United States Department of Agriculture
Forest Service
Aviation Safety Alert

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Subject: Aircraft Pre-Flight Inspections

Area of Concern: Aviation Operations

Distribution: Aviation Operations

Discussion: In a review of SAFECOM's reported over the last month we noticed a trend with numerous incidents that would have been prevented with proper pre-flight inspections. It appears that folks may be experiencing fatigue, getting complacent and allowing the mission to drive them.

A few examples are: numerous fuel caps loose or coming off with one lost in flight, doors ajar and one door opening in flight, loose windows and windows coming off in flight, cowling of engine coming off in flight, two instances where pilots did not validate being fueled by vendors and one case where an engine inlet cover was not removed before the engine start was attempted. Many of these easily could have had severe consequences. Here are a few excerpts taken from the SAFECOM's:

- Upon arrival, it was discovered that the fuel cap had been lost in flight, along with an unspecified amount of fuel.
- Aircraft departed and when turning crosswind with the right wing low the pilot noticed both fuel caps were loose and fuel was siphoning from tanks. Pilot continued turn and planned to land down wind. ATGS radioed to dispatch "returning to field." Landing was uneventful.
- After lifting off the Helibase to perform a hover-fill of the bucket, the Parking Tender and the fuel truck driver noticed the fuel cap was loose. The Parking Tender directed the pilot to land after notifying the hover-fill personnel to leave the area.
- Aircraft Emergency exit windows on both sides of A/C fell off while in-flight. Both windows fell off while A/C was performing fire bucket operations; windows were noted as missing when A/C went to refuel.

- At engine shutdown an employee looked back and noticed that the baggage compartment door was ajar. Upon inspection of the contents it was discovered that one bag was missing. I immediately called and left a message hoping the bag had been left on the on the ramp. Within five minutes I was approached and asked if we were the ones scattering personal effects all over the taxiway. We thought we were effectively dealing with the set backs, but the stress and occasional confusion that comes with things not going as planned probably contributed to all of us neglecting our responsibility to provide a pre-flight safety check of the aircraft. Could a maneuver in flight have changed the aerodynamics that kept the baggage door pinned to the fuselage. Another half inch of opening and the door would have blocked the flaps from going in the down position.

- When the ship was approximately 1.5 miles out, personnel on the helibase noticed something drifting away from the aircraft and falling to the ground. The pilot was immediately notified and returned to the helibase. The lower cowling of the #1 engine had ripped away, causing damage to the rotor drive shaft cowling as well. No damage to the tail or main rotor system was found by the mechanic.

- At 1115 the left engine started running rough and we lost all engine power within two minutes. While trying to determine why we lost one engine the pilot discovered we were out of fuel. Our first intention was to try and return to home base with one engine out. Directly below us we located a closed airstrip on Forest Service ground. The pilot executed a slow left bank turn while descending to the airstrip and we landed without incident at 1125. The previous evening the pilot had requested that the aircraft be fueled by first thing in the morning. The pilot had arrived early this morning and cleaned all windows, leading edge of all wings, and pre-flighted the aircraft. With the aircraft sitting on the ramp the fuel tanks still registered full. The vendor did not refuel the aircraft as thought, and the desk receptionist informed him that the receipt from fueling was still in the truck and he could get it later.

- At the end of a standby shift the ground crew had just finished plugging the aircraft with intake plugs, pitot covers and prop stops. The pilot was inside the cabin when the ramp manager approached with a dispatch to a fire. The pilot stayed inside the plane as the mechanic unplugged the aircraft. The pilot watched as the mechanic traveled around the airplane grabbing the plugs and other equipment and placed the items into the plane. As the pilot began to start the right engine the ATS (Air Tactical Supervisor) yelled "stop engine" and the ramp manager was giving the stop engine sign. After aborting the engine start they discovered an engine plug still in the right engine intake. Even thought there was no damage to the engine there are several lessons to be learned from this event: 1. The pilot in command is responsible for the pre-flight of the aircraft. It would have only taken a few moments to perform the task and ensure a proper preflight. The pilot described this as "a classic example of "complacency." 2. The use of ramp managers and other personnel are invaluable to the safety of the aircraft and the aircrews. This situation shouts CRM. In this case the ATS was watching the ramp manager as the pilot was looking at the flight panel. Using the two-crew members in the ASM role caught the engine stop signal way before the pilot would have if it had been a single pilot operation.

Recommendation: Here are some pre-flight items that should be standard checks: (Note: These are not a replacement for the aircraft's checklist)

- Fuel:
  - Check level visually and/or with a dipstick.
  - Check Fuel caps for security.
  - Check fuel drains and sample for contamination.
  - Check fuel receipt for quantity, type and grade delivered.
- Oil:
  - Check oil level/quantity and secure cap.
  - Secure inspection door.
- Cargo:
  - Check external doors for security.
  - Ensure internal and external cargo is tied down and secure.
  - Comply with Hazardous Materials Guide.
- Doors & Windows:
  - Make sure all doors are secure prior to departure.
  - Check windows, latched and in track.
- Seatbelts:
  - Look for belts hanging outside of doors.
  - Ensure proper wearing of belts and shoulder harnesses.
  - Check seatbelt condition; look for fraying, and buckles that don't work properly.
- Tie downs and Covers:
  - Make sure tie downs and covers are removed and properly secured.

We need to be more vigilant in pre-flight inspections. Work together to ensure a safe flight. A good pre-flight by the pilot and a look around by all personnel involved in the mission is effective Crew Resource Management (CRM). **SLOW DOWN, LOOK AROUND AND CROSS CHECK EACH OTHER.**

This Safety Alert has been coordinated with the DOI, Office of Aircraft Services (OAS).

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