



Maritime Helicopters

2nd & 3rd Quarters 2023 Quality & Safety Notes

The worst Safety Letter I will ever write. Because the National Transportation Safety Board investigation is ongoing, we can't really discuss details of the accident yet. We are fully aware of the fatal accident of aircraft N311MH and the losses of our pilot, Tony, and our customers from the Alaska State DGGS. We've been trying to keep everyone informed on a one-on-one basis as much as we can. I had distributed a quick Safety note after the accident, explaining that we need to keep our focus on current operations while we try to explain exactly what happened.

Having been part of the NTSB investigation, I can tell you a few things about the process, but not the facts of the case. One, the people from the NTSB, Bell, and Rolls-Royce that are sent as investigators are all professionals and only want to find out the truth. There is a perception that the aircraft manufacturers just show up to make sure that the crash wasn't their fault. But they have their safety systems also and if an accident is their fault, they just want to be able to avoid the same situations in the future. Two of these engineer-investigators have been working aircraft accidents for a combined fifty years. They understand, very well, the human costs of these mishaps. And they were/are very professional.

The aircraft was recovered to Barrow and a layout of N311MH was assembled by the NTSB in one of the North Slope Borough, Search and Rescue hangars. This is an activity that you don't want to participate in during your lifetime. Based on this initial "re-creation" of the aircraft, the investigators were fairly certain that the aircraft was operating (engine, transmission, tail rotor drive train, etc.) when the crash occurred.

The other point I wanted to bring up is that there is no good that can come from runaway discussions about the accident from our point of view. Everyone wants to place their own stamp on the analysis right away after an incident happens. "I heard this", or "I knew something about the aircraft/pilot/weather/terrain." Discussing any of this publicly just feeds the rumor mill. Let's try to wait for the results.

We have two jobs, taking care of the families and continuing to operate as safely as we can. That's it.





Apparently, it was a banner year for bird strikes at the Army's Flight school at Fort Rucker/Novosel.

We had one "double duck" bird strike this year. That dinged an engine exhaust. Could have been much worse.

2023 FAASTeam Presents



Federal Aviation
Administration

Burning Helicopters Cannot Fly

Proper Techniques in Refueling

Presented to: General Aviation Airman

By: Charlie Hamilton, FAASTeam SLT Lead

Date: January 22, 2023

Produced by
The National FAA Safety Team
(The FAASTeam)



Why Can't They Fly-Let's Take a Look

- Refueling hazards & risks
- Electrostatic discharge
- Fuel types & uses
- Grounding vs Bonding
- Best Practices



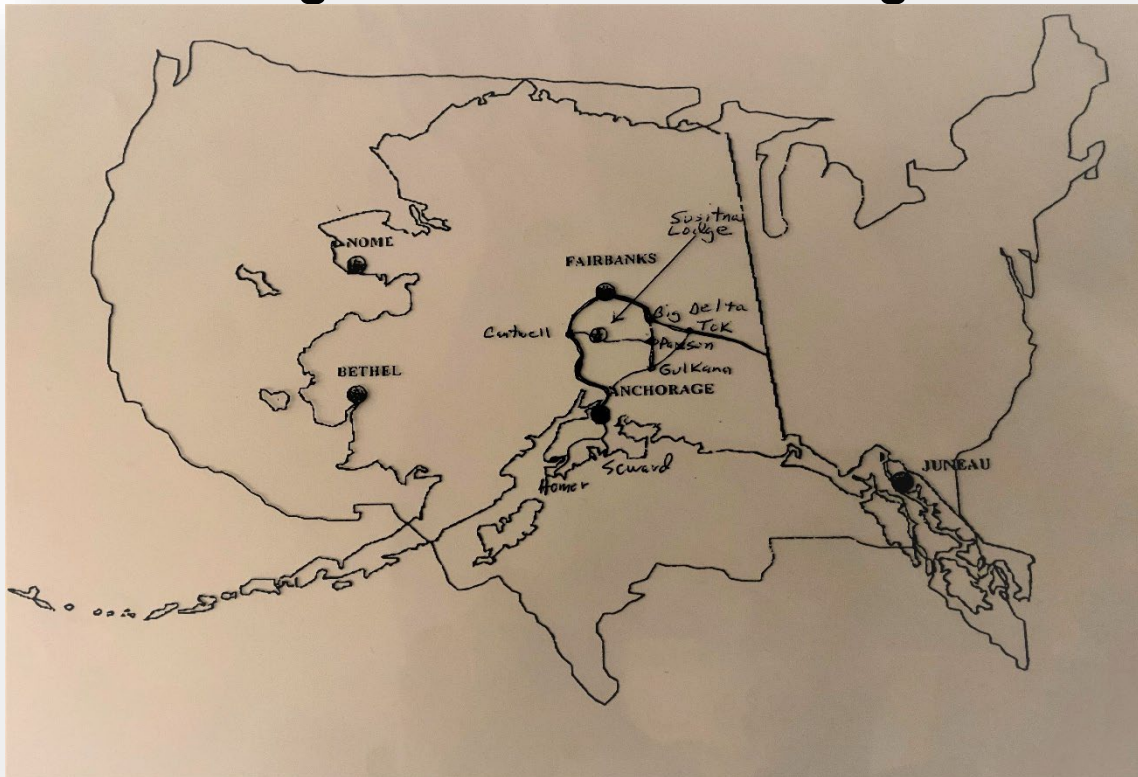
January 21, 1976 Near Cantwell, AK



Federal Aviation
Administration

Another View/Perspective

Occurred While Staged at Old Susitna Lodge on Denali Hwy



Federal Aviation
Administration

The Job!

- **Alaska Department of Fish & Game Caribou Herd Preservation Project**
- **BHT 206B (244 hrs) w/modified RR door/window to accommodate biologist duties from the back seat**
- **Just finished last circuit near end of daylight hours!**
- **Refueling required for return trip to Anchorage (ANC)**



Environment and Conditions

- Daylight only 5 hours (Jan 1976)
- OAT +18° F (low humidity) w/light falling snow
- Frozen surface covered w/ 2-3 feet of packed snow
- Fuel Jet-B from 55-gal drum - No grounding/bonding
- A/C shut down - slow turning blades (no rotor brake)
- Other pilot started hand pumping fuel into A/C with pilot still inside completing paperwork
- So, what happened next?



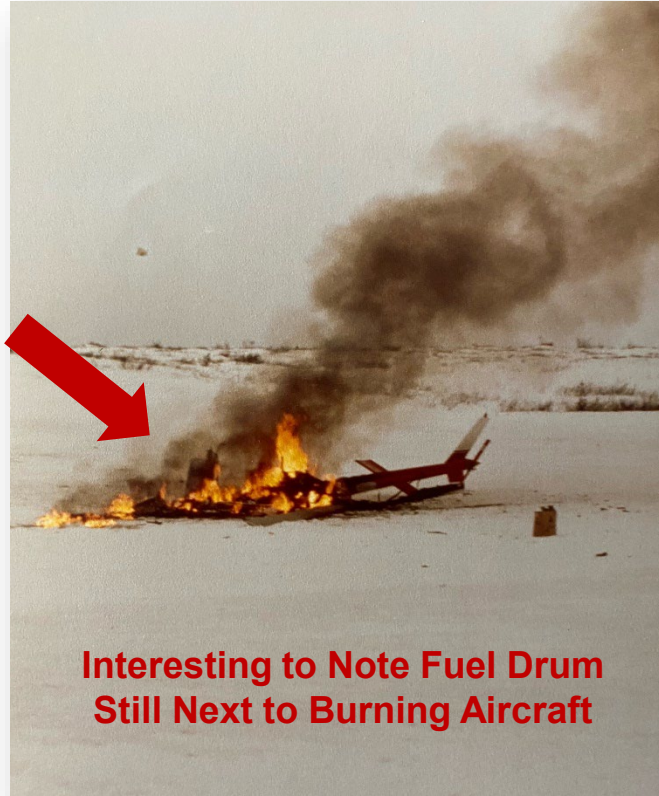
Within Seconds....



**Pilot Evacuated the Aircraft
After the Initial Explosion
with this Result a Few
Seconds Later!**



Within 15 Minutes

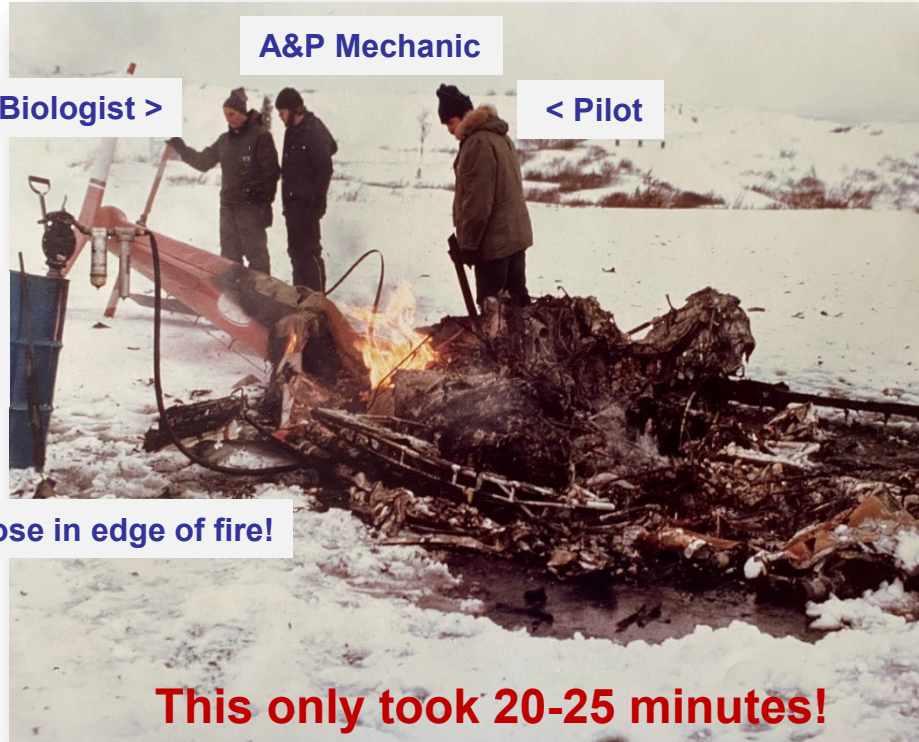


Interesting to Note Fuel Drum
Still Next to Burning Aircraft



Federal Aviation
Administration

Finally the End Product!



Stage Set for Electrostatic Discharge

- Hand-pumping with particle filter & Go-No-Go fuse
- No grounding and/or bonding between drum & A/C
- Jet-B with its high volatility (65% gas, 35% kerosene)
- **Electrostatic Discharge created when:**
 - Fuel passing thru nozzles, hoses, filters, fuel water separators, then falls or splashes into fuel tank
 - Greatest potential for electrostatic discharge between refueling nozzle & aircraft exist w/no bonding (Safety Hotline May/June 1998)
- Remember it is Cold and Dry
- Freefalling fuel from nozzle to bottom of tank w/ low quantity and high volatile vapors results in ignition, explosion & fire



Hazards/Risk Considerations when Refueling?

- **When was last time you refueled your helicopter (aircraft)?**
 - Is this at your company or a field site?
 - Is delivery system-mobile fuel truck, fixed fuel tanks, bladders, fuel drums!
 - Is this helicopter shutdown or running?
 - Is the fueling source and aircraft grounded and/or bonded?
- **Environmental conditions - dry/cold, nearby thunderstorms?**
- **Electrostatic Discharge Presence - where does it come from?**
- **Ignition sources - APU's, A/C running, smoking, cell phones?**
- **Fuel handling and splashes - eyes & hands**
- **Fuel volatility or flammability - AvGas vs Jet Fuel!**
- **Flashpoints of fuel - Gives off sufficient vapor to ignite in air**



Basics of Fuel Types and Uses

- **AvGas - Very volatile w/ flashpoint at Minus 43° C**
 - Green AvGas 100 (100/130 octane) - United States)
 - Blue AvGas 100LL (100/130 octane) - United States
 - Red AvGas 80 (80/87 Octane) - United States
- **Jet-B - Very volatile w/ flashpoint at Minus 18° C**
 - Freeze Point -60° C (Northern Canada and Alaska)
 - Mixture blend of 65% Gasoline and 35% Kerosene
- **Jet Fuel - Less volatile w/ flashpoint at Plus 38° C**
 - Jet A Freeze Point Minus 40° C (United States)
 - Jet A-1 Freeze Point Minus 47° C (Worldwide)
 - TS-1 Freeze Point Minus 50° C (Commonwealth)



Bonding vs Grounding

- **Many sources or articles use bonding and grounding terms interchangeably**
 - Grounding dissipates the charge between the truck and/or A/C to the ground
 - Bonding neutralizes the differences of charges between the truck and aircraft
- **Electrostatic charge – basically pluses (+++) physically separated from minuses (---)**
 - Fuel flowing from truck filters and hose creates separation of + and - at A/C
 - Truck charged up w/minuses and A/C charged with pluses (or vice versa)
 - You could ground the truck and A/C to different ground points and get rid of charges but not necessarily between these two sources themselves
 - When there is no voltage difference, there is no charge
 - If wire or other conductor is connected between fuel source and aircraft, pluses cancel minuses w/no charge remaining – this is called bonding

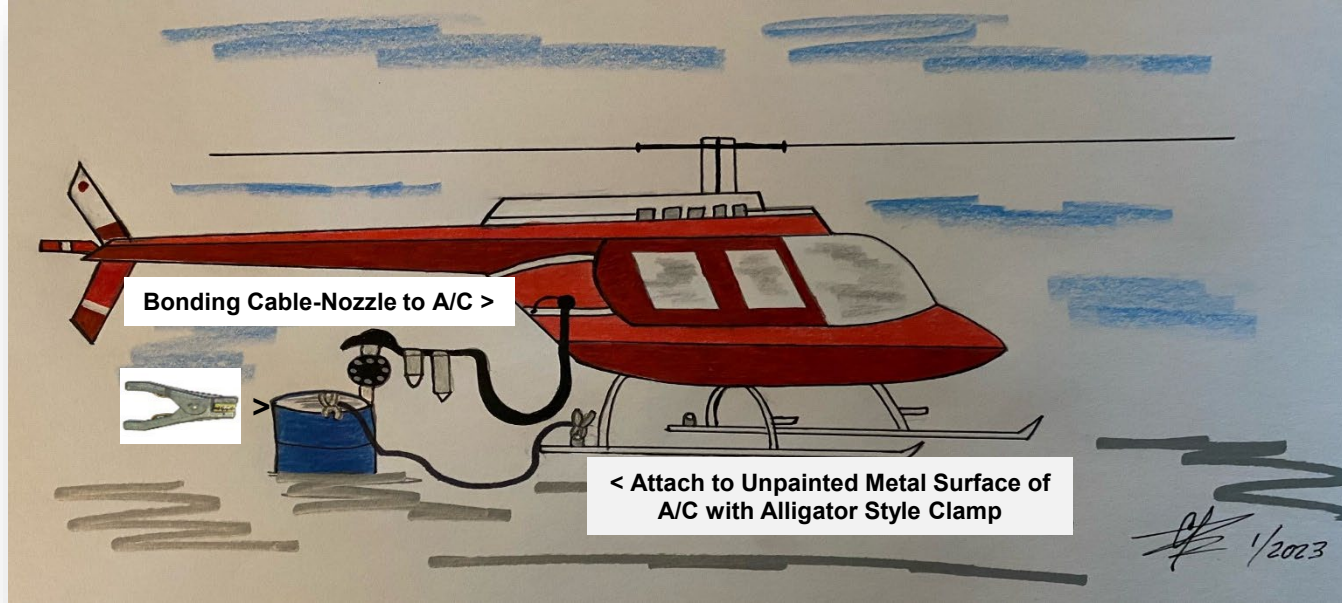


Accepted Standards for A/C Fuel Servicing

- **National Fire Protection Association (NFPA)**
- **Standards Doc #407 – Fuel Servicing & Ops Manual**
 - Requires a bonding cable between the fueling source and the container or aircraft
 - This bonding connection will provide a conductive path and equalize potential between fueling equipment and the A/C
 - According to this code grounding is not necessary
 - Although some references state that grounding wires are no longer required, it is recommended as good practice to dissipate potential charge build up especially in cold, dry weather!



Bonding the Aircraft

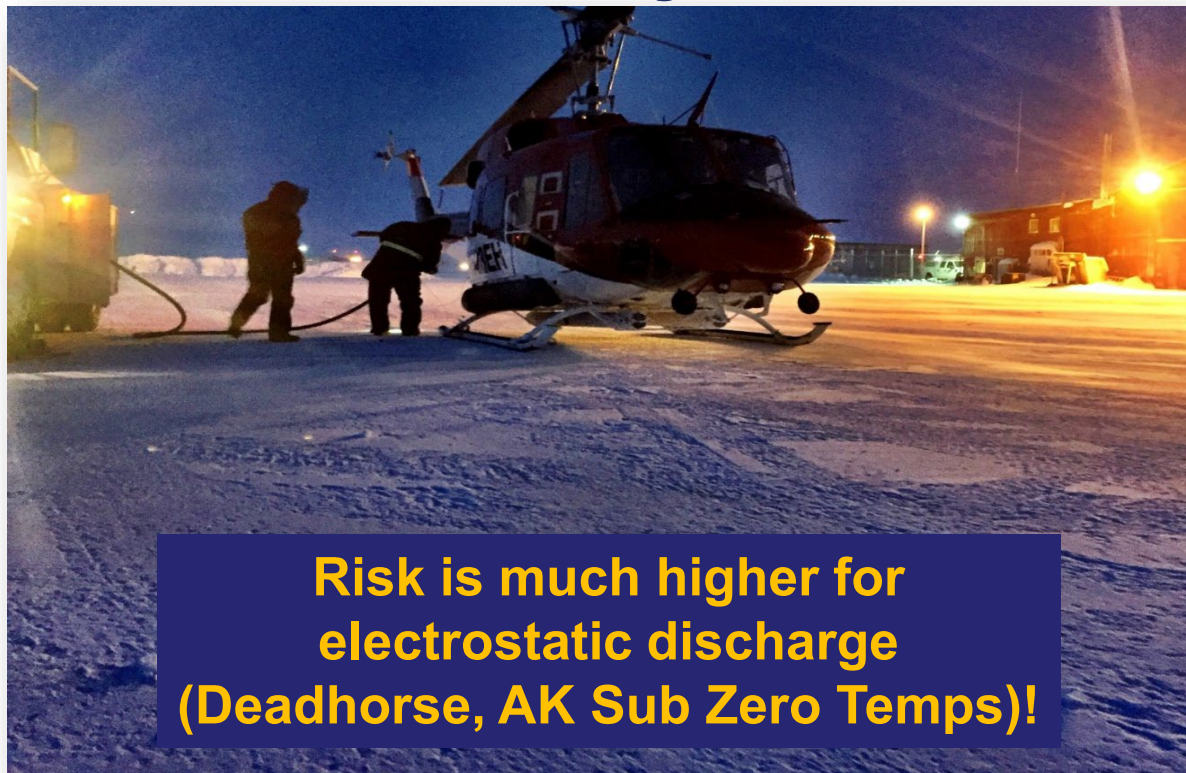


**Bonding Cable
Between
Drum & to A/C**



**Federal Aviation
Administration**

Jet-B in Cold, Dry Environment



AvGas

**Metal to Metal
Contact w/Filler Neck
Before Opening Cap >**

**Bonding Connection
from Truck >**



Refueling Best Practices

- **Ensure correct type and grade of fuel**
- **Keep metal-to-metal contact w/nozzle to A/C filler neck**
- **Insure complete bonding circuit from source to A/C**
- **If possible allow fuel to flow down the inside of cell/tank versus fuel falling freely or splashing at bottom of tank**
- **Insure all bonding cable connectors are serviceable**
 - Attach to clean unpainted metal surfaces of A/C
- **Never allow passengers onboard aircraft when refueling**



More Refueling Best Practices

- **Wear adequate Personal Protective Equipment**
 - Hands & eye protection
 - Cotton or Leather best - Nylon material is great producer of static electricity
 - Footwear without exposed iron or steel studs
- **Beware of increased risks in cold, low humidity climates**
- **Beware of popping/crackling sound or visible sparks**
- **No Smoking or electronic device operations within 50 feet**
- **No refueling in electrical storms or during O² servicing**
- **No refueling/defueling in enclosed spaces like a hangar**
- **Have a serviceable Fire Extinguisher available nearby**



Contact Information

- Thanks for your time today and I do hope this will be helpful to you all in your fueling operations in the future.
- For further questions please feel free to contact charles.s.hamilton@faa.gov.



2023 FAASTeam Presents



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Administration

Burning Helicopters Cannot Fly

Proper Techniques in Refueling

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By: Charlie Hamilton, FAASTeam SLT Lead

Date: January 22, 2023

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The National FAA Safety Team
(The FAASTeam)



**MARITIME HELICOPTERS
PUBLICATIONS
ROUTING MEMORANDUM**

DATE: 10/31/23

TO: All Employees

FROM: Quality & Safety

SUBJECT: 2rd and 3rd Quarter safety

Please complete the verification of receipt below and return this form to the Records Department in Fairbanks via email to faiadmin@maritimehelicopters.com or by fax to (907)452-4539

BY SIGNING THIS FORM I ACKNOWLEDGE I have reviewed and will comply with the memo listed above

EMPLOYEE SIGNATURE

DATE

Steve Slade

10/31/2023





Maritime Helicopters

First Quarter 2023 Quality & Safety Notes



Eight years in Fairbanks at Maritime Helicopters Inc. for me. What have I learned? Winter is still cold, blowing snow is harder to land in than AstroTurf, and those little hand warmer packs are nice to have while sitting at a remote JPARC (Joint Pacific Alaska Range Complex) site at -23 Fahrenheit. But we continue to have our slightly more moderate Alaska winters with just a few days below -30 degrees. That's easier to hang around outdoors in, but it means we are flying around in more days of limited visibility with snow, freezing fog, and other weather nastiness.

A few other recent lessons from the odd spring weather?

1. Make sure you have all FOUR blade ropes for the B407 when you are going to hilltop sites. Is Alaska becoming windier?

2. No matter how many times you brief customers to "Open the door, set your stuff out, then close the door and don't walk away from a helicopter with doors open", you still must watch the aircraft like a hawk. Several times lately with seasoned passengers, we've had to re-cover this topic.

3. When landing by tall buildings or antennae, make sure you land where you are going to get whacked by flying hoarfrost, breaking off from above! (see photo above)

4. Spring drifting and hardpack might make your old reliable landing sites into unusual slopes! Don't go sledding in the aircraft!

Summer is almost here so it will be time to get out the mosquito nets and DEET, but don't necessarily get rid of your parka from your survival rucksack. For support crew on the ground, make sure you have summer survival items in the trucks BEFORE you get to someplace that charges a mint for a can of bug spray.

AND

No matter how much water you are taking along, you might think about bringing more.

MINERAL ALERT!

I'll be honest, I am behind in enforcing everyone's Safety Training from Mineral. They will continue to be assigned, but if I don't give you a warning letter saying that I will take away your lunch, don't be surprised. I think we, as a company, currently have about 225 individual safety trainings which haven't been accomplished. Please go on Mineral and take all your annual and/or biannual safety classes! My page is current, but as you can see below, December will be breathing on me soon enough.

For new employees, I am going through an assigning OSHA/Mineral training as time allows.

Please remember that many of our customers require evidence of training for these various safety-related topics and Mineral is the only way we can get training down on a company of only 75 people, spread across 2,000 miles.

Thanks!



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Training						
Learn Course CatalogMy CoursesDashboard Search Courses Actions						
Course Name	Start Date	Due Date	Complete Date	Status	Actions	
Back Safety and Injury Prevention	May 1, 2020		May 29, 2020	COMPLETED	<i>i</i> <i>o</i> <i>📄</i>	
Behavior Based Safety (BBS)	Nov 11, 2022		Nov 11, 2022	COMPLETED	<i>i</i> <i>o</i> <i>📄</i>	
Bloodborne Pathogens (BBP)	Apr 15, 2020		Apr 15, 2020	COMPLETED	<i>i</i> <i>o</i> <i>📄</i>	
Bloodborne Pathogens (BBP)	May 1, 2020	Dec 31, 2023	May 4, 2022	COMPLETED	<i>i</i> <i>o</i> <i>📄</i>	
Cybersecurity Awareness for Employees: Security Awareness Essentials	Jul 3, 2020		Dec 1, 2020	COMPLETED	<i>i</i> <i>o</i> <i>📄</i>	
Cybersecurity Awareness for Employees: Security Awareness Essentials	Jan 19, 2022	Dec 31, 2023	Nov 29, 2022	COMPLETED	<i>i</i> <i>o</i> <i>📄</i>	
Defensive Driving	Jan 19, 2022	Dec 31, 2023	Mar 22, 2022	COMPLETED	<i>i</i> <i>o</i> <i>📄</i>	
Defensive Driving	Apr 27, 2022		Aug 22, 2022	COMPLETED	<i>i</i> <i>o</i> <i>📄</i>	
Driver Safety: Overview	Jan 19, 2022	Dec 31, 2023	Nov 29, 2022	COMPLETED	<i>i</i> <i>o</i> <i>📄</i>	
Forklifts: 01. Fundamentals	May 14, 2020		Jun 10, 2020	COMPLETED	<i>i</i> <i>o</i> <i>📄</i>	

<< < 1 of 3 > >>

RECORDS PER PAGE: 10

FIRs/GORs for 1st Quarter 2023 for CASS Meeting

GOR 202223 Flight Control Hardware not Torqued	4/8/2022/1400 Bell 206L4 N314MH Metro Field During the yearly inspection, the Main Transmission was replaced and so the flight controls were disconnected at the swashplate. The Collective Control Rod was removed entirely to facilitate XMSN removal. At install, the controls were connected and secured at the swashplate. The collective rod link was installed and secured only secured at the swash plate end. At the servo end, the hardware was installed but not tightened or secured. There was a double check by another mechanic. The aircraft was run for twenty minutes for the transmission install and leak checks. After this, the transmission was oil, oil filter, oil jets, and restricted valve, and chip detectors were inspected. During these inspections, the loose hardware on the collective control rod was discovered. Chief Inspector was then notified. Replaced nut on the Collective Servo end of the control rod. Nut was torqued and cotter pinned.
GOR 202224 ELT Battery Overheated	12/5/2022/1030 Bell 206L4 N319RH Metro Field During 12-month ELT check for ACK E-04, ELT Case for battery was noticed to be discolored, and battery showed zero volts. Determined that the battery had overheated and luckily did not cause a fire. Completed 12-month ELT check and determined the battery pack was the issue. New Battery pack was issued, and ELT was MEL'd
202224 Driven off road by trash truck	12/7/2022/1030 2019 Chevy Fairbanks While driving East on Vanhorn Rd, and Alaska Waste garbage truck coming from the opposite direction made a LH Turn in front of our company vehicle. Driver applied brakes and departed the roadway to avoid hitting the side of the truck. Maritime C2500 passed by the garbage truck on the left and struck a snowbank after leaving the improved portion of the parking lot (Custom Canvas Building) Truck came to a stop in very deep snow in the ditch. Garbage truck stopped and the Driver admitted fault and the trooper arrived and took statements.
GOR 202225 Cargo Hook Maintenance/Strip Threads on bolt	12/13/2022/1530 Bell 407 N407RH Fairbanks Hangar Apprentice was helping to install the cargo hook kit, specifically the main beam, and stripped threads on installation hardware by torquing to 25 ft/lbs. instead of 25 in/lbs. During correction of these stripped heads, mechanic attempted to drill through bolt heads to remove stripped bolts but drilled into the surface of the cargo hook beam. The beam replacement cost after damage was approximately \$15,000.00. New beam was ordered and replaced.

GOR 202301 Missing O-rings	1/25/2023/0800 Bell 407 N407RH Fairbanks Hangar During the daily airworthiness insp. It was found that O-Rings on the cross-head end of the tail rotor pitch change links were missing. The Cross head and P/C links on the tail rotor were measured and found to be out of limits. The missing O-Ring caused wear on both the cross head and P/C link ends. The cross head and P/C links were replaced with new parts
GOR 202302 Improper Blade Bolt Tension	1/27/2023/1000 B407 N309MH During the unfolding of rotor blades after hangar storage, crew found expandable bolts to be noticeably light on torque with minimal tension. After checking bolts were found to be at 15 ft lbs. Blade bolts were corrected to proper torque.
GOR 202303 Fuel Line not reconnected after refuel	3/13/2023/1400 BO 105 N327MH Fuel line did not get reconnected after defueling procedure, before attempting ground run. Fuel leak occurred and abort start was performed. Fuel system was inspected, and all lines attached properly. Ground run proceeded normally.
FIR 202228 Torque Transducer	11/1/2022 B407 N319MH While taking off from Franklin Bluff Repeater at 1515L Pilot began to pull power and had a little snow blowing around. He then continued to climb with no issue. At approx. 40ft AGL a 90-degree pedal turn was completed from a heading of west to a heading of north. Once this turn was complete the aircraft began to descend slowly. At this time, aircraft had about 10 knots of forward airspeed and the aircraft continued to descend. At approx. 5 feet off the ground, pilot continued to pull power until the descent was arrested and was level and gaining airspeed. This entire event took about 5 seconds. After climb and established in level flight Pilot noticed a check instrument light on the caution panel. Pilot also noticed an E proceeding the TQ on the indicator. Pilot did not at any time see any abnormal indications on any other instrument. He also did not feel anything abnormal with the aircraft, Aircraft just could not climb. During this takeoff aircraft had 2 passengers with a total weight of 465. There was also 40 lbs. of cargo and 801 lbs. of fuel. This brought the total weight of the aircraft to 4685lbs. The weather at Franklin Bluff was a light fog layer at about 200ft and greater than 2 miles visibility with no precipitation noticed and the temperature was -15C. Franklin Bluff is located at 900 MSL. Pilot was approx. 3 hours into the flight when this happened. After arrival at PS4 the mechanic and pilot noticed some ice on the leading edge of the rotor blades about 3-4 feet out from the rotor hub. There was no ice anywhere else on the aircraft. Besides the blowing snow on takeoff and landing pilot did not notice any visible moisture that he had flown through. Pilot also did not notice any ice on the aircraft during the walk around prior to take off at Franklin Bluffs. Performed aircraft inspection IAW 1.31 of BHT 407 maintenance manual. No engine inspections required on engine per Rolls Royce maintenance manual. Torque Transducer issued from Fairbanks.

FIR 202229 Hot start/Battery Issue	12/22/2022/1000N B407 N325MH During first start attempt, engine didn't light off after 30 seconds. Abort start was performed, and NG coasted down to zero. MGT was normal during attempted start sequence. Fuel pressure was observed above the red line during the first start sequence. Battery voltage was 25.2 volts prior to first start. Prior to second start, the battery voltage was 24.5. Initiated 2nd start attempt and engine spooled up normally and began to light off. Pilot observed flashes from rear of aircraft and aborted start. Observed flames from exhaust and repositioned rotor blades away from exhaust. Notified maintenance. Inspected exhaust and MR blade area for defects with none noted. Performed a cart start for troubleshooting which was normal. Removed and replaced battery.
FIR 202301 Hot Start	2/25/2023/1600 Bell 206L4 N314MH A hot start occurred during a maintenance run up. The throttle was open to idle when the starter was engaged. Pilot had checked the throttle, but not verified that it was fully closed by pushing the throttle lock button and rolling the throttle back to the off position. When the start was initiated, the instant light-off and high temperature made the pilot hesitate and tried to place the throttle to stop, although it was in the idle position, and he would have had to push the throttle stop button to roll it all the way off. The TOT exceedance light came on although the pilot was unaware of how high the temperature had gotten. Corrective action included replacing the burner can and igniter plug and the engine turbine section. <u><i>WE can't stress enough to use the checklist, use the checklist, use the checklist.</i></u> Aircraft Checklists. What Is Their Purpose Aircraft checklists have one purpose: Aircraft Checklists Prevent Pilot Complacency Aircraft manufacturers will produce checklists to allow new pilots to the aircraft type and seasoned pilots to correctly configure all the aircraft systems, navigation equipment & radios and for each particular phase of flight. Each phase of flight usually requires many aircraft systems to be changed to ensure the aircraft not only performs safely but also efficiently. By following a checklist for that particular flight phase there is no ambiguity as to whether the aircraft is set up correctly. Checklists are a list of items or functions that need to be inspected, set, or performed in a particular order so that nothing is left out. They are easy to use, make configuring the aircraft logical, and prevent systems or steps from being missed or incorrectly set.

FIR 202302 Cracked Windscreen	3/25/2023/1450 Bell 407 N308MH A 4.6" crack was spotted on the R/H Windscreen (corner) moments after landing at the Gulkana Airport for refuel. The crack was not noted at any time prior to this particular landing, including the morning preflight at GRB. So, it is not known when the damage occurred. The pilot did report hearing a single popping sound in the cockpit approx. one hour prior, in flight. The crack was just below the pilot's field of view. Upon postflight inspection, the mechanic carried out a temporary plexiglass window repair, but stop-drilling the crack and sticking the crack with lock wire then sealing the crack with epoxy sealant. Fairbanks maintenance was notified and a windscreen put on order.
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In my defense...the flight attendant said please familiarize yourself with all the safety features aboard the aircraft.



Safety Data Sheet of the Month: DEET (mosquito time again)

Nobody ever said that DEET was good for you, but we use it by the bucket here in Alaska. Please be careful this summer!

COLEMAN 100% DEET REPELLENT

Page 1 of 5



SAFETY DATA SHEET

•SECTION 1 - MANUFACTURER AND PRODUCT IDENTIFICATION•

WISCONSIN PHARMACAL COMPANY
1 Pharmacal Way
P.O. Box 198
Jackson, WI 53037

EMERGENCY NUMBER: 1-800-255-3924
(24 HOURS)

INFORMATION NUMBER: 1-800-558-6614
(BUSINESS HOURS)

PRODUCT NAME: Coleman 100% DEET Repellent
PRODUCT CODE: 743, 748, 7434, 7436
INTENDED USE: Insect Repellent

EPA REG. NO.: 79533-2
HMIS: Health Hazard: 1
Fire Hazard: 1
Reactivity: 0

PREPARED BY: J Buteyn

DATE UPDATED: 5/14/2019

Personal Protective Equipment: B

•SECTION 2 - HAZARDS IDENTIFICATION•

GHS Classification according to Hazard Communication Standard 29 CFR 1910.1200

Acute Toxicity-Category 4

Skin Irritant-Category 2

Eye Irritant-Category 2A

Aquatic Acute-Category 3

Signal Word:	Warning	
Hazard Statements	Harmful if swallowed	
	Causes skin irritation	
	Causes serious eye irritation	
	Harmful to aquatic life with long lasting effects	
Precautionary Statements	Do not eat, drink, or smoke when using this product	
	Avoid release to the environment	
	Wear protective gloves / protective clothing / eye protection / face protection	
	If on skin, wash with plenty of soap and water.	
	If in eyes, rinse cautiously with water for several minutes. Remove contact lenses if present and easily done. Continue rinsing.	
	If eye irritation occurs, get medical attention or advice.	
	Take off contaminated clothing and wash before reuse.	
	Dispose of contents / container in accordance with local/regional/national/international regulation for hazardous wastes.	

Mosquito Bites or DEET?

Which do you chose?

Pilots going North this summer please talk to Ashley or Lukia about getting some mosquito jackets and masks.



•SECTION 4 - FIRST AID PROCEDURES•

General advice:	First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.
If inhaled:	Keep patient calm, remove to fresh air, and seek medical attention.
If on skin:	Wash affected areas with water while removing contaminated clothing. Seek medical attention.
If in eyes:	Seek medical attention. Wash affected eyes for at least 15 minutes under running water with eyelids held open.
If swallowed:	Rinse mouth and then drink plenty of water. Do not induce vomiting. Immediate medical attention required.

•SECTION 5 – FIRE-FIGHTING MEASURES•

Flash Point:	144°C (291°F)
Suitable extinguishing media:	Water spray, carbon dioxide, dry chemical, foam
Unsuitable extinguishing media for safety reasons:	Organic compounds
Hazards during fire-fighting:	Combustion will produce carbon monoxide and carbon dioxide gas, and oxides of nitrogen.
Protective equipment for fire-fighting:	Wear a self-contained breathing apparatus and protective clothing. Normal fire fighting procedures may be followed.
Special flammability Hazards:	None.
Impact Sensitivity:	Product is not explosive when subjected to mechanical impact.

•SECTION 6 - ACCIDENTAL RELEASE MEASURES•

Personal precautions:	Use personal protective clothing. Avoid breathing vapors, mist, or gas. Ensure adequate ventilation. Isolate area and exclude unprotected and unnecessary personnel. Leather shoes that may have been saturated must be discarded.
Environmental precautions:	Notify proper authorities. Contain contaminated water/firefighting water. Do not discharge into waterways or sewer systems without proper authorization.
Cleanup:	Contain with absorbent material such as sand, vermiculite or clay, and dispose into chemical waste container. Dispose contents and container according to local/regional/national regulations.

•SECTION 7 - HANDLING AND STORAGE•

General Handling advice:	Breathing of vapor or mists must be avoided. Avoid contact with eyes or skin.
General Storage advice:	Store in tightly closed original containers in a cool, dry and well-ventilated place. Keep opened containers tightly closed and upright to avoid spills.

•SECTION 8 – EXPOSURE CONTROL AND PERSONAL PROTECTION•

The following applies to Industrial Settings only:

Advice on system design:	Ensure adequate ventilation. Read and follow label precautionary statements.
General safety and hygiene measures:	Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Immediately remove all contaminated clothing. Wash contaminated clothing before reuse. Hands and/or face should be washed before breaks and at the end of the shift.



Audits have been accomplished by Santos, with no findings. DOT will mostly likely come up to Fairbanks in late summer. Isaac and I still need to visit all the Alyeska sites. We'll see when we can fit that in...

Have a great summer season!

See You Soon,

Dennis

Dennis S. Busch
Quality and Safety Manager
safety@maritimehelicopters.com



1915 Donald Ave
Fairbanks, AK 99701
Tel 907.452-1197
Cell 907.750-9548
Fax 907.452-4539

**MARITIME HELICOPTERS
PUBLICATIONS
ROUTING MEMORANDUM**

DATE: 4/26/23

TO: All Employees

FROM: Quality & Safety

SUBJECT: 1st Quarter safety

Please complete the verification of receipt below and return this form to the Records Department in Fairbanks via email to faiaadmin@maritimehelicopters.com or by fax to (907)452-4539

BY SIGNING THIS FORM I ACKNOWLEDGE I have reviewed and will comply with the memo listed above

EMPLOYEE SIGNATURE

DATE



Maritime Helicopters

First Quarter 2022 Quality & Safety Notes



Hello from Fairbanks!

Summer is about to begin. Time to convert those winter survival packs with their heavy coats and mukluks to having water boots and as much bug spray as you can carry. Time to think about having a can of disinfectant in your aircraft for some mangy, summer fire crews getting in and out of the aircraft. You just never know what you are going to have to deal with as the season takes us out to more and more remote living. Emergency water in the aircraft? Might be something you want to think about.



**And did I mention the
mosquitos?**

The moral of this story is, if you are up here for your first summer...talk to those who have been up here a while.

Safety Data Sheet (SDS) of the Quarter

Simple Green



I've put the solvent Zep Formula 50 in the letter a few times because it is particularly nasty to the human body. Formula 50 is bad for the skin, eyes, and lungs. I just wanted to remind everyone that before Formula 50, there was good, old Simple Green. Maybe not as effective as Zep...But read the SDS...Not quite as nasty...

And remember, that we are still using 3E Verisk to view our Safety Data Sheets...Although "ask Siri" works too. Here is the 3E Website...

<https://www.3eonline.com/> you can use **Mechanics** username and **Maritime2015** password to view all features of our account.

Product Name: Extreme Simple Green® Aircraft & Precision Cleaner

This product is considered hazardous under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200). OSHA HCS 2012 Classification : Eye Corrosive / Irritant 2B OSHA HCS 2012 Label Elements **Signal Word: Warning Hazard** Symbol(s)/Pictogram(s): None required Hazard Statements: **Causes Eye Irritation**. Precautionary Statements: Wash hands thoroughly after handling. **IF IN EYES: Rinse cautiously with water for several minutes**. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice. Hazards Not Otherwise Classified (HNOC): No hazards not otherwise classified were identified Other Information: None Known.

Section 4: FIRST-AID MEASURES Inhalation: **Not expected to cause respiratory irritation**. If adverse effect occurs, move to fresh air. **Skin Contact: Not expected to cause skin irritation**. If adverse effect occurs, rinse skin with water. **Eye Contact: Rinse cautiously with water for several minutes**. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice. Ingestion: May cause upset stomach. Drink plenty of water to dilute. See section 11. Most Important Symptoms/Effects, Acute and Delayed: None known. Indication of Immediate Medical Attention and Special Treatment Needed, if necessary: Treat symptomatically

Section 6: ACCIDENTAL RELEASE MEASURES Personal Precautions, Protective Equipment and Emergency Procedures: For non-emergency personnel: See section 8 – personal protection. For emergency responders: Avoid eye contact. **Safety goggles suggested if splashing or misting is likely to occur**. Environmental Precautions: Do not allow into open waterways and ground water systems. Methods and Materials for Containment and Clean Up: Dike or soak up with inert absorbent material. See section 13 for disposal considerations. Section 7: HANDLING AND STORAGE Precautions for Safe Handling: Ensure adequate ventilation. Keep out of reach of children. Keep away from heat, sparks, open flame and direct sunlight. Do not pierce any part of the container. **Do not mix or contaminate with any other chemical**. **Do not eat, drink or smoke while using this product**. Conditions for Safe Storage including

Incompatibilities: Keep container tightly closed. Keep in cool dry area. Avoid prolonged exposure to sunlight. Do not store at temperatures above 109o F (42.7o C). If separation occurs, mix the product for reconstitution. Section 8: EXPOSURE CONTROLS / PERSONAL PROTECTION Exposure Limit Values: Triethanolamine (102-71-6) 5 mg/m3 PEL California Diethanolamine (111-42-2) 3 ppm TWA; 15 mg/m3 TWA Connecticut, Michigan, Minnesota, OSHA, Tennessee, Vermont, Washington 0.46 ppm PEL; 2 mg/m3 PEL California 6 ppm STEL Washington Appropriate Engineering Controls: Showers, eyewash stations, ventilation systems Individual Protection Measures / Personal Protective Equipment (PPE) Eye Contact: Use protective glasses or safety goggles if splashing or spray-back is likely. Respiratory: Use in well ventilated areas or local exhaust ventilations when cleaning small spaces. Skin Contact: Use protective gloves (any material) when used for prolonged periods or dermally sensitive. General Hygiene Considerations: Wash thoroughly after handling and before eating or drinking.

NFPA: Health – Eye Irritant, Stability – Stable Flammability – Non-flammable, Special – None



I am including this recent accident because it had the unusual coincidence of having an Airworthiness Directive about the Tail Rotor come out on the morning of the crash.

Mercy Flight helicopter crashed in New York state



The aircraft, a Bell 429, crashed during a training exercise near the town of Elba, claiming the lives of its two pilots, James Sauer and Stewart Dietrick

The Bell 429, identified as a Mercy Flight aircraft, took off from Genesee County Airport at approximately 11:15 hrs, with preliminary data showing that the helicopter was flying at around 2,000 feet (610m) for most of its flight.

The two pilots have been identified as James E Sauer, 60, a pilot for Mercy Flight, and Stewart M Dietrick, 60, a pilot with Bell Helicopter.

The aircraft was reported to have crashed at around 13:00 hrs on Tuesday 26 April near the town of Elba in the state of New York. The main portion of the aircraft was reported to be fairly intact, albeit with severe damage, and the tail was found separated from the main wreckage. A small fire was still burning when responders arrived but was subsequently extinguished.

Directly preceding the crash, witnesses reported hearing a 'large boom' before seeing the helicopter fall from the sky.

Both pilots had already died when the crash was discovered, and no other passengers were on board. No people on the ground were hurt.

The aircraft had been performing 'pattern work'

According to National Transportation Safety Board (NTSB) Investigator Aaron McCarter, the aircraft had been performing 'pattern work', as would be expected during a training exercise.

McCarter added that the NTSB has begun an investigation into the crash, and would document the wreckage, talk to witnesses and retrieve data from the aircraft's data recorder, with on-site work expected to last between three and five days. A preliminary report is expected after 10 days, with a full report planned in about 12 months.

The NTSB released a preliminary report in February on the [crash of another air ambulance helicopter](#) operated by Air Methods which crashed on 11 January.

ELBA, N.Y. (WHEC) — There is a case of incredible coincidence involving the deadly crash of the Mercy Flight helicopter near Batavia. On the same day as the crash, the Federal Aviation Administration (FAA) released a warning about the tail rotors on that specific model of helicopter.

The FAA said these warning reports are like car recalls. The FAA told me the timing of the report posted on the same day as the crash was coincidental. It says the helicopter that crashed was not specifically subject to the warning on Tuesday. But it had been in the past.

The day of the crash the FAA posted [an "airworthiness directive"](#) about brand new Bell 429s.

The helicopter that crashed was built in 2017 and it was subject to [the original FAA warning in 2019](#) that required "replacing certain pitch link bearings" in the tail. [National Transportation Safety Board \(NTSB\) investigators](#) said witnesses saw the tail separate from the body of the helicopter before it fell to earth.

"The wreckage is spread out over an area of about 2000 feet," said NTSB investigator Aaron McCarter.

"So when I found out that was a distance away from the aircraft—that's the first thing that came to mind, is the tail separated from the aircraft in flight," said Bob Engle, a pilot and aviation expert.

I asked him to read the FAA report.

"From the AD and the reports it appears that there is an issue with the tail rotor system," Engle said. "The Bell 429 is an extremely safe helicopter. I've flown them myself. It's an extremely reliable machine. But again, helicopters are very unforgiving and when an AD comes out or anything like that, it should be taken very seriously and looked at very closely."

More Info: <http://www.kathrynsreport.com/2022/04/bell-429-n507tj-fatal-accident-occurred.html>

And this aircraft had a history: <http://aerossurance.com/helicopters/hems-b429-nvg-iimc-loc-i/>

Exciting iPad News

With a lot of discussion about where to purchase aircraft fuel around the state, Molly has compiled a list of all the Fuel Vendors we *normally* use in Alaska...

Under publications, got to Catalog, then to Maritime Helicopters, then at the bottom. The file is called, "Statewide Fuel Vendors". Listed by Location, Date, Vendor Name, Phone Number, Contact Name, Frequency, Notes, whether we have an account with them, and email.

Should be a good resource.



Are we ready to review the Incident Reports for the first quarter of 2022?
Some of these spill into April as we had the CASS Meeting on 4/21/2022
Please give these your careful attention.

The Safety Management System (Incident & Accident Reporting)

FIRs/GORs for 1st Quarter 2022

FIR: 202201 Hot Start	1/20/2022/1030 Bell 206L4 314MH While conducting a normal start sequence, the TOT initially began to rise appropriately with the introduction of fuel through the throttle. A few seconds later it started to drop and didn't remedy with added throttle. Pilot immediately recognized they had forgotten to turn on the fuel valve. Diverting their eyes to the fuel valve, pilot reached up and turned it on and immediately knew it was the inappropriate action for the situation. The TOT was rising very quickly; pilot turned the fuel valve back off and returned the throttle to the off position as fast as she could to remedy the situation. The TOT needle momentarily touched the red dot and the overtemp light illuminated. Pilot notified the assigned mechanic, and we pulled the aircraft back into the hangar. Mechanic was Inside the helicopter bay when A/C N314MH was doing the initial morning start. Hearing the A/C starting & then shutting down Mechanic went outside & Pilot informed him of what happened in the start and seeing that the TOT Over Temp light was on. Crew brought the A/C back into the helicopter bay & mechanic called Fairbanks and reported of what happened to Chief Inspector. Mechanic extinguished the TOT overtemp light and it was decided that an inspection of the engine turbine was required. The inspection of the turbine burner can, liner, nozzle, and the 1st. wheel found no damage from the overtemp start. Completed the A/C leak check and MOC <i>Good that this one had a happy ending with no damage. And its not the first time that this particular mistake has happened. Obviously, the FADEC has no program on how to deal with a start that is initiated with no fuel and then fuel gets dumped at some random point in the start sequence. An aborted start costs nothing.</i>		I. Mackey
FIR: 202202 ECU Failure	2/20/2022/1215 B407 308MH On approach to Delta Fuel skid, the Restart Fault and FADEC Degraded lights came on. Pilot finished the landing and rolled the throttle to idle with no reduction in NR. He referred to the Emergency Check List. There was a note; It might be necessary to use the fuel valve to shut down engine after landing. Pilot stayed at flat pitch for 2 min 30 sec and rolled off the throttle. This shut down the engine. The FADEC horn and Fail, Degraded, Manual and Restart Fault lights came on. I contacted DoO and GRB Mechanic to notify the company. Aircraft was powered on. FADEC DEGRADE/FADEC FAIL lights illuminated. Used FADEC software on laptop to view faults. Codes as follows: PLADflt, PLA12Fflt, PLaitdFLT, HardFflt, RGRejFfltREG. Removed ECU and replaced with serviceable ECU. No Faults upon runup. OPS Check on Manual was good. Aircraft returned to service. <i>Is this the year of FADEC Failures? More to follow...</i>		I.Mackey

FIR: 202203 Moderate Turbulence/High Winds	2/21/2022/0930 Cherokee 6 901BD Wind Reporting approx. 13 kts prior to departing Homer. Phoned Bradley OPNS and they reported wind at 6 KTS. Experienced Moderate Turbulence enroute and the turbulence was increasing during approach. Visual on Windssock at Bradley Lake was 20KTs or Greater. Initiated Go-around approx. 100'AGL due to gusty winds and turbulence. Pilot <i>returned</i> aircraft to Homer		D. Buzga
FIR: 202204 Weather Below IFR Minimums	3/23/2022 Twin Otter N600MH After departing Pt. Thompson (PAAD) airstrip on 3/23 enroute to Deadhorse (PASC) the Deadhorse weather went below minimums with multiple aircraft in holding (weather was not forecasted to go below minimums). Crew diverted back to PAAD and held on the ground until weather conditions improved approximately 24 hours later. Crew returned to Deadhorse on 3/24 uneventfully. <i>Uneventfully is a great word.</i>		M. Hedlund
FIR 202205 Torque Gauge Faults	3/29/2022 Bell 407 N319MH During takeoff, at 200 ft AGL out of PS2 with one passenger, 75 lbs. of cargo and 946 lbs. of fuel Pilot noticed the torque was fluctuating between 12% and 36% with no power changes. He continued the climb up to 600 ft agl with a constant power setting of 95% NG. Once stabilized in level flight with an NG of 95% and an MGT of 618 degrees the torque continued to fluctuate between 36% and 70%. These fluctuations would occur every few minutes. The NG /MGT remained constant as well as all other indications. During fluctuations there were no changes in engine noise. These fluctuations lasted for approx. 20 minutes. After 20 minutes the torque stabilized and appeared to be indicating correctly for the remainder of the flight which was about 15 minutes back to PS4. After arrival at pump station 4 a normal shutdown was accomplished, and an LCD BIT was conducted on all gauges with no issues showing up. This issue occurred on the last leg of the flight which was returning to PS4. Flight time at the time of the occurrence was at 2.1. Total flight time for the day was 2.8 hours, day. Replaced airframe transducer for torque metering system. Conducted leak check. Pilot conducted OPS check with no discrepancies noted. <i>Read this one twice. A great example of an indicating system issue that could be confusing...</i>		I. Mackey

FIR 202206 FADEC FAULTS	3/29/2022/1130 Bell 407 N309MH During Battery Assisted, First start of the day, the pilot did not verify that the battery switch was turned on before removing the battery cart. Engine stayed running after the battery was switched on. No warnings or cautions were displayed before takeoff. Upon landing and shutdown, the FADEC DEGRADE was illuminated. Mechanic connected laptop and evaluated errors and reset FADEC for the next flight. During subsequent flight, just before aircraft was landed, the START FAULT and FADEC DEGRADE Cautions illuminated. For shutdown, the grip throttle was not operational. Aircraft was shutdown according to checklist with throttle not operational. Mechanic was called. <i>Procedures, Procedures, Procedures</i>	S. Slade
GOR 202201 Loose B-Nut	1/14/2022/1300 Bell 407 N407RH During daily airworthiness inspection, mechanic discovered oil residue on top of starter generator duct. With a black light, mechanic was able to trace the oil up to the #8 bearing oil line. He noticed the torque stripe was wet, so then checked the tightness of the B nut fitting and was able to get a slight turn (approx. 1\16-1\8"). Mechanic applied torque stripe (yellow) and cleaned up the remaining oil residue. Oil found in engine was not pooling. Fitting was tightened after inspecting for leak evidence. Tightened B Nut Fitting. No Defects. Added torque stripe. IAW: Rolls Royce M250-C47B MM <i>Wow, good eye, eh?</i>	I. Mackey
GOR 202202 Drive Shaft Bolt Not Torqued	2/7/2022 Bell 407 N407PA While performing the 10-25 hour after install torque check of the T/R drive shaft disk pack hardware one bolt on the forward short shaft was found to have no torque. The bolt was snug but could be moved by hand. Torque seal was applied to that bolt. Torqued nut IAW BHT 407MM. Put a torque check of 10-25 hours for the forward short shaft hardware in the logbook and on the ladder form. Performed toolbox talk on how to apply torque seal to prevent this type of occurrence. <i>B-Nuts and Bolts! Getting fingers on important joints on preflight is crucial. Keep an eye on that torque seal also.</i> 	T. Lapp

GOR 202203 Wrong Grease in B407 Swashplate	2/17/2022/0700 Bell 407s (ALL) We have been putting Thixosyn grease in the swashplates of our 407's based off the results from using Thixosyn in our 206 swashplates. It was brought to our attention that there is no reference in the Bell manuals that says Thixosyn is an approved grease for the 407 swashplate. We contacted Bell Product Support to see if we could get approval or a letter of non-objection, for use of Thixosyn in the 407 swashplates. Bell responded saying that, Thixosyn is not approved, and they will not give us a letter of non-objection based off what Bell engineers have told them, and that only Mobil 28 grease is approved for the 407 swashplates. Had a toolbox talk with all the mechanics about what had happened and what Bell said. We told everyone that they must use Mobil 28 in the 407 swashplates, also if there are any orange dots for Thixosyn on the swashplate, remove them so there is no confusion.		I. Mackey
GOR 202204 Broken Hangar Windows	Due to near continuous snow fall over the last two weeks a buildup of snow about three feet thick was stuck to the roof of the hangar. The snow usually sheds on its own but due to low temps that hasn't been happening this year. To force shedding we opened the attic door to allow heat into the area under the roof. The heat was successful, and the roof started slowly shedding but this created a large over hanging slab of snow, over the entryway to the hangar. The slab was about 3 feet thick and over hung the entrance by about 7 or 8 feet. The overhang being so far from the wall was putting an extreme torque load on the entryway roof causing it to bend and some of the supports to move slightly out of position. I decided to knock the slab down with a long 2x4. When the slab came down a piece of ice ended up rolling back off the snow pile and shattered a window in the survival suit room. Later another window was found broken in the changing room, however only the outer pane is broken on this window, and we do not know when this occurred. Snow was cleared from the entry way. A Styrofoam insert was cut to size, inserted, and sealed into the survival suit room window. No action was taken with the other window as the inner pane is still intact. Access to the outside of the windows is blocked by ice that is about 10 feet thick. As of this time only half the roof has shed so there would be considerable risk accessing the outside of the window due to no overhead protection. New windows will need to be installed at a time when outside of the windows can be accessed safely. We also repositioned the dumpster so that snow could fall away from the building easier.		B. Fell
GOR 202205 Fixed Wing Hangar Rash	2/20/2022/1530 Cherokee 6, N901BL While ground handling the PA-32 out of the hangar in order to make room to take his helicopter out, the pilot damaged the L/H wing tip when he struck the hangar door. Hangar doors were not fully opened, pilot failed to stop and confirm clearance. "Hangar Rash" Incident. Placed protective tape over damaged area to prevent water intrusion. A permanent repair will be carried out during next scheduled no fly day.		M. Stevens

GOR 202206 Rejected Fuel Shipment	3/22/2022 Galbraith Lake Fuel Skid A fuel delivery by STS to Galbraith Lake/PS2 fuel skid was rejected on 03/22/2022. After inspection of sample taken from the STS fuel delivery trailer it failed the "Clear and Bright" portion of the inspection. Unknown particles were found in suspension of fuel sample by the PS4 mechanic as well as STS delivery driver. PS4 mechanic notified Maritime Helicopters fuel manager Jeremy Lister and Chief Inspector Isaac Mackey after inspection was complete. Investigation Ongoing <i>Just a heckuva good job holding the fuel to a standard! The mechanic at Pump 4 received a cash payment award from Alyeska Pipeline Company for sticking to his guns on this one. It is a big decision to reject a \$60,000.00 tank of fuel!</i>		J. Lister I. Mackey
GOR 202207 Negative Safety	3/22/2022/0800 Bell 206L4, 314MH During preflight found negative safety wire on white main rotor blade hub static stop. Removed negative safety wire from white M/R hub blade static stop attachment bolts and installed positive safety wire. Attachment bolt torques were checked.		I. Mackey
GOR 202208 Missing Wiring	3/25/2022 Bell 206L3, 306MH While troubleshooting a vibration issue it was discovered that the 3pin aux power receptacle was not installed in the hat rack of 306MH. Removed access panel and found aux power receptacle sitting just aft of the hat rack. Installed receptacle and inspected for any damage caused by it not being secured. No damage found.		M. Stevens
GOR 202209 Drained Battery	3/23/2022 Bell 407, 407RH Mechanic left boost pump and battery on all night after performing a daily airworthiness check of the aircraft. Removed Dead battery on aircraft and replaced with serviceable battery from another B407 Battery failed capacity check and had to be replaced. Cost= \$4,113.59		I. Mackey

GOR 202210 Bent Co-Pilot Crushable Panel	3/28/2022/1400 Bell 407, 312MH During defueling operations, mechanics entered the co-pilot seat without the seats being installed. The "crushable" Seat Panel was bent, requiring replacement Panel was repaired IAW AC43.13. New panel was ordered, 6th month backorder...cost= \$1,050.00. To be replaced at next annual inspection		I. Mackey
GOR 202211 Blade Fold Pin Left Installed	4/5/2022/0945 BO 105, 326MH Maintenance was unfolding blades for a MHI training/checkride flight. The logbook was left unsigned on the pilot seat until unfolding was complete. Mechanic was also training two new mechanics on the procedure. After the blades were unfolded, I (Pilot) went to check the completed unfold and sign off logbook. On the red blade the horizontal (T) folding pin was left installed. The Mechanic was informed of the mistake which was corrected before pilot signed off the logbook/daily writeup. Pilot informed mechanic that the horizontal pin was left installed on the red blade. Mechanic went back out to aircraft and removed the pin and placed in in the blade fold parts bag with the other folding pin. Incident was discussed with the Chief Inspector and the decision was made to add a write-up in the logbook required each time the blade is folded or unfolded. Mechanic involved in the incident gave a Toolbox Talk the next morning regarding this folding class. A BO105 Blade Folding class will be scheduled.		S. Harper

Audits coming up include Oil Search International/Santos on the week of 16 May. We'll be discussing their visit at the Fairbanks hangar in detail as we get closer to that date. This will be the first outside audit of 2022.

See You Soon,

Dennis

Dennis S. Busch
Quality and Safety Manager
safety@maritimehelicopters.com



1915 Donald Ave
Fairbanks, AK 99701
Tel 907.452-1197
Cell 907.750-9548
Fax 907.452-4539



Maritime Helicopters

Third/Fourth Quarter 2021 Quality & Safety Notes



Hello from Fairbanks and welcome back to the increasingly, poorly named, third quarter quality and safety notes! Let's just say it has been a busy summer and fall and head right into winter. There have been a lot of happenings! Audits from NASA, but not in space...and Exxon, but not in a hole in the ground. Department of Defense has shown us militant concern. And Alyeska continues to pipe-in their audit questions. We've had a lot of training going on. The Alyeska pilots and mechanics had some heart stopping CPR & Defibrillator classes And ThinkHR classes continue to be a cerebral topic of discussion. Lots of topics to cover. We may have to go into a second edition. NAH, everyone loves an eleven-page safety letter!

September in Alaska had an Interior company "total" a McDonnell Douglas aircraft in a dynamic rollover event

McDonnell Douglas 369E, N125KW: Accident occurred September 06, 2021 in Delta Junction, Alaska

This is preliminary information, subject to change, and may contain errors. Any errors in this report will be corrected when the final report has been completed.

The National Transportation Safety Board did not travel to the scene of this accident.

Additional Participating Entity:

Federal Aviation Administration / Flight Standards District Office; Fairbanks, Alaska

Aurora Aviation Services Inc

<https://registry.faa.gov/N125KW>

Location: Delta Junction, AK

Accident Number: ANC21LA083

Date & Time: September 6, 2021, 17:42 Local

Registration: N125KW

Aircraft: MCDONNELL DOUGLAS HELICOPTER 369E

Injuries: 2 None

Flight Conducted Under: Part 135: Air taxi & commuter - Non-scheduled

Aircraft and Owner/Operator Information

Aircraft Make: MCDONNELL DOUGLAS HELICOPTER
Registration: N125KW
Model/Series: 369E
Aircraft Category: Helicopter
Amateur Built:
Operator:
Operating Certificate(s) Held: On-demand air taxi (135)
Operator Designator Code:

Meteorological Information and Flight Plan

Conditions at Accident Site: VMC
Condition of Light: Day
Observation Facility, Elevation: PABI, 1277 ft msl
Observation Time: 17:53 Local
Distance from Accident Site: 26 Nautical Miles
Temperature/Dew Point: 9°C / 3°C
Lowest Cloud Condition: Scattered / 2200 ft AGL
Wind Speed/Gusts, Direction: 5 knots / , 90°
Lowest Ceiling:
Visibility: 10 miles
Altimeter Setting: 29.96 inches Hg
Type of Flight Plan Filed:
Departure Point: Delta Junction, AK
Destination: Delta Junction, AK

Wreckage and Impact Information

Crew Injuries: 1 None
Aircraft Damage: Substantial
Passenger Injuries: 1 None
Aircraft Fire: None
Ground Injuries:
Aircraft Explosion: None
Total Injuries: 2 None
Latitude, Longitude: 63.999752, -144.73459 (est)

If you hadn't heard about this incident, it was pure dynamic rollover. If you aren't acquainted with that term, it might be because you work in one of our offices, or on the hangar floor, but the pilots get evaluated on this pretty much every year. I've always heard that if you can't describe the science of your own job to a complete layman or a 4th grader, then maybe you don't know your job that well. Okay here is my attempt to talk about Dynamic Rollover without making scientific drawings, nor relying on our stock, checkride answers! (Not that any of us would just walk around with memorized answers all day!!!).

Helicopters are made to go up. Usually that means that all parts of the aircraft should go in the up direction at the same rate! You should never leave parts behind. But sometimes something like a landing skid or landing gear gets stuck on or under something on the ground while you are trying to pick the aircraft up. This is very bad. What can happen is that the whole aircraft will try to go up, but pivot on the "stuck" part and do a side flip into the ground. This is very, very bad!

If you keep pulling power in, and one side of the aircraft gets "stuck" you will exceed a critical angle where all of your momentum is rolling instead of going in that great "STRAIGHT UP" DIRECTION.

The worst part is, that this can happen so quickly that the pilot can't recover once the aircraft starts rolling sideways! So how do you get out of this situation and how do you keep from getting into it in the first place? The answers are TOO EASY!

1. After you land, check your landing gear/skids to see if you may be caught on anything or maybe under a heavy snow layer
2. Pick up the aircraft very slowly! That way, if you are caught on something, you should never get to the angle where you would tip the aircraft. Also, if you pull in power slowly, you'll never have enough momentum to flip the aircraft if you do start tipping. You would just place the collective back to flat pitch and stop the excitement

and then shut down to try digging out whatever you hung up on in the first place.

If you are a pilot, PLEASE watch some of the numerous videos on YouTube and other sites on Dynamic Rollover and how to prevent it.

<https://www.youtube.com/watch?v=CzyRkP87NxE>

<https://www.youtube.com/watch?v=0O-SZ9QBwzE>

<https://www.youtube.com/watch?v=kVO7AsihmvE>

There are many more of these videos available!

A postscript to this article...

Just this Monday, I went out to a customer site where the snow was three feet deep with two inches of ice on top of the snow. This is a perfect condition to get into dynamic rollover! I landed a few times to crush the surface ice in case that icy top would stick me in the snow underneath as I picked up. Then, after landing, I stomped the snow down around the landing skids to break up the ice. When I took off later, I came up **EXCEEDINGLY** slowly to ensure the skids were clear of the ice layer. All's well that ends well. The other choice would have been to NOT LAND HERE.



Alaska wildlife note; there is an Arctic Ground Squirrel in this photo, trying to walk across the ice with great difficulty.

The Safety Management System (Incident & Accident Reporting)

FIRs/GORs for 3rd Quarter 2021

FIR: 202122 Weather Return/Weather below IFR Minimums	10/8/2021/1030 N600MH Today 10/08/21 approximately 10:30 after departing PAAD in route to PASC the weather dropped below landing minimums. Center informed us the Alaska jet was holding over MAJEF at 4000 feet and wanted to know our intentions. After assessing our options, we agreed the chances of extended delays over PASC would result in us exceeding our bingo fuel and cost us our alternate landing airport. I decided to return to Point Thompson with the passengers and wait for better weather.		M. Hedlund
FIR: 202123 No Altitude Reporting	10/10/21 1630 N600MH Deadhorse Today 10/10/21 approximately 16:30 pm after engine startup a CAS message (FLT Ctl B Fail) appeared. The QRH gave no guidance on clearing the fault, so maintenance suggested a complete power down and restart. This cleared the CAS Message. 10 Minutes later during climb out center called to verify our code and state no altitude reporting. While on the RNAV Z 24 approach to PASC at approximately 800 msl. We received multiple glide slope aural warnings followed by a full-scale deflection of the glide path indicator which then triggered multiple ground proximity warnings. With the runway in sight, we remained visual and landed		M. Hedlund
FIR:202124 Over Torque while slinging	10/16/2021/1020 N407PA Reef Island Pilot was bringing in the first load of propane barrels from the vessel to the Reef Island site, and believed he had enough altitude to clear the trees at the edge of the site but was too low and the propane barrels made contact with the trees. Pilot felt the contact, applied aft cyclic stopped the aircraft and checked the torque gauge. No limit was exceeded. Pilot then transitioned out the bubble window, positioned aircraft over the barrels, and pulled them up out of the trees. When transitioning back inside, pilot saw the Check Inst caution light was illuminated. Pilot reduced collective and saw the torque gauge indicated an exceedance had occurred. At this point he had the barrels so close to the deck I elected to place them there. After the crew unhooked load, the aircraft was landed on the adjacent pad. Removed M/R Head and mast assembly. Replaced mast assembly with serviceable, inspected M/R Blades, M/R heads assy, reassembled all IAW BH407MM, MOC'S completed and aircraft returned to service. <i>It is critical that we use the correct technique when conducting any operation. With your head in the bubble looking at the load, this is 100% preventable.</i>		D. Jones I. Mackey

GOR: 202106 Bad Fuel Sample	7/20/21 N312MH Fairbanks Hangar While sampling the forward and aft fuel cells, the pilot noticed excessive sediment after completion. The last sample on record in the cabinet was from 7/12/21. The aircraft had flown approximately 12 hours since the last sample. Fairbanks Lead Mechanic conducted toolbox talk on fuel sampling. Stress fuel samples in quarterly Quality & Safety Letter.		I. Mackey D. Busch
GOR: 202107 Refueling Spill	8/19/2021 N306MH Granite Point Tank Farm On the helipad at Granite Point, a passenger was helping the pilot add fuel to the aircraft with five-gallon jerry cans. While adding fuel, the "SPILL RESISTANT" nozzle dribbled fuel onto the aircraft and ground. A duckpond and diapers were deployed in response to the rest of the spill and the rest of the refueling happened without incident. The Harvest Energy representative described the spill as 1/2 cup that was spilled onto the ground. Enough that they said that they would need to dig up the contaminated soil and dispose. (Spill Awareness warning in this one. This was a half cup. Think of how small that is. For the Pipeline Company, the IMPACT reports start at "any amount")		D. Buzga
GOR: 202108 ENGINE FOD	8/5/2021 N316MH Bettles/Ambler Road During Post flight, found turbine shims on engine deck. Further inspection found 12 o'clock turbine top gearbox stud sheared off Removed 12 o'clock turbine, gearbox stud & replaced with serviceable		J. Lister
GOR:202109 Plow and Plow Truck Damage	10/6//2021/1300 2006 Chevrolet Plow Truck, Fairbanks Found damage to the RH side door...still functioning but dented on lower panel. Suspect damage occurred when plowing the ramp. need to warn plow drivers not to push too hard or accelerate into set-up. Or wet snow. A-Arms of Plow also damaged and had to be replaced <i>(In the Interior, we don't usually get this heavy type of snow. But you must be flexible. If the equipment is pushing too much weight, it's too much weight! Careful with these plow trucks!)</i>		I. Mackey

GOR: 202110 Sheet Metal Dents	11/8/2021/1730 N305MH Akutan At approximately 17:50 on 11/8/2021, during post-flight of aircraft, a dent was discovered in the skin of aircraft N305MH below the pilot's door, around STA 38 where the skin slopes to form the belly of the aircraft. The dent is about 1 inch wide and 1/8 inch deep, and appears to be non-perforating with no cracks or tears. This was not previously noted by the pilot or mechanic during pre-flight or daily operations, and the pilot did not experience any events during flight that would cause suspicion of damage. Corrective action will be sanding the affected area to remove damaged/flaked paint and repainting the area to avoid corrosion. Damage will be readdressed at next major maintenance.		S. Slade
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FIRs/GORs for 4rth Quarter 2021

FIR: 202125 Hot Start	7/15/2021/1030 N306MH B206L3 Pilot /Homer hot started aircraft; exceeded 10 seconds transient. Overtemp insp. performed. Burner replaced due to nozzle wear. More adjustments completed, did multiple starts. Start sequence good per pilot 306MH - 7/16/21 - Pilot Batt Cart 1st start really cool. Next start of acft Batt good. Acft flies then complains the next start was warm. Aborts 4th start. Completes 5th start with no issues. Aircraft started hot again. Asst. Chief Pilot confirmed. Adjusted until starting correct. Restarted cold, Pilot started while Eng. hot, starts were confirmed by both to be good. <i>(If the gauge says too hot, its too hot. Abort the start before it becomes an issue. We'll fix it!)</i>		S. Slade
FIR: 202126 Pilot Transmit Switch INOP	11/27/2021 N407PA B 407 Upon liftoff from parking, pilot tried to get clearance from tower. Pilot Transmit switch was inop. Landed and called maintenance. Passenger delay approx. one hour. Cleaned pilot transmit switch w/Electra clean and checked security of transmit switch. Ops checked XMIT switch OKAY, aircraft returned to service		I.Mackey
FIR: 202127 Generator overvoltage	12/6/2021/1030 N600MH Twin Otter Right Generator overvoltage shortly after takeoff, did not self-correct. Returned to Deadhorse to normal landing (First of several for this issue)		M. Hedlund

FIR: 202128 Generator Faults	12/20/2021/1330 N600MH At 1330LCL we taxied out for a flight from PASC to PMD with 1800 pounds of cargo and 1 pax when a Right Generator off CASS message was displayed. Conducted the QRH checklist for the failure. We were unsuccessful in correcting the issue and returned to the hanger. Multiple engine runs were conducted with maintenance in an attempt to rectify the generator issue but were unsuccessful in rectifying the problem. At 1855 the flight was canceled. Replaced Starter generator and reverse current relay, see LP 027227 and 027228 For complete details of maintenance performed	M. Hedlund C. Stout
FIR 202129 Generator Faults	12/24/2021/1230 N600MH PASC - PAAD After starting engines, I was unable to select R gen on. Generator display would indicate over voltage or correct voltage with no amps. We terminated the flight after discussing with maintenance Mission included Cargo and planned PTEP. No PAX onboard. 1. Replaced #2 gen control relay (K2), ops check unsatisfactory - after changing relay noticed RCR chattering 2. Replaced #2 Reverse current relay - Gen #2 observed to be overvoltage and will not load share amperage. #1 gen at 27.5 Vdc and 101 amps, #2 Gen at 30.2 Vdc and zero amps. 3. Started engines to parallel voltage regulators, #1 generator would not come online, and #2 generator would not come online. Both generators offline. 4. Replaced bus tie relay with no effect 5. Replaced r/h starter/generator with no effect. 6: Performed engine run, left generator function was normal, right generator was at 29 volts with no amps 7. Swapped #1 and #2 RCR's - Gen 2 29 volts, producing what appeared to be normal (did not take value) amperage. Gen 1 produced 28.5 volts and no amperage. The problem followed the reverse current relays. Left the known good RCR in the #2 spot 8. Replaced #1 reverse current relay both generators came online. I started looking at the overvolt as being caused by the RCR kicking offline and unloading the generator, rather than the system overvolting, and kicking the RCR offline. Once I started looking at that part of the diagram and shooting wires, I knew which components to begin looking at, and found the bad solder joint on the generator switch. <i>(Glad it's finally fixed!)</i>	M. Hedlund

FIR 202130 Chilly Aircraft	12/25/2021 N316 Bell 206L4 N316MH is a regular replacement for N314MH at Pump Station 5 which normally occurs in the winter months. N316MH does not have an Arctic Heater Kit installed. Customers continually complain of the lack of heat especially when in the rear seating area. These customers are briefed to wear their full arctic gear in the rear compartment so to stay warm. The Pilot has issues with the wind screens icing up due to the lack of heat coming from the defrost system. The occurrence of the wind screen icing up is really pronounced when the temperatures are in the -10 and above ranges. This issue has been brought up to maintenance leadership and operations numerous times over the past years. <i>(Under Review: Yes, we know that 316MH doesn't have the best heater)</i>		S. Slade
202131 Torque gauge shows exceedance	11/23/2021 N312MH Bell 407 Departed PS4 with 1 pax, 950# fuel, 100# Cargo, Gross wt: 4700#. Wx: Clear, Temp: -30F. Approximately 3 minutes after departure, while in cruise at 100kts/70%tq, check instrument light came on. Torque gauge showed flashing bars and number readout was showing erratic indications with 'E' indication. All other instruments showed normal operation and there was no indication of abnormal conditions. Turned around to return to PS4. Enroute to PS4, Torque gauge indications returned to normal with continued 'E' displayed. After landing and informing mechanic, instrument check indicated an exceedance of 134.1%. Connected laptop, showed Torque exceedance of 134.1%, and an additional exceedance of 121.5% when the helicopter was not running. Mechanic cleared exceedance indication. Mechanic was unable to find a cause. A maintenance flight was performed after inspecting the aircraft. Issue could not be duplicated. Turned over to maintenance for continuing diagnostics. <i>(a good example of how one inadvertent instrument reading can cause us a lot of work! Kudos to the crew for being thorough)</i>		I. Mackey
FIR: 202132 Gauge shows exceedance. Inadvertent use of transient torque	11/8/2021/1130 N407RH Bell 407 During flight to alternate LZ from initial attempt at Far Mountain, aircraft tried landing at Fox Relay. Visibility was approximately 2-3 miles and temperature was approx. -24C. While climbing up to Fox Relay summit (approx. 4,800 feet) and COMM site, aircraft windscreen started to ice. Pilot immediately turned the aircraft out of the icing and while turning, the Check Instrument light lit momentarily with an E in the Temperature gauge. Exceedance on gauge said 780 degrees upon shutdown (transient range). Aircraft was returned to base at MTF, and maintenance was alerted to possible use of temp. transient. Write-up was placed in logbook. Engine computer downloaded engine record with no exceedances of temp, torque, nor NG. Aircraft was returned to service. Icing was light <i>(A few comments here since this was my incident. The 20/20 hindsight</i>		I. Mackey

	<i>on this one is that when you are creeping up a mountain side with low visibility, instead of continuing at high torque with possible icing, the best bet would be to turn back around and go home. The other point is, that just because it is -24C, that doesn't mean that VFR icing isn't a real possibility. I've flown up here since 1994 and usually those lower temps mean that the icing won't be there. But in this case, the icing was there and it showed up very quickly. The windscreen would have easily been covered if I had continued up the hill.)</i>		
GOR:202114 Turbine Dents	11/11/2021 N306MH Bell 206L3 2,000 hr. inspection Found 2 large dents with cracks on the exhaust section of the turbine while removing the turbine for 2000hr. insp. The dents/cracks were under the fire shield.  <i>(cracks in an area we don't look at enough)</i>		
GOR 202115 Winter Driving Accident	11/24/2021 Dodge Truck 3C6UDS5oL2cg131642 New mechanic with very little time driving in the snow was driving the company, Dodge work truck by the Walmart in Fairbanks. He was merging into a turning lane for a left-hand turn and did not slow down enough, locked up brakes and hit the vehicle ahead of him. Police report number 2021-090736. Company truck will be fixed by Maritime in Fairbanks. Claim will be filed for vehicle which was struck. No injuries from this incident. <i>(Please see my mention of drivers training and some nice YouTube videos regarding winter driving, later in this letter)</i>		
GOR 202116 Fuel Tank in Delta Runs DRY	Delta Fuel Skid Fuel Tank in Delta was out of gas and the GRB aircraft had to come back to Fairbanks to refuel at the end of the Alyeska CMC flight day (no delay to customer). Column was added to the daily fuel status sheet for those using our fuel sites to subtract their fuel from the tank total. Seems to be working. <i>(regular, weekly fuel skid inspections MUST, MUST, MUST be done!)</i>		
GOR 202117 Company Truck Accident	Chevy Silverado Pickup (surprised it can even run) License number GKD404 Road Conditions Ice and Snow Road Lighting: Dark unlit Driving east along Ciechanski Rd Employee had turned on to Bridge Access Rd toward Kenai from Kalifornski Beach Rd. Driving about 40		

	to 50mph he noticed the road curving to the left up ahead. Thinking the road to be Bridge Access Rd and relatively straight he eased off the accelerator and prepared to navigate the curve. As he approached farther to the curve, he realized it was a sharp 90 degree corner and applied the brakes realizing he was travelling too fast to successfully navigate the turn. Driver skidded through a small snow berm sideways down off the road and the vehicle rolling onto its roof. Filed under company insurance and awaiting vehicle status		
GOR 202118 Transmission Oil Leak upon Shutdown	11/21/2021/1530 Bell 407 N407RH During Shutdown after a 1.4-hour customer flight, heavy drip of oil was noticed from the XMSN deck on postflight. Cowlings were opened and a large amount of XMSN oil was on the XMSN deck. Write-up was placed in logbook and maintenance notified Oil line was discovered to be loose from annual maintenance. <i>(loose lines and B-nuts are easily checked on daily inspection and preflight. Please continue to check!)</i>		

Vehicle Accidents/Incidents

Since the start of winter, we have had two aircraft incidents involving slippery roads/winter driving. We've gotten off easy since nobody was hurt! But winter driving is hard, even if you have done it before. PLEASE slow down and take control of your driving. As I write this, the roads around Fairbanks have at least two inches of solid ice on them. I drive in from North Pole each day at about 48 MPH and there are still people driving to drive 70 MPH in the left lane which is arguably worse on the ice and snow. If 48 mph seems too fast for conditions, slow down to 41 mph or 38 mph or whatever speed gets you to your destination safely.

When it comes right down to it, speed doesn't get you to work on time. Advanced preparation and leaving in time gets you to work on time. I'm about 16 miles from Maritime, so if all that was enroute time, that would be 17 minutes and 27 seconds to get to work at 55 MPH. If I only could do 40 MPH, it would take just 24 minutes. **Six minutes and 33 seconds more than the posted speed limit!!**

So you see the point I am making here. If you find you are going to be late because you left only 17 ½ minutes for work in the snow and ice? Go ahead and take your lumps and be late. And then leave 7 minutes earlier tomorrow.

I'm looking at some places in Fairbanks for a big icy parking lot or practice space for those whom haven't driven in Alaska conditions before...In the meantime, here are a couple of winter driving videos...

<https://www.youtube.com/watch?v=TZQXuWzBC18>

(copy and paste to browser)

Audits coming up from Star Aviation (for our insurer), ConocoPhillips and more! I'll be taking an annual look at the Homer base, during the week of the 7th of Feb. Everyone keep on your toes and make sure your work areas are spotless. (my desk does not count in that alert).

See You Soon,

Dennis

Dennis S. Busch
Quality and Safety Manager
safety@maritimehelicopters.com



1915 Donald Ave
Fairbanks, AK 99701
Tel 907.452-1197
Cell 907.750-9548
Fax 907.452-4539

AND DON'T BE THIS GUY!

