AIRBORNE LAW ENFORCEMENT ASSOCIATION

The Safety Wire

November 2016

Don't Forget Maintenance!

The spotlight of aviation often is unfairly aimed at flight crewmembers. Any one of us worth our wings recognizes the fact that we fly only because of the support of many other people, especially those who maintain our aircraft. Yet, we too often forget to talk about them when we discuss safety and risk management. Over the last six months, a group of ALEA members involved with, or interested in, maintenance have been meeting online to discuss a variety of related topics of concern in our industry. The discussions have covered everything from regulatory issues with barrier inlets, to staffing issues, to safety. I am not a mechanic, so the discussions have been very informative for me. Here are a few tips to consider at your own operation:


Photo courtesy of Josh Goldschmidt

1 Is maintenance part of your safety committee? They should be. Who is going to address maintenance issues properly if they are not!

2 Do you have a distractions policy? Such a policy would cover cell phone usage on the maintenance floor, interrupting maintenance for phone calls or other conversation,

etc. Don't think it is important? Check this out: http://www.ntsb.gov/_layouts/ntsb.aviation/brief.aspx?ev_id=20070405X00374&key=1

3 Does your fatigue policy cover maintenance staff? Why would you want a fatigued, or ill, mechanic working on your aircraft?

4 Do you have a tool control system? Tool control involves both physical management of tools (shadowed or foam cut out storage, tool check/tag out, etc.) and post maintenance inspections (quality control checks from those who did the maintenance and someone who did not).

5 Does your maintenance staff have all the protective equipment, first aid supplies, hearing and eye protection they should have? Do they have a helmet, flight suit, boots and gloves for maintenance related flights? Don't think it is important? Check this out: http://www.ntsb.gov/_layouts/ntsb.aviation/brief.aspx?ev_id=20130625X05535&key=1. The mechanic was onboard and his head hit the doorpost so hard on landing there was a huge dent along the top of the helmet shell.

6 Do you have an appropriate amount of staff?

This last question was the one that the online meeting attendees asked each other from the very beginning. Staffing requirements are driven by not only the number of aircraft, but also flight hours, aircraft complexity, mission readiness requirements, etc. We quickly realized there was no good information on this topic for our industry…so we decided to get some. Below are the results of the first ALEA Maintenance Staffing survey. Thank you to those who participated.

Note: Staffing – full time mechanic = 1, part time = .5

- Average number of maintenance staff per aircraft: 0.78 (i.e. 1.6 people per 2 aircraft)
- Average number of flight hours per staff: 702 hours per 1 mechanic

- Average number of aircraft per staff with IA: 2.7
- Average number of flight hours per staff with IA: 895
- Feel maintenance staffing is adequate: 63%

- Entire fleet grounded at least once a year due to maintenance: 38%
- Average number of times fleet was AOG due to maintenance: 2.04/year
- Reason entire fleet AOG: Not enough maintenance staff - 47%
  Parts availability - 40%
  Not enough aircraft - 13%

- Average flight hours per mechanic for those who reported:
  Fleet never grounded due to maintenance - 633
  Fleet AOG at least once a year due to maintenance - 815

"An optimist will tell you the glass is half-full;
the pessimist, half-empty;
And the engineer will tell you the glass is twice the size it needs to be."

~ Oscar Wilde

Practical SMS

Unless you have already started it, this is the time of year to send out the annual Safety Management System report. This report should be distributed to all unit members so line-level employees can see how everything is working, and so your boss can explain to higher levels of supervision how well the unit is operating. This report will also help justify time and money that was spent on safety related training and equipment.

You should have an Executive Summary on the first page covering the most important points. To be honest, unfortunately, many people reading your report will not make it past the first page despite the quality of content within the rest of the report. Make sure to include:

- The safety objectives that were set at the beginning of the year. Cover what the original status of that goal was and where you are at the end of the year. Include how the progress on those objectives affects the overall safety goals of your program.
- Overall reduction in risk. You should have a list of hazards that the safety program has identified and targeted. Each of those hazards should have a score attached to it based on the original risk assessment (using your handy risk assessment matrix). Evaluate the current risk for each of those hazards. You can add those scores together and show the change in overall risk throughout the year.
- The performance of risk controls on the hazards that had the highest risk. Did your plan work? Was the risk lowered? Stay the same? Get worse? This will be valuable information for your Safety Committee to use in planning for 2017.
- A summary of the results of any major accident or incidents.
- Any change in safety culture. One good indicator is the number of safety reports being made by employees. More reports usually indicates a better safety culture. Other indicators include employee involvement in the safety program, voluntary compliance with safety recommendations, etc.
- The number of safety meetings and training sessions held in the year.

PHOTO COURTESY OF JOSH GOLDSCHMIDT

Resources

Collection of US Coast Guard Accident Reports:
http://www.uscg.mil/foia/foia_library.asp

Transport Safety Canada Safety Newsletter:
http://www.tc.gc.ca/eng/civilaviation/publications/tp185-menu-5395.htm

I recommend subscribing to this newsletter if you have interest in flight safety, especially in Canada.

*"I learned that danger is relative,
and that inexperience can be a magnifying glass."*

~ Charles Lindbergh

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.*

Article about a USMC CH-53E crash:
http://www.foxnews.com/us/2016/11/02/details-on-cause-deadly-marine-chopper-crash-off-hawaii-revealed.html

Aircraft: **Bell 206**
Injuries: **2 fatal**
NTSB#: **WPR15FA072**
http://www.ntsb.gov/_layouts/ntsb.aviation/brief.aspx?ev_id=20150101X15630&key=1

On December 31st, 2014, the helicopter was on a visual flight rules (VFR) repositioning flight in preparation for providing contracted air support capability to the local sheriff's office the next day. The operator reported that the helicopter did not arrive at the intended destination, and the wreckage was located 29 miles north of the intended destination. The helicopter was fragmented into multiple pieces along a 174-ft debris path. Ground scars and wreckage distribution were consistent with collision with terrain while in forward flight. The observations from a weather station located 3 miles east-southeast of the accident site indicated ceilings less than 500ft and visibility less than 1 mile were likely at the time of the accident. The relative humidity had rapidly increased above 90 percent immediately before the accident, which would be indicative of cloud cover and mist at or near the surface. Witnesses living in the local area reported that the visibility at ground level was very limited, with low clouds and fog. Observations near the destination showed lowered visibility and low ceilings as the rain moved eastward through the accident area. Gusty winds ahead of the lowering ceilings would have likely created low-level wind shear.

The operator's flight data monitoring system indicated that the helicopter was flying along an interstate about 300ft above ground level (AGL), which decreased to about 200ft AGL, likely as the visibility was reduced. However, the last recorded points indicated that the helicopter had climbed to about 500ft AGL, and was no longer tracking the interstate. It is likely that the VFR flight encountered instrument meteorological conditions, and the pilot was trying to maneuver to an area with greater visibility when the helicopter collided with terrain.

Weather information available to the pilot before takeoff showed a cold front between the departure airport and destination, with forecasted low clouds, rain, ceilings below 600ft, and gusty winds associated with that front. It was the pilot's responsibility to review the weather before all Part 91 flights; the chief pilot was not required to review the conditions with the pilot for such flights. Had the pilot conducted thorough preflight planning, he should have identified the deteriorating weather conditions and recognized that he could not complete the VFR flight.


Photo 3 – Cabin & Main Rotor

The National Transportation Safety Board determines the probable cause(s) of this accident as follows: The pilot's continued visual flight into instrument meteorological conditions, which resulted in an inflight collision with terrain. Contributing to the accident was the pilot's inadequate preflight planning, during which he failed to identify forecasted deteriorating weather conditions along the route of flight.

Aircraft: **Cessna 182Q**
Injuries: **1 fatal**
NTSB#: **CEN15FA174**

http://www.ntsb.gov/_layouts/ntsb.aviation/brief.aspx?ev_id=20150318X00901&key=1

The pilot was conducting a visual flight rules aerial observation flight and returning to his home base. Radar and weather data showed the airplane maneuvering in instrument flight rules conditions before radar contact was lost. Examination of the accident site indicated that the airplane impacted rocky, mountainous terrain in a slight left-wing-low attitude at high airspeed, consistent with controlled flight into terrain. It is likely that the mountainous terrain was obscured by clouds and low ceilings at the time of the accident, which prevented the pilot from seeing the terrain. Although the wreckage was significantly fragmented and damaged by fire, no evidence of any preimpact mechanical malfunctions or failures of the airframe or engine were noted that would have precluded normal operation.

The pilot held a commercial pilot certificate, with airplane single-engine land, airplane multi-engine land, and instrument ratings. The pilot had accumulated 13,274 total flight hours, and 4,800 hours in the accident airplane make and model.

According to company representatives, the airplane departed Snyder, Texas, approximately 0755, to perform a pipeline patrol aerial observation flight with a final destination of ELP. At 1056, the company dispatcher received a telephone call from the pilot who requested weather information for the southeast New Mexico and El Paso areas. The dispatcher informed the pilot that El Paso was reporting light rain. The pilot told the dispatcher he was going to depart, and "if he was going to make it, he had better get into the air."

Radar data showed the accident airplane about 30 miles northeast of ELP and traveling southwest at an altitude of approximately 6,000 feet mean sea level (msl). About 25 miles northeast of ELP at an altitude of 5,850 feet msl, the airplane was observed to make a left turn towards the south and then execute a right turn back toward the north. After maneuvering to the north for approximately 2 miles, the airplane made a left turn at an altitude of 6,150 feet msl toward the west and radar contact was lost.

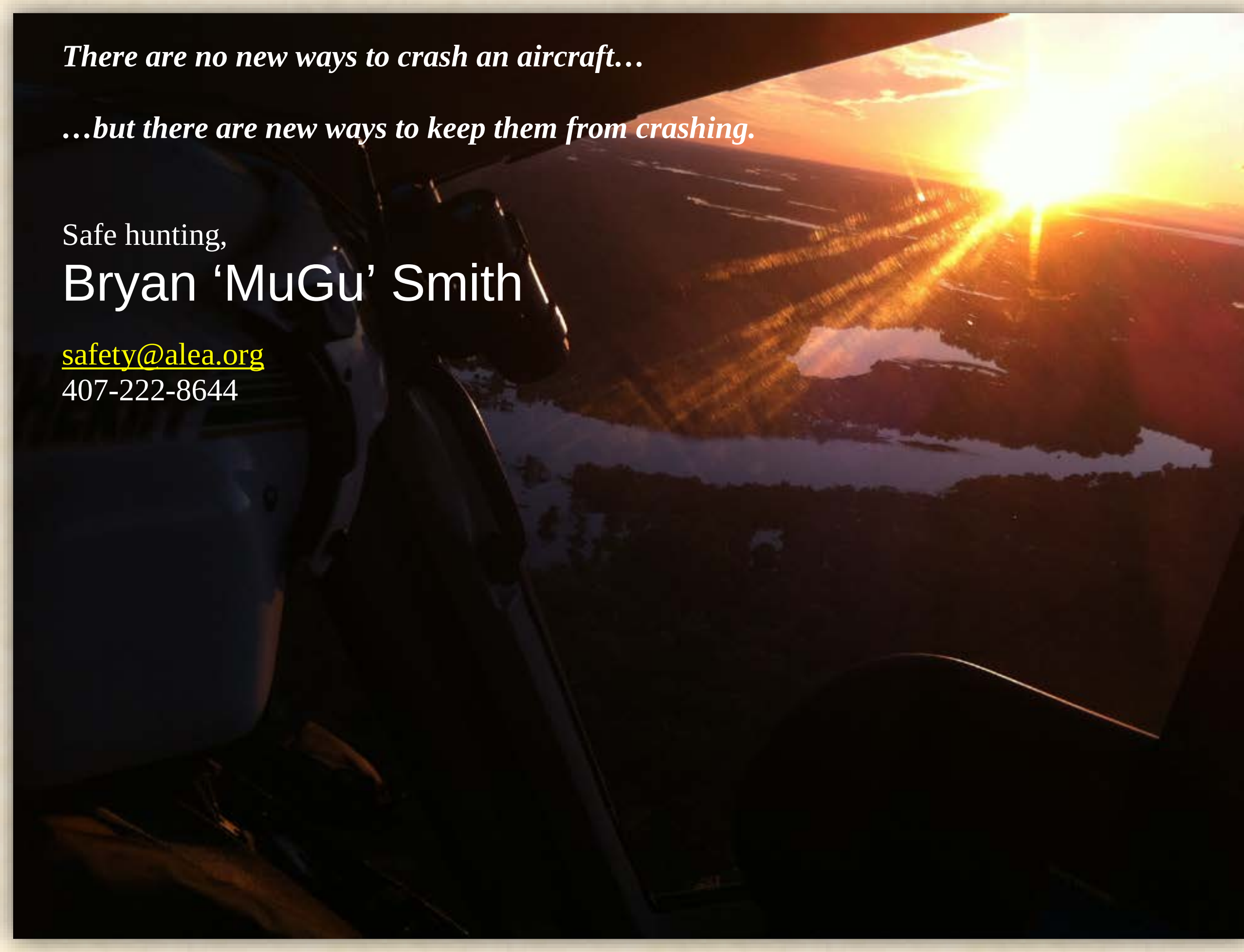
Aircraft: **Hughes 269C**
Injuries: **1 fatal, 1 Serious**
NTSB#: **CEN16FA315**

http://www.ntsb.gov/_layouts/ntsb.aviation/brief.aspx?ev_id=20160810X82409&key=1

On August 9, 2016, at 2035 central daylight time, a Hughes 269C single-engine helicopter impacted terrain following an autorotation. The flight instructor sustained fatal injuries, the student pilot sustained serious injuries, and the helicopter sustained substantial damage.

According to law enforcement personnel who interviewed the student pilot following the accident, the flight instructor and student pilot were flying about 1,100 feet above ground level when they attempted a practice autorotation, which included a simulated engine failure, or reducing the throttle to idle power. When the engine power was reduced, the engine lost total power. The flight instructor attempted to restart the engine; however, was unsuccessful. The student pilot stated the autorotation was initially controlled, but then the helicopter impacted the terrain in a high speed descent. During the impact, the tailboom partially separated, and the helicopter rolled over coming to rest on its right side.

Examination of the accident site showed the helicopter impacted down sloping grassy terrain. The main wreckage consisted of the fuselage, a portion of the tailboom, and the main rotor system. The landing gear skids were bent up into the fuselage. The instrument panel was partially separated from the fuselage. The right seat anti-torque pedals were separated from the pedal supports. Both the left and right seat bottom panels were crushed downward approximately 4 inches.



There are no new ways to crash an aircraft…

…but there are new ways to keep them from crashing.

Safe hunting,

Bryan 'MuGu' Smith

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