-compliance (descending below safe altitudes), failing to resolve a discrepancy (knowing the airplane is at the wrong altitude or location but failing to correct it) and fixation or preoccupation with unrelated tasks (why is my iPad overheating?).

One other clue deserves attention here, at least as far as single-pilot operations are concerned: task saturation. Consider—a dark and stormy night with low fuel, an intermittent electrical failure, a passenger giving birth and a red light for a nosegear indicator. Task saturation also is insidious: We're too busy to recognize we're overloaded.

### The Two-Challenge Rule

The two-challenge rule is often attributed to aviation when it's adopted in other professions. But perhaps because two-pilot crews are relatively rare in general aviation, the concept hasn't really trickled down in the same way. The rule allows one crewmember to automatically assume the duties of one who fails to respond to two consecutive challenges.

For example, presume the pilot flying (PF) exhibits an unsafe attitude or loss of SA. The pilot not flying (PNF) first asks the PF if he or she is aware of the problem. If the PF does not acknowledge this challenge, the PNF issues a second one. If the PF fails to acknowledge the second challenge, the PNF assumes control of the aircraft. This rule has a history of working well with multi-pilot crews, but seems next to useless for the vast majority of general aviation flying.

## Errors And Mistakes

Pilots commit errors and make mistakes. The two are not the same: Mistakes are failures in planning. Mistakes almost always have to do with the selection of objectives and the time required to achieve them. Asking yourself, “What can go wrong?” or “What am I missing?” can reduce mistakes.

Errors on the other hand “are flawed execution; incorrect actions based on either correct or incorrect information.” Because these are human errors, single-pilot operators seem less likely to identify them and, consequently, unable to make a correction. That’s a problem for many in GA (and is a fundamental reason for commercial aviation’s improved safety record).

## Getting Back Your SA

There’s a lot of material in the literature about what SA is and how we can lose it. Perhaps there’s not so much on regaining it, but aviation might be unique in the sense that once we identify loss of SA, there are some things we can do to help us regain it.

Once we realize we’ve lost some portion of our SA, we need to identify the reason we lost it in the first place. Distraction, fatigue and inattention are likely causes, and each have obvious remedies. Whatever the reason, it seems useful to focus on the things we don’t know about the flight: How much fuel do we have remaining? What’s the ETA? How’s the destination weather holding up? If I had to land *right now*, where would it be? These always are important things to know, and form a foundation of good SA in

the cockpit. Focusing on these questions and their answers is a pretty good place to start regaining your SA.

In addition to being a critical component of aircraft operation, situational awareness is fundamental to risk management. Pilots cannot assess or mitigate risk without a clear understanding of their situation.

## Improving Situational Awareness

No one has perfect situational awareness—there’s always some aspect of a complicated task or operation we forget. Consider these recommendations on ways to improve your SA:

**Predict The Future**
Think ahead of the airplane. Where will it be in five minutes? Ten? What likely will happen when it reaches decision altitude on the approach you’re about to fly?

**Identify Threats**
Monitor, detect and recognize the events and factors that pose risk to your flight. Once you react to them, how will they respond?

**Trust Your Gut**
If something tells you things are not right, maybe things are not right. Be suspicious and verify your perceptions, then respond.

**Minimize Task Overload**
Trying to configure the airplane for an approach as you cope with a sick passenger and a failed landing gear position indicator is a recipe for failure. Do one thing at a time.

**Avoid Complacency**
Everything might be fine, but it’s always a good idea to presume the worst, at least until you can verify the situation.

**Fight Fatigue**
Adjust your rest and work routines to ensure you get adequate sleep before flying.

**Perform Constant SA Assessments**
Whether involving weather, traffic, equipment status or fuel, changing circumstances are a given. Continually assess the situation and be prepared for change.

# Maintenance Procedures

Were you ever given a maintenance task you felt you couldn't do by the book because you didn't have the required tools, supplies, or test equipment? Odds are that you used some kind of unwritten "alternate" method or "work-around" in order to get the task done. Technicians can come up with impressive and innovative ways to get the job done, and can develop unwritten alternate procedures in order to accomplish that impossible task. But that's not the way it's supposed to work. You must not deviate from a maintenance procedure, unless you first obtain authorization to do so. The authorization should be in writing and come from an approved or authorized source. Maintenance manual procedures are developed by the manufacturer and accepted or approved by the CAAF. These procedures, when properly accomplished, ensure the aircraft will continue to operate within its designed safety margins. If you deviate from these procedures without an accepted or approved alternate procedure, you made the wrong decision. You committed a human error and this compromises safety . . . and you're liable. Your actions affect the public confidence in our profession.

Be aware that your mistakes can jeopardize the reputation of each and every maintenance professional.

So, be safety conscious when performing maintenance and only use written instructions that are authored by an approved or authorized source.

# SAFETY TIPS FOR ENGINEERS

## Finger Rings

A ring from your mate is great but a ring on the job will make you sob.

This tip is short and sweet. Do not wear your ring at work. Can't get it off? Well then, tape it or glove it.

Let's be frank, finger rings and aircraft maintenance do not mix well. Don't think for a moment that your finger can support your weight if you catch it while jumping to the ground from a ladder, maintenance stand or aircraft.

It is also a great conductor for electricity and there is plenty of that around an aircraft.

While on this topic, don't ignore any other jewelry on your body. It goes without saying that jewelry looks great when on a date, but on the job it will ultimately lead to an unpleasant fate.

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## Pressure

Maintenance "Pressure" has always been a factor in the maintenance world whether it is from management, co-workers, or from your personal life.

If you are familiar with the Dirty Dozen, you will recall that "Pressure" is one of the 12 major causes of maintenance human error. You have to be able to recognize and deal with those pressures.

Unchecked, pressure will eventually lead to catastrophic results. Be alert to rethink and recognize your current pressures whether it is internal or external.

Seriously, consider what effect it will have on your performance as a mechanic before it results in a safety hazard to yourself or others.

# 10 Things you should know about SMS

### 1. What is a safety management system (SMS)?

A safety management system is a series of defined, organization-wide processes that provide for effective risk-based decision making related to your daily business.

### 2. What does the SMS focus on?

SMS focuses on maximizing opportunities to continuously improve the overall safety of the aviation system.

### 3. What are the key processes of an SMS?

- Hazard Identification – a method for identifying hazards related to your organization;
- Occurrence Reporting – a process for the acquisition of safety data;
- Risk Management – a standard approach for assessing risks and for applying risk controls;
- Performance Measurement – management tools for analyzing whether the organization's safety goals are being achieved; and
- Quality/Safety Assurance – processes based on quality management principles that support continuous improvement of the organization's safety performance.

### 4. What are the roles and responsibilities within the SMS?

- The senior manager/accountable executive is accountable for establishing the SMS and allocating resources to support and maintain an effective SMS;
- Management is responsible for implementing, maintaining and adhering to SMS processes in their area; and
- Employees are responsible for identifying hazards and reporting them.

### 5. How will SMS benefit my organization?

- Provides for more informed decision-making;
- Improves safety by reducing risk of accidents;
- Provides for better resource allocation that will result in increased efficiencies and reduced costs;
- Strengthens corporate culture; and
- Demonstrates corporate due-diligence.

### 6. What key qualities are evident in organizations with an effective SMS?

- A top-down commitment from management and a personal commitment from all employees to achieve safety performance goals;
- A clear roadmap of what the SMS is and what it is supposed to accomplish;
- An established practice of open communication throughout the organization that is comprehensive and transparent, and where necessary, non-punitive; and
- An organizational culture that continuously strives to improve.

### 7. What SMS is not:

- Self-regulation / de-regulation;
- A stand alone department;
- A substitute for oversight; or
- An undue burden.

### 8. What SMS does:

- Builds on existing processes;
- Integrates with other management systems by tailoring a flexible regulatory framework to your organisation; and
- Demonstrates good business practice.

### 9. What's the difference between SMS and a flight safety program?

A safety management system is primarily proactive/predictive. It considers hazards and risks that impact the whole organization, as well as risk controls.

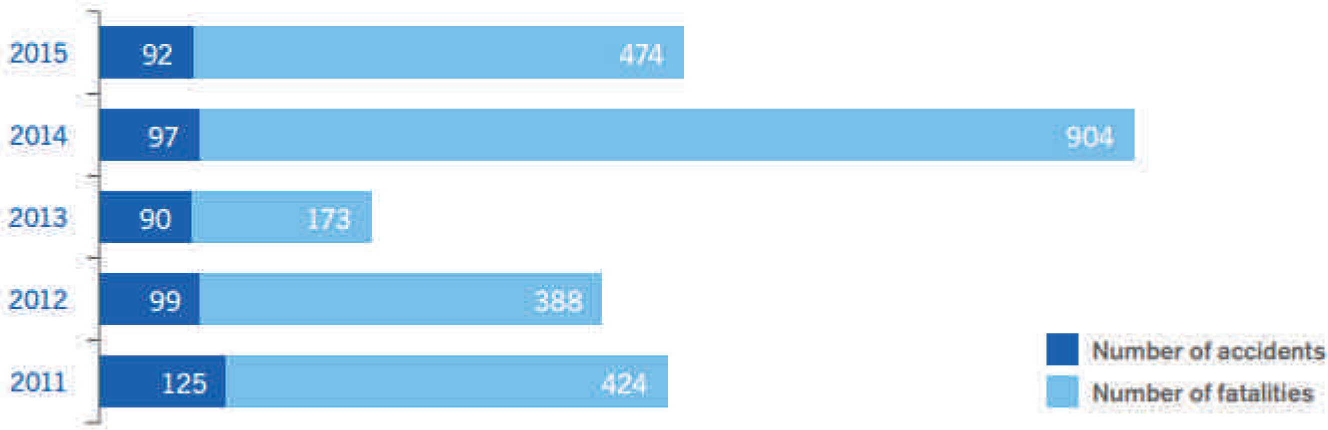
A flight safety program is primarily reactive and typically focuses on only one part of the system - the airline operation.

### 10. What's the difference between SMS and quality management systems (QMS)?

- SMS focuses on the safety aspects of the organization.
- QMS focuses on the services and products of the organization.
- While QMS focuses on conformity, SMS focuses on hazards. Both nonconformities and hazards can impact safety.
- Both systems enhance safety and are essential and complementary management tools.
- You cannot have an effective SMS without applying quality management principles.

***Safety Management International Collaboration Group (SM ICG).***

## Chart 1: Accident Records: 2011–2015 Scheduled Commercial Flights




## Table 1: Departures, accidents and fatalities by RASG region

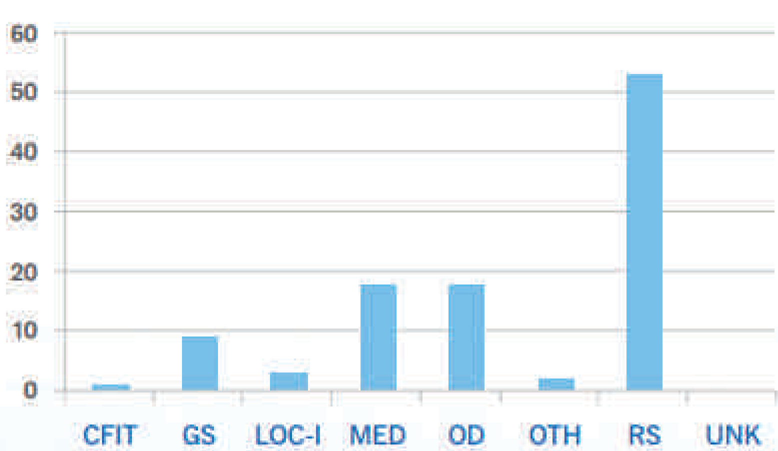
| RASG | Estimated Departures (in millions) | Number of accidents | Accident rate (per million departures) | Fatal accidents | Fatalities |
|---|---|---|---|---|---|
| AFI | 0.8 | 6 | 7.3 | 0 | 0 |
| APAC | 9.8 | 24 | 2.5 | 3 | 98 |
| EUR | 8.1 | 24 | 3.0 | 1 | 150 |
| MID | 1.2 | 3 | 2.5 | 1 | 224 |
| PA | 13 | 34 | 2.6 | 1 | 2 |
| **WORLD** | **33** | **92** | **2.8** | **6** | **474** |

## Table 2: Share of traffic and accidents by RASG region

| RASG | Share of Traffic | Share of Accidents |
|---|---|---|
| AFI | 2% | 7% |
| APAC | 30% | 26% |
| EUR | 25% | 26% |
| MID | 3% | 3% |
| PA | 40% | 37% |

Note: One accident occurred in Oceanic airspace and is not attributed to any region.

## Chart 5: Accidents by Category




## Accident Categories

Controlled Flight into Terrain (CFIT)
Loss of Control in-Flight (LOC-I)
Runway Safety (RS)
Ground Safety (GS)
Operational Damage (OD)
Injuries to and/or Incapacitation of Persons (MED)
Other (OTH)
Unknown (UNK)

*Full details of categories can be found in Appendix 3*

Welcome to the Safety Summary Report for the period up to April 2017.

The purpose of this article is to summarise the trending issues that have raised concern for CAAF so far in 2017.

This period is a busy time for Fiji aviation, with an increase in scheduled airline activity and commercial flying as well as a big increase in sport and recreational flying especially Drones.

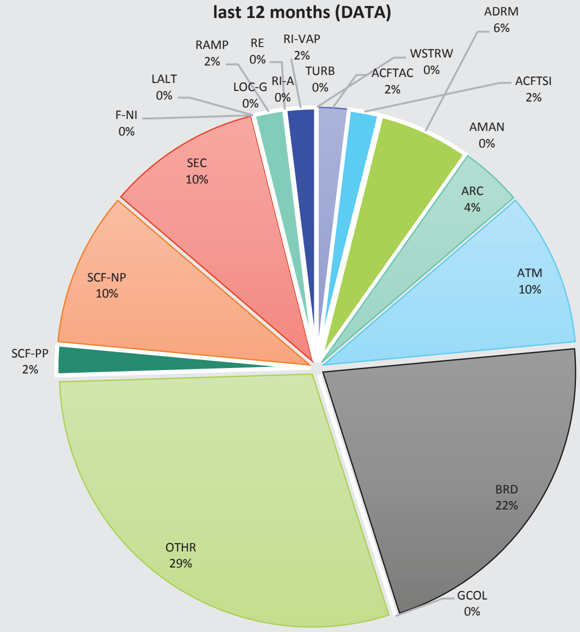
It is noted that the rate of reporting by Industry remain healthy and Industry is encouraged to continue implementing the principles of SMS by doing so.

Having said that, at the end of April 2017, it was noted that a total of 195 reports were received by CAAF, of which 12 Assessments and 110 Investigations were active in the CAAF MOR system. 12 assessments required review on whether further investigation was required and 110 investigations were currently being carried out by assigned CAAF Inspectors with industry operators and stakeholders involved.

The incidents to which the 195 reports recorded so far for 2017 relate to, have been grouped by type in the pie chart illustrated below.

*Pie Chart - Occurrence proportion by Type & 'Other' Type of Incident breakdown*

**The following pie chart shows the occurrence proportion by type over the last 12 months (DATA)**




## Breakdown of "OTHERS" incident type

1) Landing after last light/ Landing Before Hour of Operation
2) Not following ATC Instruction
3) Vehicle collisions
4) Fuel Spill
5) Dangerous Goods
6) Operating with RFS Coverage
7) Promulgated Information Error
8) Pilot Position Reporting Deficiency
9) Miscommunication (Pilot/ ATC)
10) Loading/ Weight & Balance
11) Requirement Not Followed
12) Maintenance Errors
13) Hazard
14) Go around (Due Tailwind)
15) MET Reports (Errors, etc.)
16) FTL Violation
17) Expiry (Licence, training etc.)
18) Wrong parking
19) Pilot Action Error
20) Nil Revision of Estimates
21) Oil spill
22) Pointing of Laser Lights

**ICAO Common Taxonomy Team (CICTT) Occurrence Category Definitions**

| | |
|---|---|
| ***Take-off, Landing, and Ground Operations*** | |
| GROUND HANDLING | RAMP |
| GROUND COLLISION | GCOL |
| LOSS OF CONTROL - GROUND | LOC-G |
| RUNWAY EXCURSION | RE |
| RUNWAY INCURSION – VEHICLE, AIRCRAFT OR PERSON | RI-VAP |
| RUNWAY INCURSION – ANIMAL | RI-A |
| UNDERSHOOT/OVERSHOOT | USOS |
| ABNORMAL RUNWAY CONTACT | ARC |
| FIRE/SMOKE (POST-IMPACT) | F-POST |
| EVACUATION | EVAC |
| ***Airborne*** | |
| MIDAIR/NEAR MID AIR COLLISION | MAC |
| CONTROLLED FLIGHT INTO/TOWARD TERRAIN | CFIT |
| LOSS OF CONTROL - INFLIGHT | LOC-I |
| FUEL RELATED | FUEL |
| LOW ALTITUDE OPERATIONS | LALT |
| ABRUPT MANEUVRE | AMAN |
| ***Weather*** | |
| WINDSHEAR OR THUNDERSTORM | WSTRW |
| TURBULENCE ENCOUNTER | TURB |
| ICING | ICE |
| ***Aircraft*** | |
| SYSTEM/COMPONENT FAILURE OR MALFUNCTION (POWERPLANT) | SCF-PP |
| SYSTEM/COMPONENT FAILURE OR MALFUNCTION (NON-POWERPLANT) | SCF-NP |
| FIRE/SMOKE (NON-IMPACT) | F-NI |
| ***Miscellaneous*** | |
| SECURITY RELATED | SEC |
| CABIN SAFETY EVENTS | CABIN |
| OTHER | OTHR |
| UNKNOWN OR UNDETERMINED | UNK |
| ***Non-aircraft-related*** | |
| ATM/CNS | ATM |
| AERODROME | ADRM |

Industry is encouraged to note the types of occurrences that are being recorded and take pro - active measures through your own Safety Management Systems to ensure approprate risk identification and mitigation.

# Airport Wildlife Risk Management

**Why birds love an airport**

The Nadi region has a higher concentration of hotels and motels than any other part of Fiji, and areas around Nadi airport are being rapidly developed to meet residential and business needs.

Major flooding events in the past 8 years have resulted in increased developmental pressure in flood-free areas around the airport. While development augurs well for humans, there is significant loss of or damage to wildlife habitats.

Displaced birds and animals frequent the airfield because of lack of human interference, an abundance of food and a stable habitat that is not disturbed by developmental processes. Flat open terrain is an inherent characteristic of aerodromes which cannot be modified.

Expanses of grassland covering large areas between runways, taxiways, aprons and paved surfaces create bird attractions on aerodromes. The unobstructed view and open space provides security and advance warning of danger to large flocks.

**Which birds are a risk to aviation**

Birds which are considered to be medium to high risk species (hazardous to aircraft safety) are the Pacific Golden Plover (PGP) (*Pluvialis fulva*), Pacific Swamp Harrier (*Circus approximans*), White-faced Herons (*Ardea novaehollandiae*), Barn Owl (*Tyto alba*) and Common Mynah (*Acridotheres tristis*).

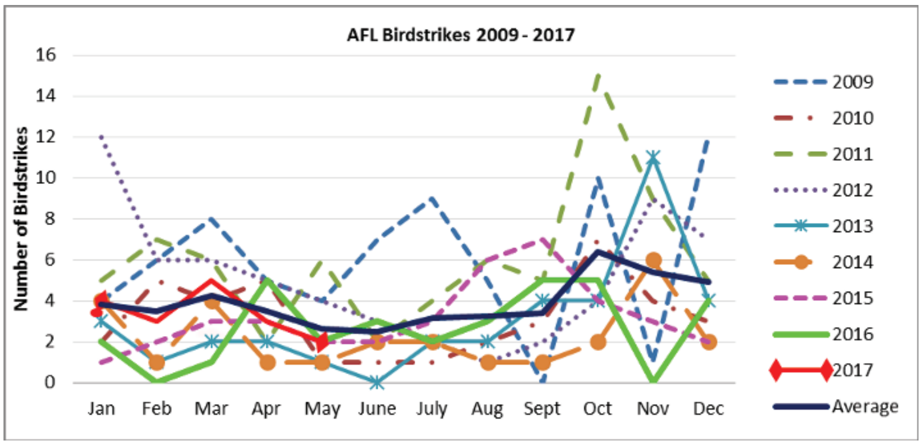
Wildlife strikes can result in millions of dollars of damage to aircraft and cause death or injuries to passengers and crew on board.

**What is AFL doing**

With this in mind, AFL continues to strive towards a robust wildlife management programme. The airport wildlife management team carries out wildlife monitoring, harassment and dispersal, and culling as a last resort to keep priority areas such as runways and runway strips clear of wildlife hazards. Additionally, day or night runway bird dispersal runs are conducted upon pilot requests.

**Seasonal Trends of Birdstrike risk**

| Jan - April | May - September | October to December |
|---|---|---|
| Wet and humid<br>High food abundance<br>Frequency of grass cutting increases<br>Pacific Golden Plovers in Fiji<br>More birdstrikes | Dry and cool<br>Low food abundance<br>Frequency of grass cutting decreases<br>Pacific Golden Plover migrates to cold countries of origin<br>Peak number of flights<br>Less birdstrikes | Wet and humid<br>High food abundance<br>Frequency of grass cutting increases<br>Pacific Golden Plovers in Fiji<br>More birdstrikes |



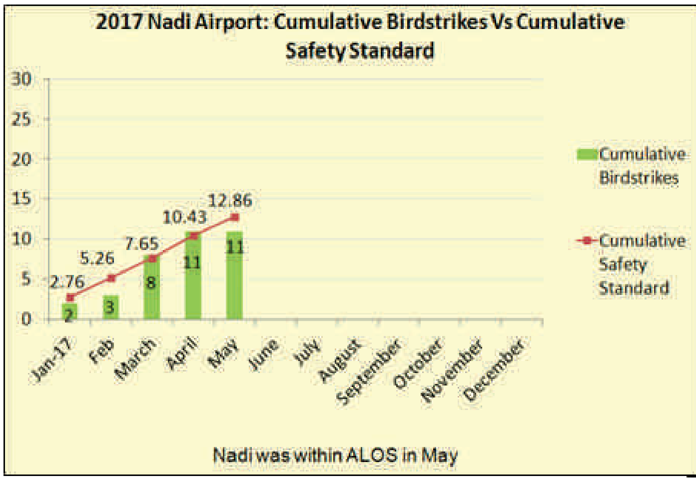

Birdstrike risk is the high in the first portion of the year till April end, low from May to September and then high in the last portion of the year from October to December. (see table above)

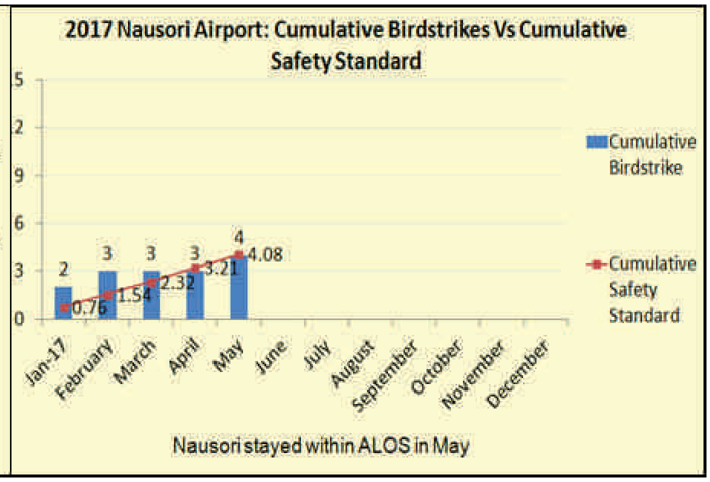
**Airport Challenges and how you can help!**

| | |
|---|---|
| **Information** | Ensure as much information as possible is filled in the Birdstrike forms - attach engineering reports of bloodstains/damages when available |
| **Runway Dispersals** | Pilots please note day & night runway wildlife dispersals are available upon request |
| **Bird Netting Project**<br><br>**AFL contact: Manager Airside Operations Mr. Apenisa Naqatalevu on apenisan@afl.com.fj or 9906125** | This may result in significant bird activity in other areas of airside as mynahs look for alternate roosts. Please feel free to share any information on this.<br><br>While maneuvering in the netted areas, please ensure that your vehicles do not damage the bird netting. If damage occurs, please inform AFL.<br><br>Do NOT handle or manipulate the bird netting for any purpose, please liaise with AFL BEFORE proceeding to do this. The specially made nets have a 10 year warrantee which is null and void if damaged. Access zips have been provided at regular intervals. |

# Safety Performance Indicators—Bird Strike

A safety performance indicator of 4.04 birdstrikes per 10,000 flights was assigned for Fiji airports by the Regulator. Both Nadi and Nausori stayed within the Acceptable Level of Safetytargets for bird strikes in 2016. Additionally there were no reported damaging strikes in 2016. 2017 performance to date is shown below;




## CAAF conducts public awareness on lasers and drones


CAAF inspectors teamed with AFL aerodrome officers to conduct a public awareness campaign on aviation safety in the Nausori area.

The topics covered were laser danger, drone use, wildlife issues and living near an airport.

Posters were put up near supermarkets, busy bus stops, villages and schools.

Some of the areas visited were Nasilai Village, Nuku District, Vunimono Arya primary and High Schools, Shreedhar Maharaj College, Wainibokasi Hospital, and Wainibokasi Shopping Centre.

The campaign was well received and we hope helpful.

Posters are available from CAAF and AFL.

## FEEDBACK

CAAF's quality assurance section is keen to hear from you regarding the levels of service provided. If you believe you have constructive ideas on how we can improve our service or would like to report issues of concern you may have encountered when dealing with CAAF, please send feedback to CAAF, preferably using the QA108 form that can be accessed from the CAAF website. This can be sent to CAAF by faxing it to the quality assurance officer on 6720002, dropping it in to the feedback box in the foyer of the CAAF headquarters, or emailing it to standards@caaf.org.fj.

## FREE CALL

## SAFETY MESSAGE LINE

### PHONE YOUR SAFETY CONCERNS TO CAAF

**9995201**

# ICAO Safety Report 2016 .....

ICAO has recently published its annual Safety Report for last year. The following text is from the executive summary.

The year-over-year accident statistics indicate a decrease in the overall number of accidents as well as the accident rate. Compared to 2014, the number of accidents (as defined in Annex 13—Aircraft Accident and Incident Investigation involving aircraft with a certificated maximum take-off weight (MTOW) of over 5700 kg and reviewed by the ICAO Safety Indicators Study Group, SISG) decreased by 5% in 2015 to 92. Furthermore, the global accident rate involving scheduled commercial operations decreased by 7%, from 3.0 accidents per million departures in 2014 to 2.8 accidents per million departures in 2015.

The 474 fatalities in 2015 represent a substantial decrease from the 904 fatalities in 2014, despite the tragic events of the Germanwings and Metrojet accidents which caused significant loss of life. The number of fatal accidents decreased in 2015 to just 6, the lowest in the past five years.

The aviation community remains focused on achieving the highest level of cooperation among the various safety stakeholders. To keep pace with expansion and progress sector-wide, ICAO continues to promote the development and implementation of new safety initiatives. The second High-level Safety Conference (HLSC) held in February 2015 was also instrumental in discussing and setting the agenda for safety matters in the upcoming years in many areas such as aircraft tracking, conflict zones, and safety information sharing.

ICAO is committed to improving aviation safety and enabling seamless cooperation and communication among stakeholders. ICAO continues to collaborate with established regional bodies/ organizations, such as Regional Aviation Safety Groups (RASGs) and Regional Safety Oversight Organizations (RSOOs), and to promote and develop the capacity building and implementation support necessary to address emerging safety issues.

The reduction in accident rate to 2.8 accidents per million departures, a 7% decrease compared to 2014, represents the lowest rate in recent history. Extremely notable was that the RASG-AFI region did not have any fatal accidents in 2015 and three of the five RASG regions each experienced only a single fatal accident in 2015.

ICAO is working in partnership with the international aviation community to achieve future safety improvements, with an emphasis to improve safety performance. This report provides a summary of key indicators with reference to the 2011–2015 period.

Graphs are on page 12.