



The

Safety

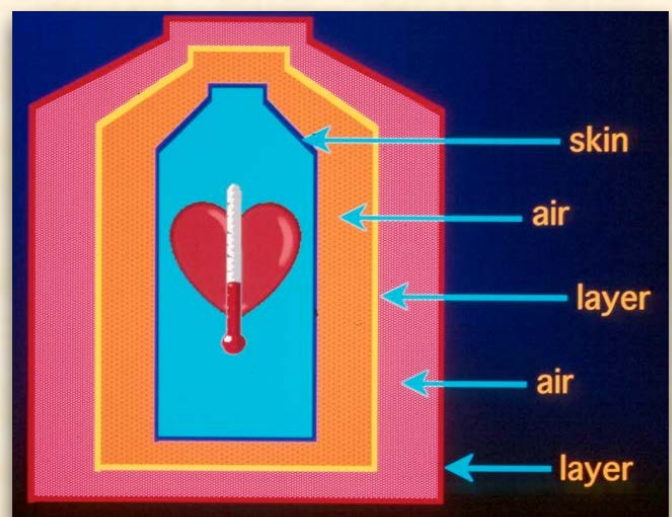
Wire

May 2016

My underwear is on fire!

Do I have your attention? We often talk about the importance of flame resistant clothing in our business. Usually, the conversation revolves around flight suits, boots, vests and gloves. According to the 2016 ALEA safety survey, 93.5% of respondents wear flight suits, 92% leather boots, and 81% flight gloves. Lets not forget about undershirts and underwear.

For those outside of aviation, the flight suit often carries the same element of mystery as a kilt. Ever been asked what you wear under it? According to ALEA Aeromedical Liaison Dudley Crosson, "Never go commando!" For the flight suit to do its job during a fire, there needs to be several layers of air and fabric, which together creates a "thermos bottle principle." Dudley points out that material type is important in choosing the layers of clothing, but so is the fit, "flight suits should not be tight." If clothing fits too tightly, there is no air layer, which would accelerate the heat transfer between layers and onto the skin. Another important layering consideration



involves the elastic on our underwear. According to Dudley, “Never have elastic near the skin because it can melt. For this last point, ensure that the t-shirt is always tucked in to the underwear to provide a barrier between the skin and the elastic.”



Figure 6a—Much of the polypropylene undershirt (blue) melted during the full-scale flame engulfment test.

When it comes to the type of fabric material, there are two elements to consider. First, how quickly does the material transfer heat to the next layer? A 2008 USDA Forest Service study tested several materials (see photo and link below). The study found that silk and Under Armour resulted in the greatest thermal injury to the test mannequin, while cotton, wool and poly-cotton performed better. The second consideration of the fabric, however, is more

critical: melting point. The low melting point of synthetic materials caused them to change from a solid to a liquid, char and even ignite.

In 2006, the US Marine Corps prohibited soldiers from wearing “synthetic athletic clothing” outside of base or camp perimeters. According to a DoD article, “Burns can kill you and they're horribly disfiguring. If you're throwing (a melted synthetic material) on top of a burn, basically you have a bad burn with a bunch of plastic melting into your skin, and that's not how you want to go home to your family,” According to the DoD story, even Under Armour has a warning that says, “Do not wear Under Armour products when exposed to extreme radiant heat or open flames. Under Armour products may melt in extreme heat that exceeds 350F. Never use Under Armour products as a substitute for flame-retardant or ballistic protective equipment.”

While this may be old news to many of you, recently I was informed of another issue that I never considered. Joe Blanco, Safety Officer for the Tampa Police Department Aviation Unit, was attending a training session with the nearby US Coast Guard station when they informed him of an



incident where the ink used for the logo melted, compromising the cotton t-shirt and burning a

crewmember. Joe did extensive research on the topic and found it was a real concern; “The end result would be almost like a branding or tattooing of whatever was on the shirt.” He located a vendor who had fire resistant ink and an alternative to the traditional cotton t-shirt that was both comfortable and fire resistant. Joe is willing to share the information on the new fire resistant t-shirts Tampa PD has purchased for flight crews (please look him up on the ALEA membership database, or send me an email and I’ll get you in touch with him).

Alternative to cotton? There are a number of vendors out there that have fire resistant options. Note: Neither I, nor ALEA, is endorsing any of these. However, ALEA members have passed on



products they have tried, such as Massif, DragonWear, Drifire, XGO (also has specific products for women), and Cocona Warrior. Have you found something fire resistant that works well under the flight suit? Log on to the ALEA website and add your comment to the Forums discussion on this topic.

<http://alea.org/forum/safety/124-t-shirts#270>

USDA Forestry Service Study: <http://www.fs.fed.us/t-d/pubs/pdfpubs/pdf08512348/pdf08512348dpi300.pdf>

US DOD news article: <http://archive.defense.gov/news/newsarticle.aspx?id=15478>

“I fly because it releases my mind from the tyranny of petty things.”

~ Antoine de Saint-Exupery

Practical SMS

June is approaching, which marks the half-year mark on our calendars. Now is a good time to start putting together a short mid-year SMS report for your unit. It is an opportunity to refresh everyone

on the issues being addressed, objectives set at the beginning of the year, and plan for the last half of 2016. In your report you should cover:

1. The 2016 Safety Objectives, and progress towards meeting those targets.
2. Active hazards being addressed by the safety program (reported hazards, inspection/audit items, etc.)
3. Safety training (initial SMS, recurrent training, IIMC, etc.)
4. Mid-year inspections or audits conducted in the first half of the year.
5. Game plan for July-December.

Be sure to cover the most important items in a short 'executive summary' that is no more than one page. If you have details that require more space, carry it onto the second page. Use graphs and other images as much as possible. If you have the option, color is better. On the first page, use numbered lists, not bullet points, as we tend to scan bullets faster and miss information.

Online Meetings

ALEA will be hosting online meetings for any member interested in the following topics:



Maintenance:
Thurs, May 19, 2016
1:00 PM - 2:00 PM EDT (1700 UTC)

Safety Officers:
Tues, June 7, 2016
1:00 PM - 2:00 PM EDT (1700 UTC)

To receive meeting information and be added to the mailing list, send an email
to: safety@alea.org

“What can you conceive more silly and extravagant than to suppose a man racking his brains, and studying night and day how to fly?”

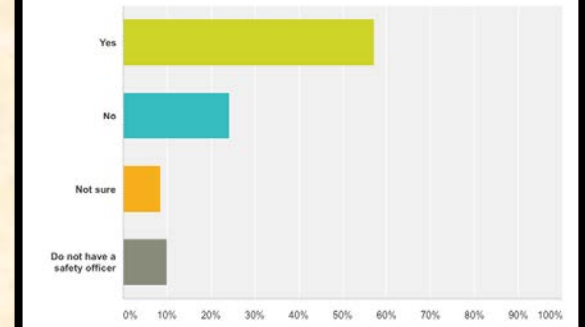
*~ William Law
1728*

2016 Safety Survey Results

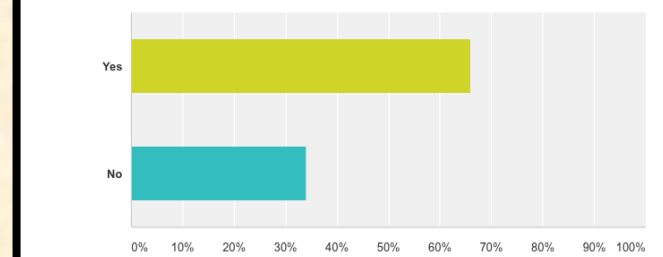
What type of refresher training does your unit do?

	Never	< 1x per year	1x per year	> 1x per year	Total
In-house flight training/refresher for pilots	8.57% 12	15.00% 21	30.71% 43	45.71% 64	140
Factory/Outside contractor flight training/refresher for pilots	14.58% 21	20.83% 30	40.97% 59	23.61% 34	144
Simulator training	56.93% 78	16.06% 22	17.52% 24	9.49% 13	137
Inadvertent IMC Training	26.09% 36	21.01% 29	31.88% 44	21.01% 29	138
Refresher emergency procedures training for TFOs	37.41% 52	23.02% 32	20.86% 29	18.71% 26	139
TFO-specific skills training/refresher	30.15% 41	27.21% 37	16.91% 23	25.74% 35	136
"Pinch Hitter" flight training for TFOs	49.25% 66	16.42% 22	12.69% 17	21.64% 29	134
Refresher Training/Continuing Education for Maintenance Staff - In House	44.78% 60	19.40% 26	21.64% 29	14.18% 19	134
Refresher Training/Continuing Education for Maintenance Staff - Factory	42.54% 57	33.58% 45	14.93% 20	8.96% 12	134

Has your unit's safety officer received any formal training on Safety Management Systems?



Does your agency have a formal TFO training program?



Mental Health Project

Are you a musician? Going to ALEA EXPO in Savannah this summer? Please send me an email or call. Any skill level, beginner to pro. We are working on a “mental health” project that you might be interested in.



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.

Concern Network Report:
Type: Bell 429

During a maintenance flight, a slight intermittent vibration was detected in the main rotor system. Maintenance advised the PIC to continue monitoring the vibration during any flight. While at the destination city on the next flight, the PIC advised maintenance that the vibration had not intensified but was more frequent, so maintenance advised the PIC to relocate the aircraft to the vendor's hangar for inspection upon return. The flight was completed with no perceived change in vibration. After departing from [the vendor's hangar] the vibration was noticeably worse than during the previous legs. The PIC informed the crew and communication center that a precautionary landing would be made. The

aircraft was diverted and landed without further incident. A PAIP was initiated per protocol. After post-landing inspection, it was noted that one of the main rotor rod-ends had failed.

Additional Info:

After post-landing inspection, it was determined one of the main rotor rod-ends had failed. Maintenance was summoned with the appropriate replacement materials and a field repair was completed within 3 hours of the precautionary landing. The aircraft and crew returned safely to base where a full maintenance inspection was completed and the aircraft was returned to service.

Aircraft: Cessna 206
Injuries: 3 Fatal, 1 Serious
NTSB#: ANC16FA017

http://www.nts.gov/layouts/nts.aviation/brief.aspx?ev_id=20160409X10944&key=1

An amphibious float-equipped Cessna 206 airplane sustained substantial damage after impacting snow-covered, rising terrain about 17 miles southeast of the Angoon Airport, Angoon, Alaska. Of the four people on board, the commercial pilot and two passengers sustained fatal injuries, and one passenger sustained serious injuries. Visual meteorological conditions (VMC) prevailed at the time of departure.

As part of their company flight following procedures, Sunrise Aviation incorporates Spidertracks, which provides company management personnel with a real-time, moving map display of the airplane's progress. In addition, the accident airplane was equipped with a digital, 406 MHz ELT that instantly transmits a distress signal to search and rescue satellites, thereby alerting rescue personnel within minutes of the location of the crash.

During an interview with the NTSB IIC on April 12, the operator's director of operations stated that while flying another company airplane, he spoke with the accident pilot on a company radio frequency. The accident pilot commented to the director of operations that while en route to Angoon, he was unable to make it through Pybus Bay due to low clouds and reduced visibility, and that he was going to try an alternate route that had a lower terrain elevation. The director of operations added that about 15-20 minutes after speaking with the accident pilot, he landed in Wrangell and noticed the Spidertracks signal was stationary, in an area of mountainous terrain. He then called personnel at the Angoon airport and was told the flight had not arrived, and attempts to contact the accident pilot on his cell phone and aircraft radio were unsuccessful. Shortly thereafter, he received a phone call from the Alaska Rescue Coordination Center notifying him of a broadcasting 406 Mhz emergency locator transmitter (ELT) signal assigned to the accident airplane.

About 1117, the crew of a U.S. Coast Guard HH-60 helicopter located the airplane's wreckage in an area of steep mountainous, snow-covered terrain. However, due to hazardous weather and terrain conditions, the helicopter crew was unable to lower a rescue swimmer to the site, and the crew returned to Sitka to pick up rescue personnel from Sitka Mountain Rescue.

About 1355, the HH-60 helicopter returned to the accident site and landed on an adjacent ridgeline, and members of Sitka Mountain Rescue and the Coast Guard hiked to the accident site. Once on

scene, they discovered that three of the airplane's occupants died at the scene, and one had survived the crash. The sole survivor was hoisted aboard the Coast Guard HH-60 helicopter, and then transported to Juneau.

Aircraft: Airbus AS 350B2
Injuries: 4 Fatal
NTSB#: ERA16FA140

http://www.nts.gov/_layouts/nts.aviation/brief.aspx?ev_id=20160326X80544&key=1

On March 26, 2016 about 0018 central daylight time, a Eurocopter AS 350 B2 impacted trees and terrain near Enterprise, Alabama. The airline transport pilot, flight nurse, flight paramedic, and patient being transported, were fatally injured. Night instrument meteorological conditions (IMC) prevailed for the flight, which operated on a company visual flight rules (VFR) flight plan.

According to communications records, the call from the deputies was received by Haynes Life Flight Dispatch at 23:19:10. The pilot of "Life Flight 2," which was based at the Troy Regional Medical Center, Troy, Alabama, was notified at 23:20:38. The helicopter departed Troy at 23:26:57 and arrived at the landing zone (LZ) in a farm field adjacent to County Road 606 at 23:53:15.

According to witnesses, after touchdown, the pilot remained in the helicopter with the engine running. Once the patient had been loaded, the flight nurse and flight paramedic boarded, and at 00:16:45 the helicopter lifted off and turned north towards AL11.

Fog, mist, and reduced visibility existed at the LZ at the time of the helicopter's arrival. Witnesses also observed that these same conditions were still present when the helicopter lifted off approximately 23 minutes later. The helicopter climbed vertically into cloud layer that was approximately 150 feet above ground level and disappeared when it turned left in a northbound direction toward AL11. Review of the recorded weather at Enterprise Municipal Airport (EDN), Enterprise, Alabama, located 4 nautical miles east of the accident site, at 0015, included winds from 120 degrees at 4 knots, 3 statute miles visibility in drizzle, overcast clouds at 300 feet, temperature 17 degrees C, dew point 17 degrees C, and an altimeter setting of 29.97 inches of mercury.

According to Haynes Life Flight, the on-board Skyconnect satellite tracking system provided position updates for the helicopter every 3 minutes. Additionally, the pilot was supposed to contact them every 15 minutes via radio. After the helicopter departed on the accident flight, Haynes Life Flight did not receive the pilot's normal 15-minute check-in, and when they checked the satellite tracking system, it showed that the helicopter was still at the LZ, though they knew it had lifted off. Haynes Life Flight then began to notify authorities that the helicopter was missing. After an extensive search by authorities, at approximately 0700, and around the area of County Road 615 and 616, search parties began to smell what they believed was jet fuel. The wreckage was eventually located in a swampy, heavily wooded area.

Review of preliminary radar data provided by the United States Army from the approach control radar site at Cairns Army Airfield (OZR), Fort Rucker, Alabama, located 13 nautical miles east of the accident site, indicated that after takeoff the helicopter had entered a left turn, and climbed to 1,000 feet above mean sea level. At 00:18:04, the rate of turn began to increase. At 00:18:18 the rate of turn continued to increase and the helicopter reached a peak altitude of 1,100 feet. It remained at this altitude until approximately 00:18:28 when the helicopter began a rapid descent. Five seconds later, that helicopter had descended through 600 feet. Moments later, radar contact

was lost when the helicopter descended below the floor of the radar coverage area.

The accident helicopter was manufactured in 1998. It was equipped with a three-blade main rotor system, a two-blade tail rotor system, and was powered by a Turbomeca Arriel 1D1 engine rated at 641 shaft horsepower. The helicopter was equipped with skid-type landing gear, Night vision goggles (NVG) and NVG-compatible lighting, a helicopter terrain avoidance warning system, and an autopilot. The helicopter was not certificated for flight in IMC conditions.

According to FAA records, the pilot held an airline transport pilot certificate with a rating for helicopter and type ratings for the AB-139 and AW-139. He also held a flight instructor certificate with ratings for helicopter and instrument helicopter. According to the operator, he had been employed by them for approximately 6 months and had 90 hours of flight experience in the accident helicopter make and model since he was hired. His total flight experience was 5,301 hours, 5,265 of which was as pilot in command, 474 hours of which was at night, and 265 of which were in actual instrument meteorological conditions. His flight experience during the 90 days prior to the accident was 47 hours, including 20 hours in the 30 days prior to the accident.

Aircraft: North American AT-6
Injuries: 2 Fatal
NTSB#: WPR16FA087

[http://www.nts.gov/ layouts/nts.aviation/brief.aspx?ev_id=20160325X80001&key=1](http://www.nts.gov/layouts/nts.aviation/brief.aspx?ev_id=20160325X80001&key=1)

On March 23, 2016, at 1542 Pacific daylight time, a North American AT-6A, N7055D, impacted the Columbia River near Astoria, Oregon. The private pilot and passenger sustained fatal injuries, and the airplane was destroyed by impact forces. The passenger was seated in the rear of the airplane, and the flight was intended to be for the dispersal of her deceased husband's ashes.

A witness, who was the Captain of a cargo ship moored at an anchorage in the river channel, about 1 mile northeast of Astoria, was on the ship's bridge at the time of the accident. He observed the airplane flying about 300ft above sea level, approach the ship from the starboard quarter traveling on a north-northeast track. He walked outside to watch as it flew directly overhead and across the port beam. It continued on the same track away from the ship, and a short time later he saw the left wing dip, as the airplane began a left turn. A few seconds later the wings were almost vertical, and the airplane then rapidly transitioned into an aggressive steep vertical dive. The airplane then hit the water in a nose-down attitude, and he saw a red tail section bob back into view, and then sink. The airplane was flying parallel to the water surface leading up to the diversion, and he could hear the engine operating throughout the flight.

Another witness, located inside her apartment close to the waterfront in Astoria, was at a north-facing window with a view of the channel. The airplane was flying at a speed she considered to be slower than normal, and it then began a slow and "graceful" turn to what appeared to be the left. She likened the maneuver to the way a large commercial airplane turns, and as it progressed she could eventually see the full wing profile. The turn continued, and before completing 180 degrees, the nose of the airplane aggressively dropped, and the airplane transitioned into an almost vertical dive, passing out of view behind a ship. The airplane was flying straight and level up until the diversion.

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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