CALLBACK
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Rotorcraft Roundup

Helicopters and fixed wing aircraft differ in form and function, but the basic principles of safe operation apply to the operators of both types. No matter what sort of aircraft you fly, everyone should be able to learn a lesson or two from this roundup of ASRS helicopter reports.

A Dimly Lit Dent

Every aircraft walk-around inspection subsequent to the first inspection of the day should be just as thorough as that first preflight. But, as this BK-117 pilot discovered, even with a number of thorough inspections, sometimes the lighting has to be just right to bring a problem to light.

■ *I conducted a pre-flight in the morning upon reporting for my shift and no aircraft deficiencies were noted. I received a request for a patient pick-up at one hospital for transport to another hospital. I conducted a pre-start walk around with no deficiencies noted and flew to the [first] hospital. After shutdown, I conducted a post-flight walk around with no deficiencies noted. I loaded the patient, conducted another pre-start walk around with no problems noted and flew to the receiving hospital. After shutdown at the receiving hospital, I conducted a post-flight walk around and serviced the helicopter.*

During my pre-start walk around prior to returning to base, I noted a shadow on one of the tail rotor blades that "didn't look right." Upon close-up visual examination and moving the blades to just the right position in relation to the sun, I noted a dent in the blade that, when touched, felt to me like a delamination in the fiberglass outer shell from the inner foam core of the blade itself.

If something does not look right, feel right or smell right; stop, assess the situation and determine a course of action. On this day, I personally looked at the tail rotor on five separate occasions and did not notice any deficiencies. During the execution of the sixth walk around of the day, the sun was at just the right angle to create a shadow that allowed me to discover what could have been a catastrophic flaw in the tail rotor. Interestingly, one hour later, it took three of us to find the dent again since the sun had moved enough to create a different lighting angle on the blade.

Contrary Controls

Another BK-117 pilot also missed a discrepancy on preflight, but this item should have been a little more obvious. Even so, the reporter wasn't the only one to overlook the problem.

■ *I arrived at work for the night shift..., drove to the helipad and performed what I thought to be a thorough preflight. It was dark and it was misting due to an approaching thunderstorm. I used a flashlight and I paid particular attention to the maintenance that had been done that day involving an engine fuel pump replacement. I was aware that the dual controls had also been installed that day per the logbook entry and that both the fuel pump and dual control installation had been checked by the day shift pilot. I completed the preflight noting nothing out of the ordinary. I did not fly during my shift as the weather was below my minimums.*

After leaving work the following morning, I drove home and later that day received a call from the day shift pilot informing me that a mechanic had installed the left cyclic backwards and that we had all missed it. The day pilot found the error prior to any damage or injuries while preparing to depart on a patient transfer flight.

Suggestions: 1. Each pilot should sit at the positions that have a set of controls during preflight to ensure that the controls are mounted correctly and a full flight control function check (at each station) should be performed each time the controls are removed and reinstalled. 2. To completely avoid this error it may be appropriate for the manufacturer to re-engineer the way flight controls are mounted so that they can only be installed the correct way. It could have been a serious problem had this error not been detected prior to takeoff. If the left seat was moved forward, movement of the cyclic could be hindered by contact with the seat.

Unplanned Tour Stop

Having enough fuel to set the helicopter down with power in a suitable field mitigated the outcome of this fuel miscalculation. However, the lesson learned by the R44 pilot is still critical.

■ *Customers were being loaded and unloaded without engine shutdown in order to save time and enable us to complete the tours within their time and budgetary constraints. Tours were also taking longer than anticipated…. As the last group was being loaded, I should have done a more complete assessment of fuel quantity*

and reserves and shut down to obtain more fuel…. The low fuel light illuminated approximately eight miles from the airport…. I found a flat place and set down to call for fuel.

I overemphasized weight considerations, not filling the tanks completely before the tour group arrival in case the passengers turned out to be heavy. Extensive experience in the R22, for which five gallons is an adequate fuel reserve, and less cross country/long flight experience in the R44, for which that reserve is inadequate, made me tend toward an insufficient estimate of what I needed. The wish to keep the tours moving along and save my customers time and money made me rush both moving forward with the first tour (when I could have stopped to fill the tanks after realizing that we were not weight limited) and also made me reluctant to stop in the middle of the series of tours.

Unexpected tasks in the office that morning…filled up much of the two hours of preparation time I had allotted myself to prepare for the flight. Rushing through the preflight phase made me more likely to miss the error I had made in the fuel calculation.

Who's Got the Aircraft?

A number of factors, including a classic case of miscommunication, came together in a chain of events that led to a near midair collision for this helicopter crew.

■ *The Pilot Flying was in the right seat. I was the Pilot Not Flying in the left seat with my head down energizing and programming equipment. We were cleared to cross below the approach path from west to east and, "Report traffic on final in sight." The Pilot Flying asked me, "You got the aircraft?" I said, "Uhh, yeah" and took over the flight controls. A Cessna 412 broke out of the overcast and apparently did not see [our] helicopter. We took no evasive action. The Cessna cleared the top of the helicopter by just a few feet. The right-seat pilot remarked, "Wow, that was close." I responded, "What was close?" I never saw the Cessna. I thought the right-seat pilot wanted me to take control for some reason. He thought that I was confirming that I saw the conflicting aircraft and would take evasive action. Lesson learned: Saying, "You got the aircraft?" only confused the issue. "Do you have the traffic?" would have been a better way to say it.*

A review of all ASRS helicopter database records from January, 2006 through August, 2011 revealed that Near Midair Collisions (NMAC's) accounted for 18% of the records. By comparison, only 7% of comparable fixed-wing aircraft records for the same period involved NMAC's.

While it is not possible to make a direct comparison between the fixed and rotary wing statistics due to differences in operations and perhaps the time spent in higher threat environments, the difference warrants attention by helicopter operators and Air Traffic Control.

In addition to the last report in this *CALLBACK*, 10 recent helicopter NMAC incidents are listed below with a brief description of the event and the report's ASRS Accession Number (ACN). The full reports can be viewed by using the Database Online Search feature and entering the ACN at: http://asrs.arc.nasa.gov/search/database.html

■ *A helicopter pilot reported a near miss with an airplane at about 1,700 FT during a VFR departure with no ATC traffic reports or communications from the other aircraft.* **ACN 959905**

■ *A helicopter instructor pilot reported a near miss with an agricultural helicopter in a rural California area.* **ACN 959755**

■ *An instructor and his student aboard a private helicopter experienced a close encounter with a military helicopter.* **ACN 959747**

■ *A news helicopter pilot covering an auto accident reported a near miss with a C172 whose pilot was irritated by the helicopter's presence.* **ACN 957774**

■ *A helicopter pilot at 6,800 FT had a near miss with a non-radio tow aircraft and glider under tow.* **ACN 957608**

■ *A helicopter pilot at 650 FT MSL experienced an NMAC with a Cessna taking off. The reporter had received a clearance through the Class D and a squawk two minutes prior to the incident. Evasive action was taken by both aircraft.* **ACN 956485**

■ *A helicopter pilot on a practice ILS reported a traffic conflict with a training aircraft which overtook him.* **ACN 952309**

■ *A medevac helicopter pilot reported airborne conflict with another opposite direction helicopter at 5500 feet.* **ACN 946265**

■ *A VFR helicopter pilot arriving perpendicular to the active runways reported an NMAC with a VFR CE525 on a low missed approach.* **ACN 941070**

■ *A Controller described a conflict between a helicopter on an ILS approach executing a missed approach and traffic on the ILS to another airport.* **ACN 936206**

ASRS Alerts Issued in November 2011	
Subject of Alert	**No. of Alerts**
Aircraft or aircraft equipment	5
Airport facility or procedure	1
ATC equipment or procedure	4
Maintenance procedure	4
TOTAL	**14**

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November 2011 Report Intake	
Air Carrier/Air Taxi Pilots	2715
General Aviation Pilots	932
Controllers	612
Cabin	241
Mechanics	118
Dispatcher	49
Military/Other	23
TOTAL	**4690**