AIRBORNE PUBLIC SAFETY ASSOCIATION

The Safety Wire

May 2019

SWEAT THE SMALL STUFF is the advice given by Col. Chris Hadfield in his book, *An Astronaut's Guide to Life On Earth*. In his book, Col Hadfield discusses the importance of paying attention to small details when operating in high-risk environments such as spaceflight or aviation. He gives the two powerful examples of the O-ring failure in the Challenger accident and a small piece of foam failing on Columbia. The idea of, 'sweating the small stuff' flies in the face of the advice we often give to others about maintaining perspective on priorities in life. While that may be a great philosophy for family, it does not work well in the hangar or cockpit. Unfortunately, the fictitious image of a great pilot offered by Hollywood often establishes a large part of his or her swagger on overt acts of ignoring details deemed unworthy of their attention. Nothing could be further from the truth.

When searching through aircraft accident reports, it does not take long to find examples where a pilot forgot a single switch or overlooked a small but critical preflight item on the aircraft, weather conditions, etc. There is no shortage of maintenance related accidents where something as small as a cotter pin, small

piece of FOD or half a turn too little of torque on a bolt led to disaster. Catching these inevitable ‘small things’ is why we have checklists, tool control and quality control procedures in place. When we go too long without catching something, we forget to appreciate the inevitability of these risk controls catching one small slip that could lead to disaster. It only takes one small thing.

Tactically we need to sweat the small stuff as well. If we could only be so lucky as to find every bad guy we look for running down the middle of the street, stolen car flying down the highway at double the traffic speed or missing person standing in the middle of a field waving their arms in desperation. Those are the easy ones, and they are rare. The true aerial tactical artist knows how to look for the little pieces of information when working a call. Top-notch operators can pick up on three pixels of heat in a hedge line or under debris that indicates someone may be there. They know how to look not just for the subject, but also for small details that show a person has passed through that area. Some of these ‘small things’ may be: doors slightly left ajar, new damage on a fence, disturbed foliage or water, animal reactions, etc.

This year, the APSA safety program has been discussing how operational effectiveness and safety are complimentary and not two opposing forces. We often talk about safety culture and job related professionalism in different conversations. I argue again that they are the same thing. They are two elements of one ‘culture’ that drives everything in our organization. The attention to detail that makes an aircrew or maintenance team safer is the same skillset that makes them more effective at their jobs. How do we build our culture? By paying attention to details and priding ourselves on the ability to see and respond to them. We must train for the small things and the minute details that impact the outcome of our day.

Our culture is improved not so much by the big events that explode into our lives from time to time, but by the little things we do on a regular basis. These ‘small things’ may include regular continuing education, honest daily input into a briefing and effort to plan accordingly (i.e. FRAT), using a checklist even when you do not think you need it, or putting 100% into every call by looking for small details in the scenario or environment. These grains of healthy culture grow into the mountain of professionalism that is needed to meet the major challenges that arise from

time to time. If we do not sweat the small stuff, we will be ill prepared to battle the big stuff when the time comes.

For they had learned that true safety was to be found in long previous training, and not in eloquent exhortations uttered when they were going into action.

~Thucydides
404 B.C.

ONLINE MEETINGS

APSA conducts regularly scheduled online meetings for safety officers, maintenance technicians, and UAS operators via a conference call you can join using your computer, mobile device or phone. Online meetings are open to any APSA member. Contract maintenance providers to APSA members are welcome to participate in the maintenance meeting as well.

The schedule for upcoming APSA online meetings is as follows.
If you would like to join, send an email to: bsmith@publicsafetyaviation.org

Maintenance:
Thursday, June 13, 2019
1:00 PM - 2:00 PM EDT (1700 UTC)

Safety Officers:
Friday, July 12, 2019
1:00 PM - 2:00 PM EDT (1700 UTC)

UAS:
Wednesday, August 14, 2019
1:00 PM - 2:00 PM EDT (1700 UTC)

SAR:
Wednesday, August 21, 2019
1:00 PM – 2:00 PM EDT (1700 UTC)

RESOURCES

FAA Bulletin on SPOT GPS Interference:
https://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/info/all_infos/media/2019/InFO19006.pdf

Police Aviation News -
http://www.policeaviationnews.com/Latest.htm

NASA Callback – Equipment Failures:
https://asrs.arc.nasa.gov/publications/callback/cb_472.html

Human Factors Newsletter:
https://www.decodinghumanfactors.com

US Helicopter Safety Team – Monthly Reports:
http://ushst.org/Reports

I confess that in 1901 I said to my brother Orville that man would not fly for fifty years.

~Wilbur Wright

EMERGENCY PROCEDURE OF THE MONTH

In each monthly emergency situation, discuss what you would do, as a crew, to respond to the following emergency. If the EP does not apply to your specific aircraft, think of something similar.

Bird strike that renders communication with crew and/or ATC impossible due to wind noise or microphone/com system damage.

Practical SMS

Last month, we talked about putting together a short mid-year SMS report for your unit. Part of that report should be the status of any hazards that have been reported and are still being addressed. Any reported, or otherwise identified hazard, should have been given a risk score. Hopefully, you maintain some kind of list of these hazards and the associated risk score. It is helpful to have a risk matrix that has defined levels of severity and probability so all of the hazards are scored the same. For your mid-year report, assess the current risk score on that same matrix and record any changes from the original score. If you've found an effective risk control, you will have lowered the risk score. However, if the risk control implemented has not changed the score, or it is worse, your safety committee needs to have a discussion on how to change the plan for attacking the hazard.

Hazard	ID Date	Original Risk Level	Risk Control	Updated Risk Level
Dynamic rollover on dolly	1/1/19	20	Add additional screws	4
Unsafe IIMC preparation	1/2/19	15	Begin IIMC training	10
Pilot Currency - General Aeronautical Knowledge	2/3/19	15	Refocus training on objectives	15
Aircraft damage during movement in/out hangar	1/4/19	20	Repaint lines	8
Tools accidently left in aircraft	1/5/19	8	Foam boxes, outline tools on wall	8
Incomp mx	4/6/19	10	Policy/training sterile hangar	10
Laser Strike	5/7/19	12	Helmet visors	12
Bird strike	5/8/19	12	Budget for 2 helmets/yr	4

Examples of a Hazard Tracking Log and Risk Matrix with space to define categories of severity or probability can be obtained by emailing me, or within the SMS Installation Guide's list of resources on the Safety First page at publicsafetyaviation.org.

		Probability				
		5	4	3	2	1
Severity		Frequent	Probable	Occasional	Remote	Improbable
5	Catastrophic	25	20	15	10	5
4	Critical	20	16	12	8	4
3	Marginal	15	12	9	6	3
2	Negligible	10	8	6	4	2
1	Reputation/Brand /Support	5	4	3	2	1

https://publicsafetyaviation.org/images/Safety_Program_Overview/ALEA%20SMS%20Installation%20Guide%20v1b.pdf

Reality Check...

Note: *The following reports are taken directly from the reporting source and edited for length. The grammatical format and writing style of the reporting source has been retained. My comments are added in red where appropriate. The goal of publishing these reports is to learn from these tragic events and not to pass judgment on the persons involved.*

Aircraft: **Cirrus SR22**
Injuries: **1 Fatal**
NTSB#: **WPR15FA082**

https://www.ntsb.gov/GILS/_layouts/ntsb.aviation/brief.aspx?ev_id=20150110X84136&key=1

The noninstrument-rated pilot departed during the late afternoon and flew over the southern portion of the Great Salt Lake. According to data recovered from the airplane's avionics system, which did not capture altitude, the duration of the flight was about 9 minutes. During the final minute of the flight, the airplane conducted a gradual left turn at an engine power setting of about 2,200 rpm. Shortly thereafter, the airplane impacted the lake. Postaccident examination of the airplane revealed no evidence of mechanical malfunctions or failures that would have precluded normal operation.

Local meteorological observations indicated that restricted visibility and fog were forecast throughout the area about the time of the accident. It is likely that the pilot encountered these conditions inflight and lost visual reference to the ground and/or horizon. Given the pilot's lack of an instrument rating and of recent instrument flight experience, the loss of visual reference likely resulted in spatial disorientation.

Toxicological testing on the pilot revealed the presence of bupropion, an antidepressant; hydrocodone, an opiod analgesic; and diphenhydramine, a sedating antihistamine. The investigation was unable to determine if the use of bupropion or the cognitive effects of any underlying depression contributed to the accident. Because the hydrocodone was found in the urine but not the blood, it no longer caused systemic effects and played no role in the accident. However, it is likely that the effects of diphenhydramine impaired the pilot's cognitive and psychomotor performance at the time of the accident, and contributed to his spatial disorientation.

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The non-instrument rated pilot's decision to depart into low visibility conditions, which resulted in spatial disorientation and a loss of control. Contributing to the accident was the pilot's impaired performance due to his use of the sedating antihistamine, diphenhydramine.

Aircraft: **Bell OH-58A**

Injuries: **1 Uninjured**
ATSB#: **AO-2014-071**

http://www.atsb.gov.au/publications/investigation_reports/2014/aair/ao-2014-071.aspx

The previous day, the pilot, who was also a licensed aircraft maintenance engineer, completed a 50-hourly inspection on the helicopter and replaced the battery. During the inspection, the pilot noted that the engine oil level indicated slightly below full. However, to obtain an accurate oil quantity, the level needed to be checked within 45 minutes of shutting down the engine, so he planned to run the engine the next morning and recheck the oil level prior to departure.

At about 0700, the pilot conducted the pre-start checks and started the engine. He carried out the after-start checks and confirmed all engine indications were normal, and ran the engine for about 10 minutes to recharge the new battery following start-up. He then shut the helicopter down, conducted the shut-down checks and the pilot and passenger exited the helicopter. The pilot added 0.5 L of oil. After a brief return to the terminal building, the pilot and passenger reboarded the helicopter.

The pilot selected the master switch on, confirmed all indications were normal and started the engine. The pilot lifted the helicopter off into the hover, climbed to about 35-50 ft. above ground level and commenced the transition to forward flight. He then heard the turbine engine wind down, the red engine out warning light illuminated and the helicopter descended in an autorotation.

The pilot attempted to run the helicopter onto the ground, however, the helicopter touched down on soft grass and the landing skids detached. The main rotor blades chopped the tail boom and the helicopter landed heavily, resulting in substantial damage. The pilot observed that the fuel valve was selected to ‘OFF’.

The pilot reported that this incident provided a reminder of the effect a change in routine can have, particularly on completing checklists.

The report, *Dangerous Distraction: An examination of accidents and incidents involving pilot distraction in Australia between 1997 and 2004* is available at: www.atsb.gov.au/publications/2005/distraction_report.aspx

Safe hunting,

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