



Maritime Helicopters

January 2016 QUALITY & Safety Notes

New Year's Requirements:

The New Year brings a rather busy time to the Quality and Safety Department. End of Year 2015 reports and the promise of 2016 audits from customers as they update their Safety, Maintenance, and Operations information. So far we have Department of Defense audits scheduled for February 24th, a Conoco-Phillips visit some time in February, and more importantly, the results of our own internal audit from end of year 2015!

Of course, the audits which we are subjected to, or perform on our own, are only as good as the corrective action applied to the Findings and Observations found during the audit. Brent, Isaac, and I would like to thank everyone for their participation in the audit process! I think it is very clear, that everyone at Maritime wants to work for a quality organization. As we work towards compliance to government, industry, and *our own standards*, many of us will apply Root Cause Analysis to our findings to improve the company. More to follow as we continue to work on our results!

Some End of Year Results

In 2015 we worked almost a third more man-hours than we did in 2014! And we had **zero** OSHA recordable injuries. THAT is a great success! We still all need to be very aware, that a small company has very little room to "hide" recordable injuries in a sea of large-corporate statistics. Please, to be watchful in every operation we perform and watch out for your coworkers. It may seem unfair, but a large oil company can kill someone in an accident and we can have a work related slip-or-fall incident, and we will look worse on paper and have to explain our "high" Total Recordable Injury Rate" to our customers and the government.

Skid Steer at Nikiski

Whether you call it a Skid-Loader, a Skid-Steer, a BobCat, or a Uni-Loader, Maritime now has one in place at the Nikiski hangar. The Skid-Loader is a different kind of animal as far as vehicle safety goes...if you wear it like a second skin (seat belt on) it's actually hard to hurt yourself on one. But the second you're not strapped in and get a load too high or have a rollover due to a bad slope, you can get thrown out and pinned in a second. What I'd like for everyone to do is take a look at this class from OSHA, and then if you operate the skid-steer, please put the words "SKID STEER" in your response to Jessica for compliance that you've taken the class along with the January safety notes.

https://www.osha.gov/dte/grant_materials/fy09/sh-19503-09/skid_steer_loader_safety.pdf

Ladders at Alyeska Sites

I need to remind everyone who works the Alyeska contract again after a call from their safety rep. When ladders are not in use in the Alyeska facilities, please ensure that the bungies or ropes which secure them to the wall so they don't fall, are properly used. This is their policy and since they are the customer, they win. Make sure the ladders are secured!





Maritime Helicopters

February 2016 Quality & Safety Notes

The Big Fix it List

Since the Quality portion of the Quality and Safety Department finished up the 2015 Audits, we have been working on solutions to the various findings and observations which we noted as we traveled around the very large, Maritime Helicopters footprint. As we continue looking at corrective actions, I'd like everyone to remember that whether we make changes for Government Compliance, Customer Requirements, or our own Internal Improvement, it is US that makes the changes. I've worked for the Army, DoD, and a couple of LARGE corporations, and it was always hard to make changes because it was always a great bureaucracy that had to weigh in. Well, we have the perfectly sized company to be nimble enough to make changes in our processes as long as we remember that we can all make the suggestions for corrective action!!! As you read through this month's Safety Notes, if you have ideas for improvement, please share them!

Forklift Training

We've been a little remiss on training on the Forklifts. Right now the only two forklifts are in Fairbanks and Valdez. Last month we covered the skid steer and had a good response on those who went through the OSHA slides. This month, since there is such a wealth of good training online, I'd like those that have opportunity to work with the forklifts to watch the following video on forklift operation and safety and then demonstrate your proficiency in forklift operation by...

- A. In Fairbanks, have Isaac run you through a quick practical test (Isaac will do the training records)
- B. In Valdez, Please take the time to do a self "check-out" between pilot and mechanic
- C. When you send your completion forms back to Jessica, please make the note "FORKLIFT" by your signature on the form. (I will keep the Valdez personnel/training record here with Isaac)
- D. If you are not working at Fairbanks or Homer on a regular basis, but MIGHT? Please comply as above.

Here is the video!

https://www.youtube.com/watch?v=a8Z2pYXI_hc

If this system works, we'll just rotate the videos and check out everyone on a regular basis. The minimum interval for OSHA is THREE (3) years or any change in equipment. We need to also make sure that the period maintenance checks are being completed per Larry Alley's guidance.

I'm keeping the note on Ladders at the Alyeska sites for at least another month.

Ladders at Alyeska Sites

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April Quality & Safety Notes

Quality AND Safety

Okay, Quality is back in the title. And there are a few happenings that I'd like to discuss where Quality and Safety nearly run right into each other. This April Safety letter is a little late in distribution of course, I suppose I could have combined it with May's letter, but May will be a pretty specific tasking for everyone. I have an initial draft of a new station checklist for quality AND Safety purposes that I will be sending out this month for your comments. But, I digress...let's move on.

Alyeska Pipeline Service Company Rules

Several weeks ago we had to send one of our mechanics up to Pump Station #4 to assist in some repairs. He drove up to the Pump Station **without** contacting Alyeska on the ARTS (Alyeska Radio Telephone System) radio. No issues, right? Well, no issues because he never entered the accountability system within Alyeska. Once ON the pump station, he badged in so he was in Alyeska's oversight. On the way back, he was asked to continue badging in and out of each successive pump station which he didn't do. So we had to answer a customer complaint.

Alyeska's SA-38 Safety Manual States:

Vehicles traveling along TAPS will be monitored as follows:

- A. The purpose of monitoring TAPS travel is to reduce risk to travelers by ensuring personnel safely reach their destination and to make certain a prompt response occurs in the event of an incident where personnel cannot make radio/phone contact.

Vehicle operators are required to check-in from departure location, stop at each pump station or response/maintenance base that falls between travel destinations

Our compliance with this policy, as part of the Alyeska contract is **Quality** based. We signed a contract, so their policies become regulatory. We do it because we said we would. Please, if you are driving the Pipeline, be aware of the Alyeska policies and comply. It takes about 5-10 minutes at the pump stations to drive up to the gate, badge in and badge out and continue on your way.

The **SAFETY** part of this policy is that Alyeska is controlling the rate of travel on the Dalton Highway. The speed limit is 50mph up there (which is more than generous). If you must drive up there, watch the speed! Watch the truckers! Watch the road shoulders!

Summertime Safety!

I was digging through my personal survival bag the other day, and finding what did and didn't need to be there. The Alaska statutes are so minimal in their requirements...The snowshoes can come out of the aircraft as of April 1, (except for Alyeska) and the mosquito gear and rain gear become preferential to the big parkas. Remember that most of the hypothermia cases, even in Alaska, are related to being wet or damp with only moderate temperatures. Whether flying or driving, I would seriously consider having rain gear with me all of the time here in our big WET state. And then fill the pockets of that raingear with lighters, snacks, a knife, and a bottle of water or two, then keep that raingear close at hand.

From the Alaska Statutes...Summer Food for each occupant sufficient to sustain life for two weeks, one axe or hatchet, one first aid kit, one pistol, revolver, shotgun or rifle and ammunition for same one small gill net and an assortment of tackle such as hooks, flies, lines, sinkers, etc. one knife, two small boxes of matches one mosquito headset for each occupant two small signaling devices such as colored smoke bombs, railroad fuses or very pistol shells, in sealed metal containers.

Obviously the most debate in this list comes from the firearm. Don't assume that you do or don't have to carry a firearm, just talk to Dave Jones or Dave Buzga about the mission you are on, and whether they think a firearm might be a good idea. Alyeska has strict control policies on firearms so before you do any Pipeline work, you need to be aware of those.



Maritime Helicopters

May 2016 Quality & Safety Notes

Busy, Busy, Busy

This month, the Safety Notes were going to be very specifically and very narrowly focused on our remote station checklist and making changes so we can get those implemented in June. Well, we are still going to do that, but since it is almost summer, we have a few other issues to deal with. So let's get to it.

Fairbanks Hangar

We were just launching the morning flights here in Fairbanks, when the driver of a pickup truck, cruising down Metro Field, decided to shoot straight at me and start a wee little conversation. It seems that one of our neighbors here, who parks his Super Cub right next to the refuel area, had his plane moved in its chocks yesterday. There was no finger pointing, but he was fairly sure that it had to be one of our aircraft that hovered close enough to do a little damage. (no lawsuits are forthcoming).

Since everyone in Alaska will be out with their airplanes in the next few months we need to remember that rotor wash can do many strange things. But there is a science to it. Points to remember: Higher weights, smaller rotor disk areas, and higher altitudes will all produce higher downwash velocities. I've found that hovering in ground effect AND getting by sensitive or possibly aerodynamic equipment in an expedient manner will help in NOT stuff all over. That great wave of downwash that you use to knock your friends off of their paddle boards seems to build if you stay in one place too long. Please be aware of your rotor wash!

On the receiving side of the wind, we have to tell people (neighbors, fixed wing pilots & people in porta-potties), what our downwash can do. Our crazed, pickup driving neighbor and I will have to have a discussion about parking his light, fixed wings *downwind*! Yes, the aircraft that we may have blown was and still is, parked with his tail to us and airplane elevators do a great job of elevating tail ends on the ground!

To summarize the summary, let's all be aware of downwash this summer!



This is not a Maritime Helicopter related incident; just inserted here to make a point.

We don't have to name any names as to who was involved here!



Maritime Helicopters

June 2016 Quality & Safety Notes

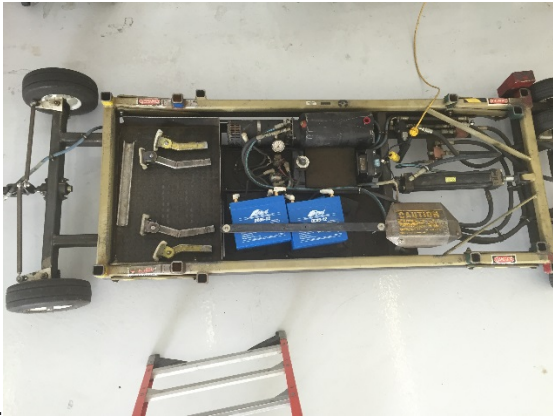
What about the Stuff on the Ground?

Looking through the last few months Q&S Notes, I notice that we've been discussing a lot of in-flight happenings and general aviation safety topics, getting ready for the busy summer season. I've even hit upon some of the aviation maintenance issues as we keep pushing to provide better and better aircraft to our customers. But it seems we haven't been visiting the topic of our ground support equipment and facilities enough.

After reviewing the station checklist last month, which will now get passed out to all the remote sites and everyone can start the self-auditing of their own hangars and equipment. About time, Safety Manager! I'll cover that at the end of this letter, but for now I want to talk a little more about taking care of "Our Stuff"

Ground Support Stuff

You'll see in the Incident Reporting section this month, that we had an aircraft damaged due to a bad piece of ground support equipment. We've all done it, grabbed a Tug-A-Lug or a battery cart, or placed customer equipment in one of our dollies or carts and not thought twice about the condition of the equipment. I can tell you that one of the little carts we use for baggage in Fairbanks, has a flat tire more than it has four inflated tires. **(Last minute update! As of yesterday the tire is fixed! \$12.99 for two tire at WalMart)** When we grab one of these pieces of equipment, we just assume that it is functional...Assume... We don't do that with aircraft, there are a thousand little checks to be done before we launch a helicopter.



This is a universal issue. U.S. Army Aviation only added an overall Program Manager for aircraft ground support equipment in 2003. Before that? It was just up to somebody in a unit that cared about tugs, tractors, battery carts, diagnostic tools, etc. to go out of his/her way to fix the equipment. The Air Force has had the "AGE" (Aircraft Ground Equipment) shop for decades.

So what do we have? We have us. Forty to Sixty coworkers all with a lot on our plates. A small company must rely on the whole workforce constantly auditing and diligently performing pre-use inspections of ground equipment to maintain our gear. There is no way that we can solely rely on our mechanics to notice and fix everything that is wrong with the physical equipment of our company. Think back to the last time you went to grab a piece of equipment and it was **1. Not complete** **2. Not charged** **3. Leaking** **4. Dirty/Filthy/Oily/Unwashed** **5. Not tagged properly** **6. Otherwise contaminated with FOD or loose items that could migrate to aircraft.** **7. JUST NOT RIGHT!!!** Did you tell someone? Did you clean it? Fix it yourself? Charge it? Tag it?

What I'm asking for is this. All auditing aside, when you go to use a piece of equipment, take the 60 seconds to look at its condition. And when you go to put it away for the night, make sure it is in a serviceable condition for the next day. And, if you see something wrong, **TELL SOMEONE!**



Maritime Helicopters

JULY 2016 Quality & Safety Notes

We're all spread out, and the Alaska summer risks are unique!

July has flung itself past us quickly, and I can't believe the tales I'm getting from our company and others that work in the far north. Stories abound of stings and unbelievable mosquito numbers, as well as rain soaked areas with risks of floods or in our case, poor landing conditions out in the field. There have even been reports of more Man versus Bear encounters partially due to such a good year for wild berry production! Any way you look at it, this summer has been *different*. And different means you have to think differently about your surroundings. As we have several weeks of summer left, let's take a look at a few things to keep us safe.

Bees and Wasps!

With a high bee and wasp population in Alaska this year, I've already asked Heidi to put together the list of anyone we have in Maritime that is allergic to bee stings. We have a few that are, and some are already carrying their Epi-Pens with them. Please let us know if you are allergic. I'm not, but the bees seem to be trying to "off" me anyway. I've had two stings this year so far.

I recently learned from the North Slope, that bee stings that require the use of an Epi-Pen are **recordable injuries** under OSHA. Here is some information gleaned from the Internet on prevention and treatment of bee stings...

Bees are vital to agriculture, but they can also pose serious hazards that must be properly managed to avoid employee injuries.

Bee stings can occur anywhere and at any time. It is particularly important that employees with increased exposure, such as those who work outdoors, know how to prevent and treat them.

PREVENTING BEE STINGS

If a job entails working in close proximity to bees or places an employee at greater risk of exposure, the following precautions should be taken:

Avoid wearing perfumes, colognes and bright-colored clothing. Bees are attracted to fragrances and bright colors much like flowers.

Whenever possible, wear long sleeves and pants to minimize exposed skin.

Never swat bees. This will only make them more aggressive.

Avoid crushing bees. Crushing can release distress scents that call other bees.

Exercise caution when working with vines or lifting tarps. Bees are not always immediately visible and can lurk in unexpected places.

WHAT TO DO WHEN STUNG

First, remain calm.

Try to remove the stinger as quickly as possible—preferably within one minute.

Do not attempt to remove the stinger with your fingers or tweezers. Pinching the stinger will squeeze the venom sac and increase the amount of venom injected into the skin.

Remove the stinger with a flat, rigid surface such as a credit card.

Apply ice or first-aid cream to the affected area.

Elevate stung arms and legs.

Carefully monitor any person stung to make sure they are not exhibiting serious reactions.

Report a sting immediately even if no treatment is required.

WHAT TO DO IF ATTACKED BY A SWARM OF BEES

Run away from the swarm immediately, creating as much distance as possible.

Cover vulnerable areas of the body, including the neck, head and eyes.

Seek shelter, such as a vehicle, as quickly as you can.

Remove any stingers with a flat, rigid surface.

If someone else is being attacked, instruct them to seek shelter right away.



Maritime Helicopters

AUGUST 2016 Quality & Safety Notes



AUDITS, AUDIT RESULTS, AND OTHER AUDIT RELATED STUFF!

Where did August go? Yes, you are all getting the August Q&S Notes on the last day of the month. We're all busy wrapping up summer season, starting to think about winter and the joy of audit season. The big news of the month is that Exxon stopped by for a visit (AUDIT!) in hopes of prepping any ad hoc work they may have on the North Slope in the future with the Bell 412. For those of you that haven't been through an OGP (Oil & Gas Producer's) audit before, let me just tell you; there is always work to do after the audit. In this month's letter, I'm going to try to be the Quality guy (explaining some of the audit results) and then a bit of the Safety guy (where audit compliance means we may have to change some safety procedures), and then wrap up the month with the relevant Flight Irregularity Reports as usual.

Exxon Review

Exxon calls their audit visits, "A Review". Whatever you call it, it means that we open up our business to a current or prospective customer in order to demonstrate our proficiency to perform their work. To me, this is the SALES part of the Quality function. We have to drum up business. So when they place a finding on the audit results, it means, "Maritime has to comply with these findings to get their business."

The good news? Exxon does want to keep moving ahead with possible work agreements in the future. The other news is that we have some work to do. There will have to be some structural changes, some training, changes, and some compliance changes in order to do any work for them. I'm not going to include all of the audit findings, but I would like to share some of the issues which will include more or less immediate changes to how we operate.

- 1. Fuel Quality:** There has been no requirement for us to water test our fuel every single time we fill up an aircraft in the past. Look to any operations for Exxon (or other OGP customers), including a water detection capsule test for each refuel. Also, the monthly Differential Pressure check which is performed by comparing refuel system input and output pressures, will be performed DAILY. Larry is already changing the daily fuel quality checklist to include this check. We still have to address performing this check when there aren't two people available (one to read the pressure and one to fuel an aircraft). More to come on this.
- 2. Tool Control Program:** We already were aware that we had to look at developing a more robust tool control program. Steve has been tasked with writing a new plan which will meet industry's best practices and Exxon's requirements. What we DON'T want is a burdensome, time consuming system that spends more time accounting for tools instead of working on aircraft. What we DO want is a simple system of quick daily checks based on organized/shadow-boxed tools that is quickly auditable. If you have seen something that works in the past, please let our maintenance team know so we can come up with something workable.
- 3. Emergency Response Program:** This audit finding lands squarely on the Q&S Manager. Even though we have an ERP Manual, and we continually update the contact lists for emergencies to keep at all of our sites, the auditor felt that there is little participation or knowledge of the ERP by many of our staff. Okay, I can take the hit! Looking into the short term, please acquaint yourself with the ERP Manual and your emergency phone list! In the long term, look towards more planned or unplanned Emergency Response exercises in the future. They could consist of anything from an impromptu drill (The hangar is hypothetically on fire, what do you do?). Farther out, expect a full blown planned Response Exercise.



Maritime Helicopters

“Pre-Winter” 2016 Quality & Safety Notes



It's fall in Alaska. That means...it's winter in Alaska!

Okay, I have to admit that I've been avoiding the pre-winter issue of the Quality and Safety Notes. We've just had a few dustings of snow so far in Fairbanks but the mercury is dropping. There are a lot of things to cover, but I want to start by publishing the Chief Pilot's Winter Operations Review again and getting everyone to start thinking about winter flight.

Winter Operations Review

To: All Pilots
From: Dave Jones
Chief Pilot
Date: 8 Sep 2016
Subject: Winter Operations

The winter season is rapidly approaching and with this I want to remind everyone about the hazards associated with operating in this challenging environment. Listed below are company guidelines that all pilots are expected to follow. All Pilots are requested to review Chapter 3 of the SOP for detailed operational guidance.

Preflight:

1. The aircraft must be free of frost, snow or ice.
2. The pitot and static port (if installed) heaters should be checked.
3. Snow Deflectors will be installed on the aircraft (If applicable).
4. The aircraft will not be flown in icing conditions.

Take-Offs:

1. Ensure the skids are not frozen to the ground.
2. Conduct an altitude over airspeed take off to minimize being in a self-induced white out.
3. Pick numerous reference points to be used during take-off.

Enroute:

1. The anti-ice and pitot heat will be utilized when required by the RFM.
2. Ensure that the aircraft can maintain a visual surface reference throughout the flight.
3. When operating in flat light/white out conditions, ensure that a visible horizon can be maintained.



Maritime Helicopters

November 2016 Quality & Safety Notes



It's STILL fall in Alaska. That means...it's winter in Alaska!

Winter still isn't here formally, but it sure looks and feels that way outside. About this time of year, I usually get to be an endless, droning soapbox preacher of winter survival and what-to-wear-in-the cold, and how to start a fire, and wool is your best friend, and how good are your tires on ice?, and, and, and... You get the picture. But the reasons I do that are

1. I like talking about the cold and what it's like to camp at -67 Fahrenheit
2. Winter means another chance to buy more gear from Sportsman's Warehouse and REI
3. Alaska is so much fun in the winter
4. I want everyone to be safe!

OSHA does publish a lot of information regarding safety in different environments. Could I please have the front office folks at each site pin a few of these cards to the bulletin boards around the respective hangars?

<https://www.osha.gov/Publications/OSHA3156.pdf>

(OSHA Cold Stress Cards on next page)

There is no way of guaranteeing that everyone will be safe from cold injuries this winter other than WATCHING OUT FOR EACH OTHER. Please be mindful of cold weather safety and look out for customers as well as co-workers!

Dressing for the C O L D

- **Keep Clothing Clean**
Dirt and grease block up the air spaces in your clothing and reduce the insulation value.
- **Avoid Overheating**
Sweat can freeze on outer layers. Stay dry, moisture will decrease the insulating ability of your clothing.
- **Wear Clothing in Layers**
Loose clothing allows air spaces to help trap warm air without restricting blood circulation. Good blood circulation helps to prevent frostbite.
- **Keep Clothing Dry**
You've got to keep your clothing dry, from the outside as well as from the inside.

Tips for dressing in the cold remember the acronym C.O.L.D.



Maritime Helicopters

December 2016 Quality & Safety Notes



End of Year Wrap Up

An exciting year is coming to an end! While we continued to expand our operations in 2016, adding several aircraft including our first medium, we've done a pretty good job of assessing new risks and handling most of our normal operations with safety and positive feedback from all of our customers. Some of our high points include flying the first contracts for a couple of customers with our new Bell 412 and adding more Bell 407s to our fleet! We've also flew a hefty summer for both InterMap and other customers way out in remote Alaska.

It was a down year for firefighting, but we always have to be prepared for those jobs. In fact, in 2017 we should be adding some more state firefighting jobs with Alaska DNR.

Incident Reporting 2016

I have to thank everyone for continuing to embrace the Incident/Accident Reporting process this year. We have received compliments from both the Oil Companies and DoD auditors for having such a mature, participative program. And that mean that I owe you all thanks for giving me timely, complete reports when things don't go the way we've planned. Here is a quick review of 2016 incidents:

Flight Irregularities: We've had 25 different reports of flight irregularities in 2016 with about half of those being related to **maintenance** issues which exhibited themselves in ground or flight. Several of these were Engine/FADEC related and the tracking of these issues through the Flight Irregularity Reports have helped discover trends and issues.

Five of the FIRs this year were **operations** related and the corrective action for those have resulted in either procedural or training changes in how we operate our aircraft.

There were also four events where aircraft walk-arounds or next day's preflights have revealed **damage** to the aircraft. Some of these happened in flight and some were discovered after a flight but could have happened either during landing or loading up for a subsequent flight. These FIRs have really driven home the need for thorough walk-arounds between **every single leg of flight**. The new change to the Operations Manual regarding pilot walk-arounds makes this a written requirement!

That leaves a couple FIRs that fit into the "I don't know" or the "what in the ___?" category. The most prominent of these is the damage to the tail rotor of 328MH. I called the State Troopers on this one because of the nature of the tail rotor damage found after a flight from Nikiski to Fairbanks. Because the airport at Nikiski has had some issues with vandalism, I think its best that we call this our unsolved mystery and keep our ears open for any rumors of mischief around that airport which could have led to a nice hole in our tail rotor!

You can take some time and review the FIRs for this year and discover that about 6 out of 25 of these incidents were clearly human error/human factors incidents. We need to aim for zero human error incidents in the future and set a goal to reduce these by 50% in the coming year. Please **discuss** these incidents, ask questions, and let's find a way to reduce them!

Ground Occurrence Reports: Since we are still processing a couple of GORs for the year, all I can say is that we had either eight or nine GORs this year. And if I could sum them up I would say, **“We have to be more careful with our equipment when we bring aircraft in and out of hangars!!!”**. We're not to the chronic 'hangar rash' level yet, but it sure seems like we fly better than we tow aircraft. There will be new procedures for towing the B206s coming soon. The blades are going to have to be tied and tiedown tools will be sent out soon. Let's make ZERO the goal for hangar rash in 2017!

GORs: There were a couple of shop incidents that were preventable and caused a bit of damage to components due to issues with special tools. Also in the back shops area, we have to make sure that we are correctly identifying work to be performed when we submit work orders to the shops. While not causing damage, we're spending a bit of extra time identifying work twice. One of the biggest, and most expensive GORs this year, luckily did not hurt anyone. Alyeska's hangar door at the Glennallen Response Base (GRB) came down with a crash in January and is only recently back in service.

Overall, I think that we are doing better in safety. Awareness and use of ladders, fuel samples, and good preflights seem to be more consistent. I have had a few heart attacks when watching some maintenance performed on top of the aircraft without the “three points of contact” we all need to maintain when up there. Because we've had to continually update our Health, Safety, and Environmental manual so may time this year to be compliant with different customers, I'll be putting out a whole new version early in 2017.

First Report of Injury: We only had one of these this year and this injury ended up being a simple first aid case. All of us must be mindful that any reportable injuries increase our TRIR or Total Recordable Injury Rate with OSHA which we must report to all of our customers. And Maritime is still not a large company. Even with our rapid growth, we don't have the sheer man-hours to diminish the effect of even one injury on our TRIR. We are entering 2017 with one great accomplishment. Since our last recordable injury was in 2013, our three year TRIR will be 0.0! So please! Please! Be careful this year!!!

Audits 2016

This was definitely an expansion year for audits. With the coming of the Bell 412, comes and interest in larger companies which have more stringent audit requirements. We have very successful visits from Exxon, ConocoPhillips and the Department of Defense. Without going through requirements for individual companies, here are some findings and observations from our audits where we are applying corrective actions.

1. Tool Control: I think everyone realizes that the toolbox shadowing is being applied to all mechanic owned and company owned tool boxes.
2. Working at Height: Even though we have all the correct ladders and fall protection for the smaller aircraft we are going to have to embrace the use of work-stands for the Bell 412. This is pretty much an industry standard. So our workforce awareness of the proper use of work-stands is going to need some serious attention!
3. Differential Pressure Checks on our fuel systems: Although the checks are now on the daily/monthly fuel logs, we have had some issues with applying these checks due to their requirement for TWO people to perform the check (one pumping the fuel, one watching the gauges. Remember, this is not a “first use of the fuel systems in a day” check. Just a once-per-day check. If there is any chance that you can get that second set of eyes out to the fuel pumps when refueling, use it. If you aren't sure on performing this check, get with whomever manages this at your site.
4. Emergency Response Plan Exercises (ERP): We are still in the crawl stage of having ERP exercises. While the awareness of the ERP Manual and the Emergency Pocket checklists is being trained, we still haven't had enough actual practice going through the motions. My fault I'm afraid! So in 2017, just expect that if the Quality and Safety Department (me) is in your area that you may subject to participation in practice exercises for our ERP! Be like the Boy Scouts and Be Prepared!
5. There are more audit findings which we will need to address in 2017, I just wanted to cover some of the high points. As far as our own internal audits, be ready to be looked at very early in 2017!

New Employee Training

I am continuing to improve the new employee training in Quality and Safety. One of the constantly changing sections in the Health, Safety, & Environmental Manual is the New Employee Training subject matter. New customer requirements for our HSE Training keep popping up and I know that everyone hasn't been briefed on several new subjects. So along with the audit cycle this year, I will be attempting to catch-up everyone in the overall knowledge of our SMS (Safety Management System). The next page will include the extract from the HSE manual on New Employee subjects.

23.1 Initial Safety Orientation

An initial safety orientation will be conducted by the Quality & Safety Department. This program will cover the following (29 CFR 1910 Requirements) as needed:

- Introduction to the Company's Safety Program & SMS
- Introduction to Flight Irregularity Reports and Ground Occurrence Reports
- Safety Around Helicopters
- OSHA Rights and Responsibilities
- Walking and Working Surfaces
- Fire Safety and Means of Egress
- Hazardous Materials
- Hazardous Communication
- Lockout/Tagout
- Bloodborne Pathogens
- Machine Guarding
- Electrical Safety
- Personal Protective Equipment (PPE)
- Fatigue Management/Crew Rest
- Fork Lift Operation Awareness
- Back Safety (Material Handling)
- Hearing Conservation (Noise Awareness)
- Workers' Compensation and Accident/Incident Reporting
- Confined Space Entry Awareness
- Safety Publications
- Stop Work Policies

(I want to keep the following reminder in the newsletter for a few more months until we get used to doing these walk-arounds. Good job so far at being mindful of our vehicle fleet!)

Vehicle Walk Arounds

Have you done your vehicle walk-around???



New Station Audit Checklists (yes, I'm keeping this in here every month)

The new station audit checklists are still working great for most stations. Please remember that each time you come on shift to take the time to go through the station checklist, see if you need any assistance and then send the checklist to me. Continue sending them to me at...

safety@maritimehelicopters.com or fax them to Fairbanks office at 907-452-4539

Issues worked on recent Station Audit Checklists

First Aid Equipment: Valdez

AED Batteries: Valdez

Fuel Quality: Akutan

Calibrations: Akutan

Vehicle Safety/Survival Kits: Several sites!

Incident Reporting November/December (ONLY ONE FIR THIS MONTH!)

FIR: Bell 407. On a normal takeoff from PS#2, the check instrument light illuminated and an "E" was visible on the torque gauge. Pilot depressed the Check Instrument and the "E" disappeared with the gauge functioning normally. After landing at Franklin Repeater, and upon normal shutdown, the pilot cycled the battery switch and the E illuminated again. Maintenance was contacted. After downloading ECU and TQ Gauge info, no exceedance was noted. Fault was cleared and aircraft returned to service.

GOR: Bell 407. During the servicing of the Left Hand float bottle, the float bags began to inflate. No power was applied to the aircraft at the time and there was only approx. 200psi showing on the bottle. A seam on the right front float bag was torn. The bag was later repaired. The float valves were removed and tested with no faults found. So, now the valves are installed and working normally...so why do a ground occurrence report on this event? One, we do these reports according to an industry standard of incident reporting when things are damaged, people are harmed, the environment is harmed, or lessons can be learned to correct our future processes. In this case we have a damaged float bag **and** we had an unexpected event during routine maintenance that could have caused more problems. I don't think this could have been prevented, but we are not aware that this type of inadvertent inflation **can** happen when servicing our floats.

GOR: We have a couple of other GORs which I am going to save for discussion next month because the corrective action for them will lead to some changed processes. One of those involves a torque wrench which had a calibration sort of "slip away" from us. Please be mindful of your dates on your calibrated tools! More later on this.

Our Director of Maintenance asked me for a little space at the end of these safety notes to thank everyone for their efforts this year. I would also like to express my thanks for everyone striving to make Maritime Helicopters a great place to work and a SAFE place to work. Happy New Year!

Dennis

(Take it away, Steve!)

From the Director of Maintenance

Would like to extend my Holiday wishes to all our pilot, administrative and maintenance staff. We had a pretty busy year with the addition of our 412, another 407 and the controlled mayhem of our busy summer season as we now slide into the New Year.

In my 40 years of aviation, almost all rotary wing, I have been employed by large companies like the U.S. Army, Air Evac, PHI and Air Methods. But I will comment that our current flight, maintenance and support staff are some of the finest I've have the privilege of working with.

With facilities throughout the entire state, from Pump Station 4 a few hundred miles from North Slope, to Akutan at nearly the end of the Aleutian Chain, Maritime covers an area twice the size of Texas. I understand completely the numerous challenges that presents for us all, to include our parts and recordkeeping staff.

Running a maintenance department this widely dispersed would be a formidable job that anyone looking for a DOM position might think twice to tackle. But due to the caliber of our crews, maintenance and support staff, the professionalism and team effort I see almost daily, it has made running this maintenance program a lot easier than I would have first imagined. And I have you folks to thank for that (I still have the same number of grey hairs since I started!).

I do review all log books, flight times, corrective actions, staffing, etc. as I strive to stay up with the pulse of our fleet. If there is anything you feel might make your job easier, more productive or you have an idea for a better way of getting things done, please don't hesitate to call or email me directly. I will welcome and entertain any and all suggestions.

2017 is already shaping up to be very exciting with many new opportunities on the horizon. I am looking forward to again, working with everyone to capture and execute these new opportunities, with the many diverse challenges our industry brings. "On-Demand" work keeps things exciting and non-routine, which I personally like and I believe you all do also.

From flights crews interacting with their mechanics, to the maintenance staff keeping our fleet availability rate nearly 100%, to our other support staff working behind the scenes making sure the "beans and bullets" keep coming, please except my thank you for all your hard work.

Your professionalism and attention to detail does not go unnoticed.

Steve Slade

Director of Maintenance

Dennis S. Busch

Quality and Safety Manager

safety@maritimehelicopters.com



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Protecting Workers from Cold Stress

Cold temperatures and increased wind speed (wind chill) cause heat to leave the body more quickly, putting workers at risk of cold stress. Anyone working in the cold may be at risk, e.g., workers in freezers, outdoor agriculture and construction.

Common Types of Cold Stress

Hypothermia

- Normal body temperature (98.6°F) drops to 95°F or less.
- **Mild Symptoms:** alert but shivering.
- **Moderate to Severe Symptoms:** shivering stops; confusion; slurred speech; heart rate/breathing slow; loss of consciousness; death.

Frostbite

- Body tissues freeze, e.g., hands and feet. Can occur at temperatures above freezing, due to wind chill. May result in amputation.
- **Symptoms:** numbness, reddened skin develops gray/white patches, feels firm/hard, and may blister.

Trench Foot (also known as Immersion Foot)

- Non-freezing injury to the foot, caused by lengthy exposure to wet and cold environment. Can occur at air temperature as high as 60°F, if feet are constantly wet.
- **Symptoms:** redness, swelling, numbness, and blisters.

Risk Factors

- Dressing improperly, wet clothing/skin, and exhaustion.

For Prevention, Your Employer Should:

- Train you on cold stress hazards and prevention.
- Provide engineering controls, e.g., radiant heaters.
- Gradually introduce workers to the cold; monitor workers; schedule breaks in warm areas.

For more information:

OSHA[®] Occupational
Safety and Health
Administration
U.S. Department of Labor
www.osha.gov (800) 321-OSHA (6742)

OSHA 3156-02R 2014

How to Protect Yourself and Others

- Know the symptoms; monitor yourself and co-workers.
- Drink warm, sweetened fluids (no alcohol).
- Dress properly:
 - Layers of loose-fitting, insulating clothes
 - Insulated jacket, gloves, and a hat (waterproof, if necessary)
 - Insulated and waterproof boots

What to Do When a Worker Suffers from Cold Stress

For Hypothermia:

- Call 911 immediately in an emergency.
- To prevent further heat loss:
 - Move the worker to a warm place.
 - Change to dry clothes.
 - Cover the body (including the head and neck) with blankets, and with something to block the cold (e.g., tarp, garbage bag). Do **not** cover the face.
- If medical help is more than 30 minutes away:
 - Give warm, sweetened drinks if alert (no alcohol).
 - Apply heat packs to the armpits, sides of chest, neck, and groin. Call 911 for additional rewarming instructions.

For Frostbite:

- Follow the recommendations "For Hypothermia".
- Do not rub the frostbitten area.
- Avoid walking on frostbitten feet.
- Do not apply snow/water. Do not break blisters.
- Loosely cover and protect the area from contact.
- Do not try to rewarm the area unless directed by medical personnel.

For Trench (Immersion) Foot

- Remove wet shoes/socks; air dry (in warm area); keep affected feet elevated and avoid walking. Get medical attention.

For more information:

OSHA[®] Occupational
Safety and Health
Administration
U.S. Department of Labor
www.osha.gov (800) 321-OSHA (6742)



"I miss global warming."

(I want to keep the following story in the newsletter for a few more months until we get used to doing these walk-arounds. Good job so far at being mindful of our vehicle fleet!)

Vehicle Walk Arounds

In order to NOT inundate us with paperwork we are going to change the policy for our vehicle fleet inspections.

Since the station audits are being performed which include the vehicles, the daily inspection sheet is being eliminated.

Instead, just as several of our customers do, I am going to ask that EVERY TIME you get the keys to a vehicle from Becky or Jessica, that you perform a 360 Degree walk-around inspection to note the condition of the vehicle before you hop in. There have just been too many times lately where vehicles have had low tires, road rashes, or just general trash from daily use (McDonald's wrappers, soda cans, etc.) Our trucks and vans are used by both employees and customers. We can't have unsafe or shabby looking vans and trucks.

This is not meant to be anything more than a "Condition & Security" type walk-around. Simply check for tire inflation, leaks, CLEANLINESS, or anything else out of the ordinary, and inform Becky or Jessica. TOO EASY!

I'm going to ask Becky and Jessica to ask everyone when they return keys, to ask, "Did you find anything on your walk-around?" That way, if we have maintenance problems or cleanliness issues, we can get them fixed right away!



New Station Audit Checklists (yes, I'm keeping this in here every month)

The new station audit checklists are still working great for most stations. Please remember that each time you come on shift to take the time to go through the station checklist, see if you need any assistance and then send the checklist to me.

Continue sending them to me at...

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Incident Reporting October/November

FIR: Bell 412/328MH: The aircraft was being repositioned/ferried back to Fairbanks from 5 weeks of work in the Nikiski area. The pilot and mechanic flew from Nikiski to Talkeetna (fuel stop) and then Fairbanks. When arriving at Fairbanks, the post flight revealed a significant ding/dent in a tail rotor blade, near the outboard end on the right side. Closer inspection brought out the possibility that this could have been damage made by a bullet. The "divot" was 1/8th inch deep with a damage limit of 30 thousandths.



FIR: Bell 412/328MH (ALSO ON THE SAME FLIGHT as previous) Nikiski: Pilot was pre-flighting while the mechanic was removing ties, plugs, & heaters. The T/R tie-down was left on because of the wind. After the preflight, the pilot returned to the hangar to brief the customers for the day. Loading the aircraft in the dark and then assisting customer in shifting some baggage around, the final walkaround was not accomplished. The pilot started the aircraft with the tail rotor tie-down still attached. Later that day, the pilot and the mechanic noted that the tiedown "ring" aka "footman arm" for the tiedown was broken where the tiedown pulled through it. The tiedown and blade cuff was found on the ramp.

These two incidents, on the same day, really go to stress the importance of the final **360 degree walkaround** before flight. To highlight that walkaround, the GOM is being changed to include the Ramp and Landing Area Safety check which will be performed after each and every flight. That change is included below:

C. Ramp and Landing Area Safety

1. No helicopter will be operated so near another aircraft as to create a hazard.
2. Horizontal obstacle clearance shall be at least 12 feet from the main rotor disc.
3. All Company personnel shall be alert for any passengers in the ramp area and will advise them that they are not permitted in the area except to enplane and deplane.
4. After every shutdown, and prior to every start, complete a 360 degree walk around inspection of the aircraft.
5. On two bladed systems, displace the main rotor blades at least 30 degrees from the aircraft centerline prior to any start.

GOR: Tail Rotor Damage

The overhaul shop received a tail rotor assembly (Bell 206) from the field with a write-up about bearing play. The bearings were checked with nearly non-existent play from the bearings (.001", .002", .002", and .001 inch with a limit of .015").

Upon visual inspection of the Tail Rotor Hub Assembly, a circular wear mark was found on the T/R Yoke Face. Damage was found to be beyond limits (.012") but there is a reparable standard of .030" after repair if shot-peening was performed.

The choice was made to replace the Tail Rotor Yoke.

This incident became a Ground Occurrence so we could stress the importance of inspection of parts when they come off the aircraft for possible damage. This Tail Rotor Yoke damage could have been found on a preflight as it was quite evident. Mechanics and pilots should look at the photos below and we should have active conversations about this type of Hub/Yoke damage.



New Tool Control Policy

Recent customer audits have shown some inadequacies in how we do our tool control. The new policy, which I have attached to this letter in PDF format, will hopefully bring us close to meeting the industry best practices for tool control. There is usually a lot of pushback from the field when any company changes their tool control standards. That's normal. Many companies call this the FOD & Tool Control program, but I think that is a mistake. FOD control is making sure that we do not leave any Foreign Objects in the aircraft at the end of work or inspection. The FOD write-up in the logbook and the preflight are part and parcel of the Foreign Object Debris/Damage program. The **Tool Control Program** is a housekeeping measure that may enhance the FOD program, but falls in line as more of a housekeeping and security of tools policy.

Put simply, the addition of the Tool Control program isn't meant to imply that anyone is leaving tools on aircraft. It is meant to bring us in line with the industry standard.

Please, Please, Please, take some time to read through the new Tool Control Program and contact Steve, Brent, or Isaac if you have any issues. It is not meant to be painful. As we get more feedback, we will continue to discuss this in the coming months.

Dennis

Dennis S. Busch

Quality and Safety Manager

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Revision: ORIG
Issue Date: 11/01/16

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TOOL CONTROL PROGRAM

Air Carrier Certificate
ENRA619D

Revision Original
11/01/16

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Issue Date: 11/01/16

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Published by
Maritime Helicopters
3520 FAA Road
Homer, AK 99603
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1. INTRODUCTION

The Maritime Helicopters, Inc. Tool Control Program (TCP) establishes policy and responsibilities for implementing, maintaining, controlling, replacing and inventorying common hand tools. This includes company-furnished and employee owned.

A Tool Control Program (TCP) provides a means to rapidly account for all tools after completing a maintenance task, thus reducing the potential for FOD. The Tool Control Program must provide instant inventory capability designed to highlight a removed tool.

The primary objective of the tool control program is to ensure flight safety by eliminating aircraft accidents, incidents and associated equipment damage caused by lost or misplaced tools.

2. ABBREVIATIONS

TCP.....Tool Control Program
FOD.....Foreign Object Damage
PMI.....Preventative Maintenance Inspection
PIC.....Pilot in Command

3. IMPLEMENTATION AND MONITORING

3.1. Implementation

The Director of Maintenance will be responsible for implementing the program. The Inspection Department will be responsible for training of new hire Technicians. The Director of Maintenance will be responsible for ensuring new Technicians compliance with the tool control program within two months of their hire date. The Director of Maintenance will have the option of an extension of the due date if circumstances require.

3.2. Monitoring

Monitoring of the TCP will consist of visually inspecting Technicians photographic inventory and temporary tool forms by the Shop Forman, Director of Maintenance, Inspection Department or PIC (if in the field) at random intervals.

4. FIELD TOOLBOXES

4.1. Contents

The contents of the technician field toolbox will be of their choice, but must be designed in such a way as to quickly determine if a tool is removed in a manner approved by the company. Shadowing, tool pouches, tool racks or containers may be used to accomplish accountability (example in Sec. 9). If a tool or container contains smaller pieces this fact must be noted in a clear manner. An example would be a Screwdriver with tips in the handle or Allen wrenches in a bag. The item or location should identify "screwdriver + 5 tips" or "12 Allen wrenches".

4.2. Inventory

A photographic tool inventory list shall be maintained in each toolbox. It will have a photo of each compartment or drawer in the toolbox. The photographic list shall be stored in a manner that prevents it from becoming FOD but available for review or inspection. This photographic list shall be maintained by the Technician and shall be updated within 30 days of a tool addition, deletion or change in location (within the field box) of the inventoried tools.

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In addition to the above mentioned photographic list any temporary tools added to or removed from the toolbox shall be inventoried on a TCP-1 form. These tools will not require the shadowing but must be listed on the appropriate form and maintained in the same manner as the photographic tool inventory for the toolbox. This list is allowed as a means to inventory tools that are task specific use, tool awaiting proper addition to the toolbox, borrowed tools or tools loaned out to someone else. A tool shall not be carried on the temporary list for more than 90 days.

5. ROLLAWAY TOOLBOXES (FIELD, HANGAR AND SHOPS)

Note: All Boxes will be locked when unattended for extended periods, such as at the end of shift or end of the work schedule.

5.1. Contents

The contents of the technician's personal toolbox will be of their choice, but must be designed in such a way as to quickly determine if a tool is removed in a manner approved by the company. Shadowing, tool pouches, tool racks or containers may be used to accomplish accountability (example in Sec. 9). If a tool or container contains smaller pieces this fact must be noted in a clear manner. An example would be a Screwdriver with tips in the handle or Allen wrenches in a bag. The item or location should identify "screwdriver + 5 tips" or "12 Allen wrenches".

5.2. Personal Drawer

Any drawer(s) of the toolbox may be used for personal effects. This drawer(s) must be labeled as such and shall **NOT** contain any type of tool, consumable, part or hardware.

5.3. Inventory

A photographic tool inventory list shall be maintained in each toolbox. It will have a photo of each compartment or drawer in the toolbox. The photographic list shall be stored in a manner that prevents it from becoming FOD but available for review or inspection. This photographic list shall be maintained by the Technician and shall be updated within 30 days of a tool addition, deletion or change in location (within the roll away) of the inventoried tools.

In addition to the above mentioned inventory list any temporary tools added to or removed from the toolbox shall be inventoried on a TCP-1 form. These tools will not require the shadowing but must be listed on the provided form and maintained in the same manner as the photographic tool inventory for the toolbox. This list is allowed as a means to inventory tools that are task specific use or tool awaiting proper addition to the toolbox. A tool shall not be carried on the temporary list for more than 90 days.

5.4. Removal of tools from roll away for use in field box

Tools removed from roll away tool boxes for use in field boxes will not require any change or modification to the roll away photographic inventory or the use of form TCP-1 provided that:

1. The roll away is stored locked and will not be accessible while you are using the field box or
2. All empty tool places are marked showing the person inspecting the tool box that the missing tools are in the field box.

Field box inventory must still be maintained in accordance with this tool control standard.

6. COMPANY TOOLS

6.1. Contents

Company tools must be stored in such a way as to quickly determine if a tool is removed. Shadowing, tool pouches, tool racks or containers may be used to accomplish accountability (example in Sec. 9). If a tool or container contains smaller pieces this fact must be noted in a clear manner. An example would be a Screwdriver with tips in the handle or Allen wrenches in a bag. The item or location should identify "screwdriver + 5 tips" or "12 Allen wrenches.

6.2. Inventory

A photographic tool inventory list shall be maintained in the general area of the tool storage. It will have a photo of each compartment, drawer or area. The photographic list shall be stored in a manner that prevents it from becoming FOD but available for review or inspection. This photographic list shall be maintained by the Director of Maintenance, Shop Forman, Inspector or a designated employee and shall be updated within 5 days of a tool addition, deletion or change in location of the inventoried tools.

6.3. Use of company tools at other locations

Any time a company tool is removed from its current location for use in another location the empty tool position must be marked to show where the tool is and the person that is using the tool. This includes items removed from the overhaul shop for use in the main hanger or items sent to the field. Items sent from the field for calibration should also be marked in the same manner.

7. TOOL INVENTORY

7.1. General Inventories

Note: In all cases the Technician whom owns the toolbox shall conduct an inventory of his/her own toolbox prior to any other action.

A Tool Inventory will be performed by the Director of Maintenance, Shop Forman, Floor inspector, Technician, or pilot (if in the field) at least once daily and shall include field, personal shop, and company tools. This authorized person shall acknowledge the accountability of the contents of the toolboxes (before they affect the safety of the aircraft) on TCP-2 form which will be kept with the Technicians photographic inventory.

This inventory shall also ensure that all rags, trash, and consumables is removed from the toolbox at the end of the shift.

7.2. Task Completion Inventories

For Part 135 log books, the task completion inventory shall be done by the mechanic who performed the work. The task completion inventory shall consist of a visual inspection of the mechanics tool box and a visual inspection of the company tools used in the process for accountability.

For Part 145 work orders the task completion inventory shall be done by the inspector, shop Forman, or mechanic assigned to the task by the shop Forman. A separate entry must be made on the work order prior to returning to service the aircraft, component, or performing ground run up test's stating that all tools are accounted for. In the event that the work order is open for multiple days a task completion inventory is required only on tools used since the last general inventory (see section 7.1) was performed.

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8. LOST TOOLS

Tools that are Lost shall be reported to a Supervisor or Inspector in a timely manner but not to exceed the end of shift or the return to service of any item that person has worked on since last inventory was accomplished. A search for the missing tool will be conducted prior to the aircraft being released for service. If the tool cannot be found, the PIC will be notified. It will be the responsibility of the PIC to determine if the A/C is airworthy

9.1. TCP-1

Temporary Tools List

Employee Name _____

Field box

Roll Away

[illegible]

Employee Name_____

Roll Away

[illegible]

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10. TOOLBOX EXAMPLES

10.1.Field Box



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10.2.Roll Away Box



Approaches:

1. The approach should be planned to terminate in an OGE hover, this allows for the loose snow to be blown away from the snow from the intended landing point.
2. Maintain a reference point throughout the descent and landing.

Landings:

1. When landing in deep snow it is important to ensure that the aircraft is securely in contact with the ground, this can be done by pulsing the collective up and down and moving the pedals back and forth to ensure that the toes of the skids are down lower than the tundra pads, this keeps the tail rotor from coming in contact with the snow.
2. Be aware of rotten snow conditions that would allow the aircraft to break through the crust causing the aircraft to roll over. If there is any doubt that the aircraft is not sitting stable do not continue the landing.

If you have any questions contact Dave Jones at (907) 452-1197.

Vehicle Walk Arounds

In order to NOT inundate us with paperwork we are going to change the policy for our vehicle fleet inspections.

Since the station audits are being performed which include the vehicles, the daily inspection sheet is being eliminated.

Instead, just as several of our customers do, I am going to ask that EVERY TIME you get the keys to a vehicle from Becky or Jessica, that you perform a 360 Degree walk-around inspection to note the condition of the vehicle before you hop in. There have just been too many times lately where vehicles have had low tires, road rashes, or just general trash from daily use (McDonald's wrappers, soda cans, etc.) Our trucks and vans are used by both employees and customers. We can't have unsafe or shabby looking vans and trucks.

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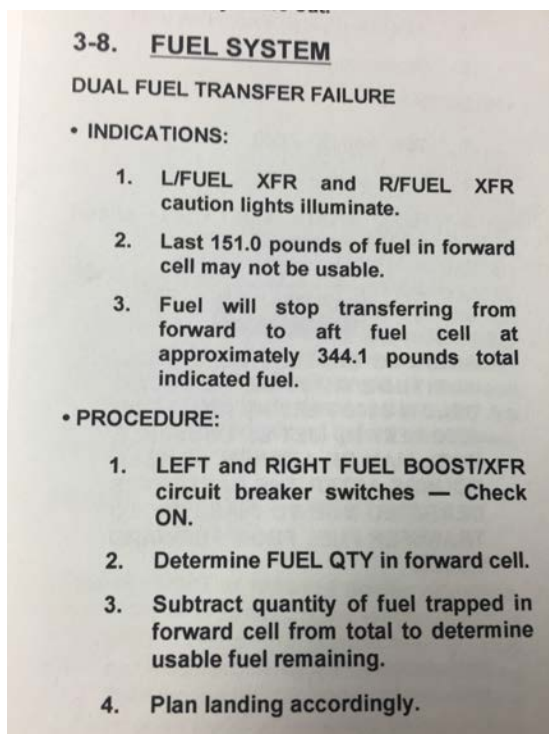
FIR: Bell 407/618AC During the float system check, the pilot armed the floats to verify the float arm caution light was on. Pilot then disengaged the float arm switch and verified the float arm switch went out. Pilot then held the float test switch and pushed the activate button. Upon releasing the test switch and float activate button the floats inflated.

This inadvertent activation of the floats was caused by a mis-wiring. Maintenance found two wires installed in the wrong connection. After correctly placing the wires, the system operated correctly upon Operational Check.

Other than great proof that this is why we do the float test in the first place (proper operation), this is a reminder that even new or rebuilt aircraft can have faults that are delivered to the field. Glad nobody was hurt.

FIR: Bell 407/308MH After refueling, during normal start procedures, Pilot turned on the battery and noted the Left&Right Fuel Transfer lights NOT illuminated. This has been an intermittent problem corrected by cycling the Boost circuit breaker switches. This time the lights did not cycle back on. Pilot contacted GRB mechanic and discussed issue.

After approximately two hours, the pilot attempted to go through start up procedures again, and this time the lights worked properly. The decision was still made to swap the aircraft with 309MH from Fairbanks. The aircraft hasn't had the problems recently and troubleshooting continues.



It may be a good time to review this Emergency Procedure, if the lights STAY on. There is an old expression, that the aircraft has not read the Operator's Manual. This is one occasion where that bears out. We don't normally think of what happens when the lights don't come ON when they are supposed to be. Either way, it was a correct decision to contact maintenance because this is not the normal operation of the Transfer Lights.

FIR: BELL 206/307MH. After approximately five starts on the aircraft throughout the day around Fairbanks, the pilot had a hot-start when attempting the last one of the day after customer drop-off. The temperatures were above the 768 C range upon light off and no further fuel was introduced. Then, the temperature jumped to the 820-830 range and the throttle was reduced. Taking several seconds to cool, the TOT light illuminated at 10 seconds above 768 C.

Maintenance checked the TOT gauge and timer and determined the exceedance was accurate. The engine inspection concluded with the burner can being replaced.

Okay, I am going to finish this After Action Review in the first person because this was me. My 20/20 hindsight says that I should have done a dry motoring run after shutting down and dropping off my passenger. Then the start would have been cooler from ignition. Then, when the temp did peak above 768, I should have had a more immediate throttle action to "keep it in the yellow". We don't usually discuss how fast an engine decelerates, but I can now tell you that with only a modest reduction in throttle, it takes several seconds for the temperatures to come out of the transient range. Plain and simple, I should have made a more aggressive throttle reduction.

(continued)

Straight from the Bell 206 L3 Operator's Manual:

At the appropriate GAS PRODUCER RPM and TURB OUT TEMP, introduce fuel with the throttle to obtain the initial TURB OUT TEMP rise. Observe the 927°C limit. After initial TURB OUT TEMP rise, modulate throttle to maintain TURB OUT TEMP between 716°C and 768°C. This sequence should provide optimum starts in less than 40 seconds from the introduction of fuel. If limits are exceeded or TURB OUT TEMP warning light illuminates, refer to Model 206L-3 Maintenance Manual.

* note from Bob & Dave- The low end of the yellow or the high end of the green arc are fine for these BH206 starts as long as the engines are making it to the idle range within the prescribed 40 seconds.

Aviation Life Support Equipment

Please check your own individual survival items that you are carrying both in the aircraft and in the company vehicles. As we move into winter, most of us know that at -40 Degrees, that a slide into a ditch with the van or a one hour extra wait for a customer at a field site can be a survival situation. Do you keep a good pair of gloves/mittens, a warm hat, and a parka near you in the winter? At what temperature do you begin wearing long johns? And my favorite, if you are a mechanic, pilot or work in one of the offices, if you are spending a winter in Alaska, do you ALWAYS have a way to start a fire on your person? Start thinking about your individual and professional survival kits and we'll talk about it more next month.

Next Month: We'll discuss the new tool control policy...

Dennis

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4. **Working at Height:** In that wonderful OSHA regulation, 29 CFR 1910 Subpart D, we find a whole, huge litany of safety information regarding “Walking and Working Surfaces”. Much of this info goes into our Health, Safety, and Environmental Manual (HSE) in the section called Working at Height. The changes we’re going to have to comply with now, have less to do with the Exxon audit than they do the addition of the Bell 412. The rest of our fleet has work decks that are roughly 6 feet and maybe a little more above the ground. The HSE Manual says that when we bring them inside for work, that work stands **should** be used, but not **shall be used**. That is now going to have to change. The working “no-skid” surface on the BH412 is just shy of 8 feet high, and the top of the airframe below the head is about 11 feet. **BIG CHANGE:** When major work is performed on the 412, we’re going to have to use the work stands. The new change will read that the work stands **shall be used** for the BH412.



Of course with all working at height situations, it is best to remember the following from the HSE Manual:

Working at height is properly planned and organized.

Working at height takes account of weather conditions that could endanger health and safety.

Those involved in working at height are trained and competent.

Equipment used for working at height is appropriately inspected.

The risks from falling objects are properly controlled.



Please. No!

Exxon Review (continued)

We don't have that far to go to be compliant with the Exxon's AOG (Aircraft Operations Guide). Please be on the lookout for the changes that will come as we go through this exciting process!

NEW STATION CHECKLIST!

The new station audit checklists are still working great for most stations. Please remember that each time you come on shift to take the time to go through the station checklist, see if you need any assistance and then send the checklist to me.

Continue sending them to me at...

safety@maritimehelicopters.com or fax them to Fairbanks office at 907-452-4539

Incident Reporting August

FIR: BELL 206. Aircraft was dispatched from PS#5 to Oil Spill Response Training for Alyeska. After returning to the staging area from refuel at PAPR a walk around inspection was performed and noted that the Litter Door Handle was missing.(multiple passenger movements had been flown) Item was placed on the NEF list after consult with the mechanic. Aircraft continued support work for Alyeska with very little down time.

Through-flight walk-arounds are always important, but can become crucial when many customers are loaded and unloaded throughout a work day!

FIR: BELL 407. After refueling at PAGK (Gulkana Airport) on takeoff, the GEN FAIL light came on, Pilot continued in cruise flight and tried to reset the generator. The Generator wouldn't pick up the load. The next leg was minutes to the GRB (home) site so the pilot continued with a normal approach and land. After landing, the pilot pulled and reset the field and reset the circuit breakers. Trying a generator reset had no result. Aircraft was shut down and the GRB mechanic was notified.

Per the troubleshooting manual: Removed, tested and reinstalled starter generator. Replaced Starter Relay & Replaced Voltage Regulator. Ops check was okay. Troubleshooting showed that the voltage regulator was found to be the cause of the original failure. Original parts were returned to stock.

Good time to review our generator failures!

FIR: BH407. BREAKING NEWS! I don't even have the report yet, but 312MH went out for the day with Alyeska Security and came back without a Cargo Mirror. This was found on the preflight the next day.

REMEMBER THOSE THROUGH-FLIGHT-WALK-AROUNDS!

FIR: BH407. For the second time this summer, and on different aircraft, one of the 407s had a FADEC DEGRADE and a RESTART FAULT light illuminate once in flight and on another occasion, upon shutdown. Troubleshooting revealed a Measured Gas Temperature (MGT) terminal block at fault.

I'm going to make a quick complaint here. The aircraft logbook provides a history for previous events and troubleshooting. Many times, the only record we have that any particular system has been disturbed, is the write-up for an in-flight fault. Great job with the troubleshooting on this one, and thanks for the Flight Irregularity Report so we can all think about FADEC Degrades, but there is nothing in 309MH's logbook about this event. And in addition to what the FAA says, WE may need a future record of work the maintenance that has been performed. Just a refresher...

14 CFR §43.9 Content, form, and disposition of maintenance, preventive maintenance, rebuilding, and alteration records (except inspections performed in accordance with part 91, part 125, §135.411(a)(1), and §135.419 of this chapter).

(a) *Maintenance record entries.* Except as provided in paragraphs (b) and (c) of this section, each person who maintains, performs preventive maintenance, rebuilds, or alters an aircraft, airframe, aircraft engine, propeller, appliance, or component part shall make an entry in the maintenance record of that equipment containing the following information:

(1) A description (or reference to data acceptable to the Administrator) of work performed.

(2) The date of completion of the work performed.

(3) The name of the person performing the work if other than the person specified in paragraph (a)(4) of this section.

(4) If the work performed on the aircraft, airframe, aircraft engine, propeller, appliance, or component part has been performed satisfactorily, the signature, certificate number, and kind of certificate held by the person approving the work. The signature constitutes the approval for return to service only for the work performed.

And remember, the term, *Maintenance means inspection, overhaul, repair, preservation, and the replacement of parts, but excludes preventive maintenance.*



Okay, I'm done.

Aviation Life Support Equipment

I'm including a comment that was generated after some training gone wrong. Remember that old speech about the auto-inflating water wings that you ***pull the beaded handles down and away with a sharp pull?*** Well, it turns out, that if you don't use that sharp pull, you won't inflate these types of water wings. Please make a note to include this language when you brief your customers on over-water flight. (See attached photo)



FINALLY: In light of recent events...

I'm going to include the extract of the current version of the Working at Height section of the Health, Safety, and Environmental Manual. Please take a look. I really didn't want to include the twenty pages of OSHA regulations from which this manual was extracted...

Next Month: STILL NO DISCUSSION ABOUT WINTER...**YET!** Although Pump Stations 4&5 are already experiencing winter and I hope they've all got their winter safety gear with them! My personal kit doesn't change much except for the addition of a big coat, more water, Massif Gear flying bibs, and about 8 ways to start a fire. We'll hit all that before October.

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Seek medical attention if you have been stung more than 15 times or if you believe you may be allergic.

BEE ALLERGIES

50% of people experience allergic reactions to bee stings within 30 minutes.

25% of people experience reactions days after being stung.

There are varying degrees of reactions, ranging from mild to anaphylactic shock.

Repeated stings over a short period of time increase the possibility of an allergic reaction.

Multiple stings can also cause a previously nonexistent allergy to develop.

If an employee has a known allergy, they should have an epinephrine autoinjector (EpiPen) accessible at all times. The EpiPen should be replaced every 6 months.

SIGNS AND SYMPTOMS OF A SEVERE REACTION (ANAPHYLAXIS)

Swelling in the throat that may constrict breathing

Difficulty breathing or swallowing, and/or choking or wheezing

Pain in the abdomen and/or chest

Nausea and vomiting

Feeling faint

A severe headache

Skin changes in the area of the sting, or anywhere on the body



NEW STATION CHECKLIST!

The new station audit checklists are working great! I'm getting good responses from all stations. And I'm working for fixes when you write up your concerns. We found out that the hangar at Nikiski had approximately ZERO tools to work around the facility and there were concerns about being able to tinker with the truck, the skid steer, or even take care of little details around the facility. I'm sending out an even newer version of the checklist which will have an area to list concerns or wish-list items like this. Look for the new version on the website under Publications. I'll also have Jessica place the new checklist version on the T drive.

Very common in Alaska, the orange hairy-arsed bee is more technically known as *Bombus lapidarius* or the red-tailed bumblebee. We sensitive Americans call it the Red-Tailed Bumble because nobody liked to say, "arse".

I've had one other concern about the checklist brought to me. If you are in a rotation that has you doing shift change so that new personnel are coming in less than every two weeks (GRB), just follow this direction, I would like this checklist performed no less than a one month interval, but no more times than every two weeks at shift change.

Thanks to all for performing these "mini-audits" and getting the info back to me when you take over your shift. Continue sending them to me at...

safety@maritimehelicopters.com or fax them to Fairbanks office at 907-452-4539

Muskeg Landings

Our wet Alaska summer has really done a job at saturating our muskeg this year. We all of course know, that Muskeg is the old Algonquin word for “Lousy Place to Land Your Helicopter”. But sometimes, you have no choice but to find the driest spot in a muskeg/bog and give it a try. Pilots have to be aware of the characteristics of muskeg and the risk associated with them as landing areas.



Overview

*Muskeg is a nutrient-poor peatland characterized by acidic, saturated peat, and scattered or clumped, stunted conifer trees set in a matrix of sphagnum mosses and **ericaceous** shrubs. Black spruce and tamarack are typically the most prevalent tree species. The community primarily occurs in large depressions on glacial outwash and sandy glacial lake plains. Fire occurs naturally during periods of drought and can alter the hydrology, mat surface, and floristic composition of muskegs. beaver flooding, and insect defoliation are also important disturbance factors that influence species composition and structure. The vegetation on muskeg has a “hummocky” character, growing in bunches or tussocks, with frequent small shallow pools of water in the intervening depressions.*

Okay, so we have a wet spongy surface, with uneven grasses and moss, possible open water, and unknown hidden sticks and branches that could reach out and introduce a helicopter to dynamic rollover faster than you can say “rolling moment of inertia”.



So other than awareness of muskeg characteristics, what can we do to avoid the kind of incident pictured above? 1. You could find someplace else to land. Asking a customer to walk through some muskeg is better than asking them to walk home. 2. Review the conditions of dynamic rollover. 3. Ensure your bear paws or tundra boards on your skids are in good shape to keep you from sinking into these saturated areas. 4. **You could reread number 1.**

PLEASE! Also remember that if you are sinking into muskeg, your tail rotor will get a lot closer to the ground!

Incident Reporting July

FIR: With regard to our summer rains, it may be a good time to mention a Flight Irregularity Report that I just received out of Glennallen (Alyeska GRB site) where water intrusion may be the cause of an in-flight Engine Oil Gauge issue. The GRB Bell 407 was flying back from his south side pipeline surveillance when he noted that the Engine Oil Pressure was indicating zero. (There were also torque fluctuations accompanying the oil pressure issue). The pilot correctly picked a precautionary landing area and called maintenance in Fairbanks. A maintenance team was dispatched with the Fairbanks Security aircraft and they found water in the canon plug going to the pressure transducer. After cleaning the canon plug, the aircraft was run up, the oil pressure indicated correctly, and no further defects were notice. We could say that this was fairly uneventful as precautionary landings go, but there is one thing to note. It's been raining like crazy and GRB still doesn't have the hangar due to the door being repaired.

If at home or in the field, and you are in rainy conditions, pay special attention to the possibility of water intrusion, including going a little slower on your run up to ensure proper gauge indications! I don't think that would have help in this instance as this aircraft had been flying for quite a while before the zero indication occurred on the oil pressure gauge.

GOR: 306 MH was due for a records check, and it was found that we were essentially "using up" the 120 hour window for performing the 1200 hour Main Rotor Head Inspection. If you want to know how this happened, give me a call. We just need to remember that when we have an allowable window for inspections, that the window exists for the purpose of maintenance scheduling and production control but NOT to overfly intentionally. If the inspection was due at 10315.2 hours then the inspection is overflown at 10315.3. Yes, you don't HAVE TO pull the inspection until 10,435.2, but a 120 hour window can be a long time to remember that you are in an extension window. It's also a good time to point out that once we go into the extension window, that WE have to add the new hours for the new "due" date, it doesn't automatically computer generate (COMGEN) in the CALM Program.

British rollover accident in a bog similar to our muskeg.

I'd hate to keep beating up this point, but why don't we just take a look at the section of our own AAIP that describes this... There will be a subtle yellow highlight to drive home the point...

4.2.1 INSPECTION TOLERANCE 206 AAIP P. 4-1

Inspection tolerances in this AAIP are controlled by the manufacture's requirements. If the manufacturer has no tolerance allowed for an inspection item,

the inspection item will be found in a No Tolerance (NT) Inspection or placed in a convenient lower frequency inspection. If the manufacturer has a

tolerance for an inspection item and the tolerance is less than 10%, the inspection item will be found in a restricted Tolerance (RT) Inspection or placed in

a convenient lower frequency inspection. If the tolerance is at least 10%, the inspection will be placed in an inspection without designators. A statement of

"No Tolerances," or "This Inspection is Restricted to (XX Hours or XX Days)," as required, shall be placed in the note section of the header on the AAIP

Inspection form.

- Use of the Inspection tolerances are to be considered as non-routine maintenance practice, not standard operating procedure.
- Each AAIP inspection without a designator may be exceeded by 10% of the AAIP inspection's most restrictive interval.
- Each AAIP inspection with a designated NT or No Tolerance shall not exceed any interval.
- Each AAIP inspection with a designated RT or Restricted Tolerance may be exceeded by the stated tolerance (less than 10%) of the AAIP inspection's most restrictive interval.

FINALLY: In light of recent events...

Heidi asked to have a little space in this month's Q&S Notes to talk about telephone security...



A Word About Telephone and Email Scams

As employees of Maritime Helicopters many of us find ourselves in frequent communication with vendors and clients via email or telephone. As already noted in the Employee Handbook it is critical that employees

safeguard vital company information when sending emails – but it is equally important that we take measures to protect *our* personal information and the information of our coworkers. Those of us working in the offices and using primarily landline telephones for company business are familiar with sales calls, but it can sometimes be tricky to distinguish between a legitimate account representative and a salesperson fishing for your information. These salespeople can use this information to sign the company, or you personally, up for junk mailings and illegitimate accounts. Red flags to look out for are: mention of limited-time or “risk free” offers, prizes and contests; the person avoids answering any of your questions; they ask for any personal information at all beyond your name. The Federal Trade Commission keeps a list of currently known scams online at <https://www.consumer.ftc.gov/scam-alerts>. The State of Alaska Consumer Protection Unit also maintains a page of common telemarketing scams, found at http://www.law.state.ak.us/departments/civil/consumer/cp_telemarketing.html#warning.

If you find yourself on a company phone talking with a pushy salesperson, please notify them that the number they have called is on the National Do Not Call Registry (they can be fined \$11,000 per call for this). Do not give out your personal information to anyone calling you at a work phone number. If you are contacted repeatedly by the same companies or salespeople, especially if this unsolicited contact claims to be in regards to “your account” or “your invoice”, please notify the Accounting Manager immediately and provide as much detail as possible about the company and/or salesperson and their contact information so that a complaint can be filed with the proper authorities.

Heidi Browning

Accounting Manager

Next Month: NO DISCUSSION ABOUT WINTER...**YET!**

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Last word here: I'm writing this just assuming that everyone already knows how to check their ground equipment. If you don't know, ASK! Let the management know if you need oil, parts, or procedures for any particular piece of equipment.

NEW STATION CHECKLIST!

As I mention in the April **AND MAY** Safety Notes, we're now implementing the new Station Quality & Safety checklist! This short checklist is extracted from the larger internal audit checklist and should cover items to be looked at when coming on shift at any of the remote sites. The intent is for personnel coming on shift, to go through this quick internal audit and email the results to me, noting any deficiency so we can begin work on corrective actions. I'm going to have Jessica attach the checklist to this email, then I would like to get the first audits by the end of June! After that, I will send out another email stating the policy for how these self-audits will be performed when you come on shift. Short version? If you are on a 2&2 schedule, you fill out and send the audit when you come on shift. If you are on shift for more than two weeks, you perform the audit once a month at your station. Send your completed audit sheets to me at:

safety@maritimehelicopters.com or fax them to Fairbanks office at 907-452-4539

The audit checklists will be completed for Kodiak, Akutan, Nikiski, Pump Stations 4, 5 & GRB, as well as Valdez.

As with our internal audit back in November, the goal of these checklists is to have relevant **SELF-AUDITS** and corrective actions that are more methodical in their application.

Dennis

Air Data Calculations and the Wind

I had an unusual situation this month where the Garmin 500H wind data from the AHRS wasn't even close to the winds observed at a pinnacle landing site at the same approximate altitude. So here are just a few words from Garmin and our Chief Pilot to help in landing in areas where wind can be a big factor.

We've all be trained in wind speed identification, and everyone has their own tricks as far as judging drift, crab angle, terrestrial associations from vegetation or water. Hopefully, even when we have all the best new data from a nice Garmin, we are checking these indicators. But where does Mr. Garmin get his advertised (highly accurate) wind data?

According to the 500H sales pitch:

[Experience the AHRS advantage](#)

In place of sensitive gyro instruments, the G500 uses Garmin's super-reliable GRS 77 Attitude and Heading Reference System (AHRS). Combining inputs from GPS, magnetometer and air data computer, the Garmin AHRS provides an accurate digital referencing of your aircraft's dynamic orientation in space. Also, unlike some competitive attitude/heading sensors, it's even able to restart and properly realign itself while the aircraft is moving.

Should be perfect, right? Well, as long as the AHRS Calibration has been correctly performed, and the wind is generally consistent, with stronger winds being more accurately displayed than mild winds. Calculating from track drift, the AHRS has an uphill battle from what a lot of experts refer to as the Garbage-In element of wind. The best use of Garmin wind data is to check it *before* you leave cruise flight and then use terrestrial indications or a nice wind sock when you get closer to your landing. And, when in doubt, ***perform your wind circle and get the real info at your landing area!*** This is a flight safety issue so the 3 minutes it takes to do a 20 degree, 60 KIAS circle to find out the wind is well worth the effort.

Incident Reporting May/June

GOR: The Ground Occurrence Report that led to the discussion of our ground support equipment was from the Kenai/Nikiski aircraft. While checking on 193AL (Bell 206), it seems that there was damage to the cross-tube in the area supported by the Tug-A-Lug and also an antenna was bent. Apparently, the rubber pad that fits on top of the Tug-A-Lug support leg was missing and bare strut/leg had done a little damage to the aircraft. Everyone please remember that the Tug-A-Lugs need to be spot checked for serviceability before each use. (And don't leave the struts attached to the cart when you tug under the aircraft. Get the tug underneath the aircraft and then put the struts on).

FIR: There have not been any Flight Irregularity Reports to mention for this month. In lieu of that, I'm going to post the link for the 2003 A-Star fatal accident from the Alaska State Troopers for your examination.

Bad Situation.

<http://www.nts.gov/investigations/AccidentReports/Reports/AAR1403.pdf>

Next Month: More about our self-auditing and hopefully No GORs or FIRs!

FINALLY



This would be classified
as a **FAIL** while using
Ground Support
Equipment!

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NEW STATION CHECKLIST!

As I mention in the April Safety Notes, we're starting the company discussion of the new Station Quality & Safety checklist this month. This short checklist is extracted from the larger internal audit checklist and should cover items to be looked at when coming on shift at any of the remote sites. The intent is for personnel coming on shift, to go through this quick internal audit and email the results to me, noting any deficiency so we can begin work on corrective actions. What I'd like to do for now, is to simply having you print out this checklist and walk around your sites/hangars, and note checklist items that might be missing or incomplete. You really don't need to worry about items that don't apply to your particular site, because NA will be a valid checklist option when you go on shift! Make as many notes as you wish on the audit sheets themselves, and then scan them back to me at safety@maritimehelicopters.com

Disregard the column on the checklist that says SRR (Significant Relevant Reference). I am working with that and will be including the regulatory compliance references (OSHA, FAA, etc.) as a work in progress. However, if there is anything that you think should be included in a self-audit, please include a reference as to why you think it should be added.

As with our internal audit back in November, the goal of these checklists is to have relevant **SELF-AUDITS** and corrective actions that are more methodically in their application.

We'll talk in June about the results: and then go ahead with our audit program.

Dennis

Incident Reporting April/May

There's only one incident to talk about this month but it involves the ramped up summer activity that everyone is seeing around the state. I'd hate to mention that this one involves my old beloved Chinooks.

The Glenallen Response Base (GRB) pilot was flying the pipe in the vicinity of Donnelly Dome just south of Allen Army Airfield, when two Chinooks (yes, I know, I know...I always brag about the Chinooks) passed East to West in front of him and slightly below his aircraft. The pilot did a rapid deceleration and the first Chinook passed about ¼ mile second Chinook even closer...

Our 407 pilot called Allen AAF tower on 122.9 and asked if the Chinooks were monitoring either 122.9 (CTAF) or 119.8 (Tower). The answer was negative on both counts. Now it could possible that the Chinook was already up 125.3 for Range Control as he was headed towards R2202...but I'll tell you that the Chinook has more radios than Marconi. They should have been monitoring...They weren't.

A couple weeks back, I was flying up to Prospect Creek, and while I was crossing the river, I gave a CTAF call for the Yukon River, "Yukon River Bridge traffic, Maritime 1234, helicopter, 1 mile east of the bridge, NW bound at 1,600', Yukon River"... I'll admit, I've not *always* made that call. Well, about two seconds later, I hear "Hey, that Yukon River traffic, N12345, Cessna, Stevens Village for Bettles, 1,600', how far East of the bridge are you?" He would pass a mile or two in front of me on my way up. It's nice to chat!

The Donnelly Dome event hit home that we **HAVE** be monitoring these common traffic frequencies around the state, and for good measure, throw in a call-in-the-blind every so often. I've already been over to Ft Wainwright and talked to the Aviation Operations people over there. They are trying to get the word out for their pilots to participate with the Alaska aviation community.

Remember that going through any of the mountain passes in the state is a time that we need to be monitoring and talking on CTAF.

Thanks to Mike Wood for being on his toes AND for filling out the Flight Irregularity Report so we can follow up with the Army!

Next Month:

In June, look forward to the implementation of the new Station Audit checklist. Please take the time to look around your site and participate in this chance to affect the new checklist!

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My last word on summer Alaska survival? **DEET!!**

Incident Reporting March/April

Warmer Temps!

Along with the summer safety discussion, we have to discuss the weather changes and what it does to the aircraft.

We had a Bell 407 engine over temperature incident this month. The pilot was attempting to cross a portion of the Brooks Range at over 7,000'. The snow baffles are still on up there, and probably will stay on for a few more weeks! So temperature limits would be foremost in all of our 20/20 hindsight as we look at this event. At climb power of 84% torque and 80 knots, the aircraft entered the 5 minute, time limited range (727.1-779 degrees) and stayed there for over the five minutes, recording an exceedance of 28 seconds (5 minute and 28 seconds in the time limited range).

Yes, there are times in Alaska, with our bright, low sun, that the caution panel can seem to disappear, but the check instrument light is only one indicator of a possible impending exceedance. Plan you flying according to the higher ambient temperatures this summer and continue to crosscheck your Engine Temperature, Torque and Gas Producer speed to avoid one or more exceedance.

This aircraft ended up having a crack in the combustion liner which had to be replaced.

Bell 407 FADEC Degrade Cautions

Twice this month, B407, 308MH has had FADEC Degrade cautions come on during the start sequence. The first time, at one of the AT&T hilltop sites, the pilot attempted a start and the FADEC degrade illuminated at ground idle. The pilot contacted Fairbanks maintenance lead and together they went through the process of pulling up the fault, which happened to be a Soft, Start Fault. Still, if that FADEC Degrade light is on, you can't take off. Even if you can get the aircraft started! So, after shutting down all power and attempting a second time, the FADEC light stayed off. With direction from Maintenance AND Operations, the aircraft was flown back to Fairbanks.

Maintenance replace the relay for the auto relight system (1K3) and the aircraft was behaving itself until...While attempting a start a few days later, when the throttle was initially placed to ground idle, the FADEC Degrade came on again.

If you said, "don't fly it" you would be correct here. Once again, several calls to Maintenance in Fairbanks, and calls to Ops, the fault was recorded and cleared (remember that if the Degrade light is on BEFORE the start, that it is from the PREVIOUS flight). Once power was removed and the start attempted again, the aircraft was started normally with no lights and flown home. This time the igniter relay (2K4) was changed and the aircraft seems to be operating normally.

So why do we talk about these subtle faults and their ability to wreck our mission days? FADEC is great, right? Near automatic starts and continuous engine monitoring are fantastic, but as with a lot of automation, FADEC can give indications that may or may not be major issues. The idea here is to NOT second guess them. Go by the book, shutdown the aircraft (or don't start it) if you have issues or concerned with FADEC indications, and contact Maintenance AND Operations!

Please take the time to reread your FADEC Emergency Procedures and discuss these faults or degrades with each other in the field.

May Letter:

As I mentioned at the beginning, I'll be sending out a new station audit checklist this month. The goal is that that we will have a regular (monthly?) **auditable** trail to show outside auditors for our Health, Safety, Environmental & Quality inspections. More to follow!

Dennis

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Emergency Response Preparedness

One of the foundations of the Safety Management System here is the Emergency Response Plan (ERP) Manual. It has a lot of information on what to do in the case of various classes of emergencies which can confront us...from a downed aircraft to a bomb threat. I will send the ERP Manual as an attachment to a separate email, in case not everyone already has it on their desktop at work! But just as I mentioned in the first note, **WE** must all ensure that our ERP fits our own particular worksite. Alaska is not an easy place to have a one-size-fits-all ERP. I'd like to challenge everyone to take a look at their particular job site and see if your ERP can be improved. Go through the following checklist and add to it as necessary.

- ✓ **Are all contact numbers up-to-date? Fire? Police? Medical?**
- ✓ **Are flight plans being filed whether local/Maritime or FAA?**
- ✓ **Does your site have someone watching the SkyConnect? Can your mechanic watch it while you are out flying? (Call Dave Buzga if not!)**
- ✓ **When you leave in a company vehicle for an extended trip, do you file a verbal "trip plan" with a coworker? (Pipeline driving? Homer to Nikiski?)**
- ✓ **If you are in a "Working Alone" situation, have you made it a habit of contacting a coworker or supervisor on a regular basis?**
- ✓ **Do you have the Alaska Department of Environmental Compliance, Spill Poster up at your site? (If not, Contact the Safety Manager!)**
- ✓ **What Spill control items might be needed at your site? (you have to think the worst on this one. What if an aircraft fuel cell burst right now?)**
- ✓ **Are your First Aid kits up to date and adequate? (we've been working on these, but some of the remote sites may need attention) We'll cover First Aid kits in another month.**
- ✓ **(ESPECIALLY AT REMOTE SITES) Have you and your coworker/s played the What IF? game on emergencies which could happen?**

Incident Reporting

Ground Occurrence Reports & Flight Irregularity Reports

□

There are just two incidents which we need to discuss this month. One Flight Irregularity and one Ground Occurrence Report. But both of these will bring us back to the fact that WE will need to be more participative in the corrective actions stemming from these incidents.

Mistakes Happen, But What Next? (FIR)

During a training flight, the instructor had the right seat pilot of the Bell 206 enter a practice autorotation. The right seat pilot entered a normal autorotation and then, at 300 feet AGL, rolled the throttle back on for a power recovery and stated "Throttle Full". During pitch-pull for recovery, the instructor noticed the torque climbing to 100% and so restricted the pilot from pulling any more collective. This power was insufficient to continue flight and so the aircraft landed harder than normal, yet level, on a flat stretch of beach. There was damage to the aircraft skids. The aircraft was shut down, and maintenance notified, at which time, the aircraft was flown back to base.

(Safety/Operations comments)-While this incident seems simple enough for discussion of the instructor's actions during the autorotation. The lessons learned being to 1. Ensure that the throttle is at 100% upon recovery 2. A transient overtorque could be preferential to an unplanned touchdown. 3. Power recovery maneuvers are tricky!

However, the lesson learned for the future here is in addressing what happened AFTER the hard landing. The General Operations Manual (GoM) states:

1. The PIC shall notify either Management or Management Delegates before any further actions if –
 - a) There are any missing required flight items, or
 - b) The flight cannot be completed before the next scheduled inspection time or expiration of a deferred maintenance item, or
 - c) There are any uncorrected aircraft discrepancies

(Continued)

This speaks to the concept of Operational Control. If you read chapter 2 of the GoM it is easy to see that the Tier I level operational control must be notified if the aircraft falls into the a, b, or c. category. Also, in Chapter 5, the GoM states that anyone exercising Operational Control (PiC or Otherwise) on behalf of Maritime and declares an emergency must likewise notify the Director of Operations or Chief Pilot ASAP.

*Just putting it simply, just as when your daily risk assessment values takes you out of the Tier II Operational Control approval authority as a PiC, when something out of the ordinary affects aircraft or crew the you **must** contact the Tier II Control Authority, which is The Director of Operations, Chief Pilot, or anyone designated Assistant Chief Pilot.*

Grease Is Cheap!!! (GOR)

During a recent teardown of the Main Rotor Hub/Yoke/Trunnion Assembly, some major Brinelling was found in the surface where roller bearings travel. You can ask your mechanics where you are, but that's a lot of money. That rotor hub had 1033 hours...



Brinelling /'brɪnəlɪŋ/ is the permanent indentation of a hard surface. It is named after the Brinell scale of hardness, in which a small ball is pushed against a hard surface at a preset level of force, and the depth and diameter of the mark indicates the Brinell hardness of the surface.

If you want to see a rotor hub/yoke with over 3,000 hours, it looks like this.



The Maintenance Department is looking into the lubrication & purge cycles as possible reasons for this early damage to this component. **Our procedures are going to change because as the title of this note says..**

Grease Is Cheap!

Emergency Eyewash Stations

Here in Fairbanks, I have just completed the six month drain, flush and fill of the emergency eyewash stations. Can someone at each site go ahead and check the eyewash stations for no greater than 6 months on “fill and addition of the eyewash sterile/anti-fungal additive? Or, if you are using the eyewash bottles, just do a quick date check for expiration. I'll continue to check these as I get around the state, but since most of them were done in August or September, now is a good time to check them out.

SDS Info (Yes, I'm keeping this Safety Note, too!)

<https://www.3eonline.com/eeeOnlinePortal/DesktopDefault.aspx>

I'm still not certain everyone has our Safety Data Sheet access on their desktops. Remember, you can remove the old MSDS Books at your sites (just chuck 'em!)



REMINDER!!!!

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See you next month!

Dennis

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Incident Reporting

Ground Occurrence & Flight Irregularity Reports

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There are three Incident Reports that I'd like to discuss this month...Both Ground Maintenance Issues that we need to be aware of...

The Right Tool for the Job?

In the back shop at Fairbanks, a small team was using the arbor (manual) press to push out blade bushings. One particularly pesky bushing was offering a bit more resistance than the other. The hydraulic press sits about 3 feet away. What would you do in this situation???

- A. Use the Hydraulic Press?
- B. Hang your full weight on the Arbor Press?
- C. Get two people to hang their full weight on the Arbor Press, those individuals falling to the floor when the press fails? Then order new parts to fix the Arbor Press???

Well, the unfortunate answer in this situation was C. Luckily no person and no aircraft parts were damaged in this operation. We probably don't need to beat this to death. Please use the right tools for the job. The "Good Idea Elves" rarely have good ideas.

The Best Time to Find Broken Components?

Good old 305 MH was in for its annual and engine turbine replacement. When the turbine was replaced and the engine almost ready to install. When the compressor protective cover came off it, the compressor was found to have some pretty serious damage to the blades. I think you can fill in the blanks for yourself...last minute parts ordered, annual takes longer than it was supposed to, and every one runs around trying to make something happen that should have been caught earlier. Let's just use this one as an example...whether we are doing a preflight, a daily, or any other inspection, let's keep an eye open to the big picture and catch these things before it's too late.

GRB Hangar Door Failure

Okay, so maybe this isn't a *Maritime* Ground Occurrence Report, but it happened **to** the hangar where we keep the Glennallen Response Base aircraft. While opening the hangar door to begin towing 308MH out, the bifold hangar door failed and the door came crashing down on **nobody**...Lucky Day?



For the last word on this month's safety letter, I'd like to include the text of an article that I totally stole and re-worked from Gizmodo.com. This writer does the best job of explaining why wearing cotton fibers in the cold is the absolute worst thing you can do. All the Denali climbers always said that "Cotton Kills" and I took that as gospel. But here is the "why".

Why Cotton Kills, A Technical Explanation



"He was wearing all cotton, which is the worst fabric for cold, wet weather. The weather just got the best of him," reads an official statement by Alaska State Troopers about the death of a hiker there in 2005. This is how and why cotton can kill you.

Hypothermia

The Mayo Clinic definition reads: "Hypothermia is a medical emergency that occurs when your body loses heat faster than it can produce heat, causing a dangerously low body temperature. Normal body temperature is around 98.6 F (37 C). Hypothermia (hi-poe-THUR-me-uh) occurs as your body temperature passes below 95 F (35 C)."

Over 1,500 people in the US die from hypothermia each year. It causes a variety of things in your body to stop working, but the most important seems to be your heart. It will stop if your core temperature drops too low.

Advertisement

So you only have to worry about it in sub-freezing temperatures right? Wrong. While cold conditions will affect us all differently depending on our general health, physical fitness and other factors like genetics, hypothermia can be experienced in surprisingly warm weather. For instance, the Mayo Clinic warns that elderly persons may be subject to hypothermia, "...in an air-conditioned home."

Hikers are more likely to die of hypothermia in the spring, summer and fall than they are in the winter; during those months the odds that they'll be caught unprepared are simply higher.

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And, the Mayo Clinic also specifically cautions against wearing cotton, saying, "Wool, silk or polypropylene inner layers hold body heat better than cotton does."

Cotton And Water

Cotton garments can absorb up to 27 times their weight in water, something which means they a) take forever to dry out and b) actively work to cool your body in even moderate temperatures.

And you can get cotton wet without exposing it to rain or submersion. Sweat heavily in it and it will soak up that sweat and hang onto it, which can lead to any of the problems described in this article as easily as falling into a lake will.

Why is cotton so absorbent? According to the Appalachian Mountain Club:

"A cotton fiber is like a tiny tube formed of six different concentric layers. As individual cotton fibers grow on the plant, the inside of the 'tube' is filled with living cells. Once the fiber matures and the cotton boll opens up to reveal its puffy white contents, these cells dry up and the fiber partially collapses, leaving behind a hollow bean-shaped canal, or 'lumen'. This empty space holds lots of water."

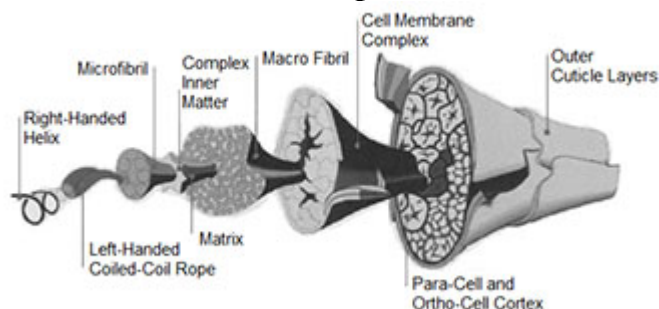
This, coupled with the vast amount of space contained within and between the fibers, provides cotton with its tremendous water-absorbing properties."

"Processed cotton fibers are 99 percent cellulose. Cellulose is a polymer composed of a long chain of connected glucose molecules that each contains three hydroxyl groups with slight negative charges. Water, as you may remember from high school chemistry, has a slightly positive charge (the oxygen atom draws in the two hydrogen atoms' electrons). The upshot is that water molecules are attracted to—and bond with (via hydrogen bonds)—the zillions of hydroxyl groups in cotton. This, coupled with the vast amount of space contained within and between the fibers, provides cotton with its tremendous water-absorbing properties." Cotton traps water inside its fibers, which is why it takes so long to dry out.

Why Being Wet Is A Problem

According to the United States Search and Rescue Task Force, "Water conducts heat away from the body 25 times faster than air because it has a greater density (therefore a greater heat capacity). Stay dry = stay alive!" Getting wet and staying wet, even in above-freezing temperatures can rapidly cool your body as a result. And, by filling up with water, an insulating cotton garment such as a hoodie loses the trapped air space that made it warm when it was dry. This exposes you more significantly to simple radiant heat loss, where the sheer difference in temperature between your body and the environment causes you to get colder. You'll also be more subject to evaporative heat loss as water slowly leaves the cotton garment, something exacerbated by wind chill. Altogether, getting wet and staying wet outdoors is simply a recipe for disaster.

How Other Fabrics Keep You Warm When They're Wet



Wool: The outer layer of each wool fiber is a filmy skin called an epicuticle. This coating repels water drops, preventing them from soaking through the fibers. Due to the fuzzy nature of wool fabrics, rain droplets are less likely to break up, instead beading on the surface and running off. When water is in vapor form from humidity or sweat, it can pass through the epicuticle and be absorbed into the wool fiber; each fiber can absorb up to 37 percent of its weight without feeling wet, pulling water vapor away from your body and spreading it across a larger surface area so it can evaporate. And finally, the "crimp" or kinkiness of the wool fibers also builds dead air space into any wool garment, providing insulation even when wet.

Polyester: Polyester fibers are the basis of many garments and insulating materials, including Polarfleece, Primaloft, Capilene, microfibers and anything similar. Polyester fibers do not absorb any water. At a minimum that means materials made from them will dry more quickly than cotton. Most garments made from polyester are designed to insulate while wet by retaining trapped air and many are designed to actively shed moisture through the shape or arrangement of their fibers.

Nylon: Similar to polyester in that its fibers are created from petroleum, nylon is also used to make "fleece" insulating garments. While nylon fibers can absorb some water, their saturation rate (dependent on which type of thread is used) never exceeds 10 percent and it lacks the polarity issues of cotton. Thanks to the lack of molecular bonding and the small amount of water absorbed, Nylon dries very quickly and, similar to polyester, fabrics made from it can be designed to retain trapped air when wet, keeping them warm.

Rayon, Viscose, Tencel, Lyocell, Bamboo and Silk: Silk can retain up to 30 percent of its weight in water and will lose most of its insulation when it does. Other materials listed here are essentially artificial silk made from cellulose. Not only do they absorb water, but they have the same molecular bonding issues described for cotton above.

So What Do You Wear?

It's fairly easy to ditch cotton on the top half of your body. Your best option is to swap a cotton t-shirt for one made from an appropriate weight of merino wool. Merino is a wonder material that helps keep you cool when it's hot and warm when it's cold, while wicking water away from your skin to keep you dry. Yes, t-shirts made from it are more expensive than their cotton equivalents, but they'll also last longer, won't stink after you sweat in them and, well, won't kill you through hypothermia. You can find merino in weights appropriate for the hottest desert conditions on down to stuff designed for the coldest winters. It's an excellent fabric to be active in. Insulation layers are also easily replaced. There's very few things that are warmer or more versatile than a wool sweater and mid-layers made from fleece are insanely good value while being very warm.

The hardest item of cotton to ditch is going to be your jeans. Nothing is more of a staple in the western wardrobe and jeans manage to be both fashionable and rugged, all factors that make it easy to just acquiesce and wear them to do stuff outdoors. But, even in warm summer conditions, you'll be better off in a pair of synthetic trousers, which will breathe better, wear cooler and won't soak up water from sweat or a stream crossing.

For pants that replicate much of the look and versatility of jeans, but are practical and comfortable for use outdoors, we recommend the Lululemon ABC Pant (\$128) which combines solid casual style with a wicking, four-way stretch material for movement and comfort. Those are great for warmer weather while the Makers and Riders Commuter Jean (\$169), which combines a waterproof, four-way stretch material with a jeans-alike cut and look is a great option for colder or wetter conditions.

There's plenty of cheaper options out there if you don't mind looking like the type of person who values the ability to convert their pants to shorts by just zipping them off. **Any material but cotton is going to work better at everything, especially at not killing you.**

(The pilots reading this will remember that having lots of artificial fibers next to you in a flash fire, isn't the greatest thing unless you like being doused with hot, molten plastic...better stick with the wool)

See you next month!

Dennis

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