



The

Safety

Wire

March 2015

“AIR 1, UNIT CHECK”

Many of us routinely hear this kind of status check from our dispatch center. While the callsigns and specific verbage vary from agency to agency, the intent is the same... to verify that the aircraft has not crashed. Our answer 99.9% of the time is, “10-4”, but are we helping or hurting the process with that answer?

More specifically, the unit check is a basic type of flight following intended to make sure emergency assistance would get to the aircrew if needed. In order to accomplish that goal, our communications personnel need two pieces of information:

- 1. That the aircrew needs help**
- 2. Where the aircrew is**



The first criterion is easy enough to satisfy, as long as the unit checks are conducted as planned. I find that often, over time, the interval between checks slowly creeps from ten minutes to fifteen...to twenty-five minutes...to every other flight. It is tempting to let the blame fall on the dispatcher and let the unit checks go as we complain about their forgetfulness. I flew with a TFO who didn't let it slide. If they missed a routine check, he would just pipe up and tell them we were 10-4. It seemed like a good plan to me and it usually rekindled the fire on the other end, for a while.

Let's say that the crew fails to answer the unit check, which is a likely scenario in a real accident. While this would be an obvious indication that there is a problem, does your dispatcher know what to do next? Do they know who to call? How long should they wait before escalating the event to a SAR scenario? If you do not have all of this spelled out in black and white, in an easily accessible location, it is unlikely that the situation will be handled appropriately even if they know the aircrew is missing and likely needs help.

The next issue for us to consider is the fact that assistance will only make it to the crew in time if their location is known. Without some form of electronic flight tracking, simply responding that the crew is 10-4 will not help our dispatchers know where to send the cavalry when the aircraft goes down. Yes, you can make it quite a distance between unit checks that are even 10 minutes apart. However, setting up a search area using a last known location and a ten minute radius will yield quicker results than a search area based on any possible place you might have gone in your patrol area over the last hour. Using the last two positions may even help establish a projected course or destination.

The best solution is to have an electronic flight tracking system. There are numerous vendors out there with quality systems for all budgets. There are even some applications available for mobile devices that are very inexpensive. If your aircraft is ADS-B 'Out' capable, you have even more options.

If your flight following system depends on your communications center knowing you need help and getting that help to you, stack the deck in your favor. Have a simple, written plan within arms reach of those dispatchers. And when they ask if you are ok, tell them where you are.

**A GOOD BATTLE PLAN THAT YOU ACT ON TODAY
CAN BE BETTER THAN A PERFECT ONE TOMORROW**

~ GEN GEORGE PATTO



Practical SMS

“One guy ruined it for us.” This is, unfortunately, a common explanation for the existence of safety policies and procedures. Equally unfortunate is the fact that all too often, a single occurrence is the sole reason a safety policy is in place. Think about the joy of taking your shoes off at the airport every time you fly commercially.

Knee-jerk reactions are one of the very valid reasons that people do not like, or believe in, many safety programs. The solution is to use a defined process to understand risk and attack it in an effective manner.

First, let's look at what risk is composed of: Probability and Severity. If one person makes a mistake, and the probability of it ever happening again is very low, then the associated risk is very low. Low risk issues usually do not warrant big reactions.

		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

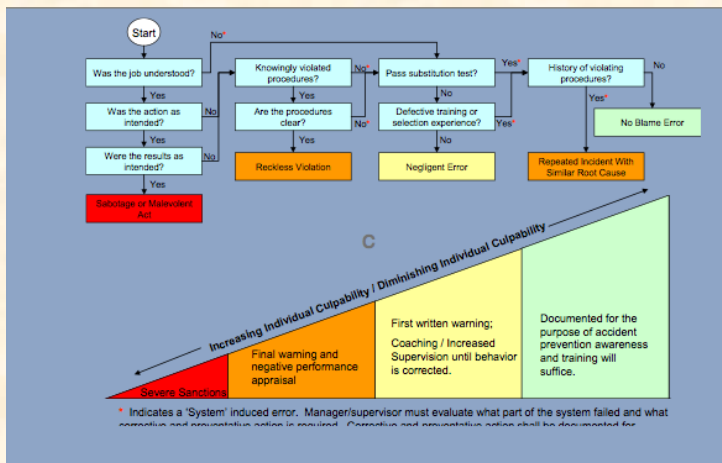


The devil's advocate (and we all have one in our group) will argue that *anything* could lead to a disaster, which gives a high risk no matter what the probability might be. The key here is reasonableness. Pull apart the event using a Hazard Analysis Model (i.e. 5-Whys) to understand the components of the issue. Once you know the ingredients, look at how often they are present in your operation on a day-to-day basis. Use historical data, outside references, surveys or inspections or simple observation to see if the issue has regular opportunity to attack your safety again. If you find an element of the hazard does come up quite often, you can now mitigate the entire hazard in a very potent, surgical strike-type manner.

Another way to assess the actual probability of the hazard is to determine if the issue is related to an individual or the system. We often respond to accidents by

punishing, blaming or retraining the person who had the accident or was related to a safety issue. Sometimes, this is the right course of action. Studies show that 80-90% of safety 'events' are actually systemic problems. This means that there is something wrong with the operational framework, which allows the problem to arise. The solution to a systemic problem is to fix the system, not deal with just the individual who happened to be the last link in the chain that day. Individual issues do not often warrant changes that affect everyone else. How can we determine which course of action to take? In addition to a hazard analysis as described above, Just Culture can help out.

The process of applying Just Culture to a safety event is often thought of as the means of determining if someone should be punished for their actions. While this is one function of Just Culture, it is not the core focus. The ultimate goal is to have the means to identify safety issues and then determine if they are individual or system problems so the appropriate fixes can be applied. An example of a Just Culture flow chart is below.



Sometimes, an accident made by one person should lead to changes throughout the organization. When this happens, it should not be because that, "one guy ruined it for everyone." It should be because, "that one incident showed us how a legitimate, high-risk hazard has been circling around our ankles, waiting to bite us again."

THE BENEFITS OF SCIENTIFIC INQUIRY, OR ANY FORM OF EXPLORATION, CANNOT ALWAYS BE KNOWN WHEN THE FIRST STEPS ARE TAKEN.

~ JOHN GLENN

RESOURCES

Free online webinar from the FAA

Autorotate and Live

<http://sancarlosflight.com/activities-and-events/march-26-thu-700pm-pdt-autorotate-and-live>

International Helicopter Safety Team

Reel Safety Videos

<http://ihst.org/Default.aspx?tabid=3210>

- ✓ Controlled Flight Into Terrain
 - ✓ Emergency Decision Making
 - ✓ Energy in Autorotations
 - ✓ IIMC
 - ✓ Precautionary Landings
- And more...



Police Aviation News

<http://www.policeaviationnews.com/Acrobat/226PANFebruary2015.pdf>

<http://www.policeaviationnews.com>

SAFETY OFFICER MUTUAL AID

The next ALEA safety online meeting will be on April 23rd at 1:00 pm EDT. Please send me an email if you are not on the mailing list and would like to attend. The minutes from previous meetings are also available. safety@alea.org

April 20th, 2015
1:00pm EDT (1700UTC)

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.

Accident Update: In 2013, a video was released of a Brazilian fire department helicopter crashing in the ocean off Copaccabana Beach.

<https://www.youtube.com/watch?v=gCI72o-xNK8>

The video produced quite a bit of conversation as to the cause of the accident (it is also a great conversation piece for the importance of water egress training). As usual, most of the speculation surrounded human factors issues. This is one of those cases that reminds us to be careful making judgments about accident causes too early. Recently, an ALEA member from Brazil sent me the accident report, which is in Portuguese. He helped me pull out an excerpt from Airbus that helps summarize the incident:

Following a recent incident (significant loss of power in flight), which occurred during an offshore flight, the subsequent investigations and tests revealed that the operation of the microswitches involved could be altered due to environmental conditions (malfunction related to the possible presence of salt water on the microswitch terminals). The malfunction of a microswitch may prevent the change from "IDLE" mode to "FLIGHT" mode.

I was recently looking over an old issue of the FAA's Safety Magazine (May/June 2014) and saw this graph, which depicts where corrosion is likely to occur in North America. Certainly something for many of us to consider in our daily operations.



Aircraft: Cessna 182L
Injuries: 1 Fatal, 1 Serious, 1 Minor
NTSB Identification: CEN15FA119

http://www.nts.gov/_layouts/ntsb.aviation/brief.aspx?ev_id=20150126X31505&key=1

A Cessna 182L airplane collided with trees during an off airport forced landing. The certified flight instructor (CFI) received serious injuries, the student pilot received minor injuries, and the pilot rated passenger was fatally injured.

The pilot was in contact with the Minneapolis Air Route Traffic Control Center (ARTCC) while en route to LJF at 8,000 feet. The pilot requested a climb to 10,000 feet stating they were picking up rime ice. The pilot then reported that they were picking up "quite a bit of rime ice" at 10,000 feet and requested a descent back down to 8,000 feet. Approximately 3 minutes later, the pilot requested a descent to 6,000 feet stating that they were picking up more ice. The pilot then stated they had a little rise in the outside temperature, but were still "building up quite a bit of ice" and requested a descent to 4,000 feet, which was approved. A short time later, the controller instructed the pilot to maintain 4,000 feet stating that the radar was showing him at 3,500 feet. The pilot replied that they were unable to maintain 4,000 feet. The controller provided the pilot with the weather conditions for nearby airports and asked the pilot if he wanted to change his destination. The pilot responded that they were looking up the weather for Eau Claire. The controller then issued an altitude alert to the pilot stating that the minimum IFR altitude in the area was 3,000 feet. The pilot reported they were going to stay at 2,500 feet where they had visual contact with the ground. The controller reported that radar contact was lost and issued a position report to the nearest airport. The controller declared an emergency for the pilot and asked what their intentions were. The pilot responded that they were going to divert to Eau Claire. The controller cleared the airplane to the Eau Claire airport and instructed them to maintain 3,000 feet when possible. The controller asked the pilot about the icing conditions and the pilot stated that they were not picking up ice at their current altitude. The controller asked the pilot how much fuel they had remaining and the pilot responded that they had 4 hours of fuel remaining. The controller issued a frequency change for another sector controller.

The student pilot told local authorities that they knew they were going to be flying into some weather, but they were planning on staying above it. He stated he was flying the airplane until the weather conditions deteriorated at which time the CFI began flying. He reported that the airplane's performance deteriorated and they were no longer able to maintain altitude so they decided to land on the road. He stated that the CFI had a small area between the size of a golf ball and a baseball in which he was able to see out of the windshield. The student pilot reported he could see about an inch of ice built up on the wing. He stated the airplane was "running great" prior to the accident.

The CFI reported to local authorities that they were unable to get above the weather and that the airplane started icing up. He stated they made several altitude changes, but the ice continued to accumulate. He stated they were unable to maintain altitude and that the wings were no longer able to "provide lift" due to the ice accumulation.

The airplane touched down to the east on a two-lane, paved country road. Tire tracks indicate the airplane was near the left edge of the road. The left wing contacted trees along the side of the road as evidenced by the left wing tip being found near the initial tree strikes. The airplane continued on the road where it contacted more trees prior to veering to the left and coming to rest in a group of trees.

Aircraft: Agusta AW119 MkII

Injuries: None

NTSB Identification: CEN15LA156

http://www.nts.gov/_layouts/ntsb.aviation/brief.aspx?ev_id=20150225X31336&key=1

An AgustaWestland AW119 MK II experienced an abrupt, uncommanded left yaw during cruise flight over the Gulf of Mexico. The pilot and three passengers were not injured. The helicopter sustained substantial damage. The helicopter was registered to and operated under the provisions of 14 Code of Federal Regulations Part 135 as an on-demand air taxi flight. Visual meteorological conditions prevailed for the flight, which operated on a company visual flight rules flight plan.

After the uncommanded left yaw, the pilot returned to [base] and performed a run-on landing. A post-flight inspection of the helicopter revealed one of the tail rotor pitch change links was fractured. No additional damage to the helicopter was discovered.

There are no new ways to crash an aircraft...

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

Safe hunting,

Bryan 'MaGu' Smith

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