

# CALLBACK

From NASA's Aviation Safety Reporting System



Issue 539

December 2024

## ★ EVERYDAY HEROES ★

Aviation heroes can be found in every aviation working group. Most, however, may seldom experience a situation that taxes their ultimate capability. Whether aviation is a vocation or avocation and you are a professional or enthusiast, excellence, dedication, exceptional performance, and professionalism are often exhibited during flight operations. Heroes are made the instant one reaches deeper into oneself than previously done or thought possible to unleash superior performance and professional grit needed in the moment.

With this issue, ASRS offers a group of reports that extol excellence, exceptional performance, and professionalism. Characters may not appear like supermen or wonder women, and heroes may be unsung, but their actions and accomplishments do stand out. They are the devoted aviation professionals and enthusiasts who continually train for the worst and hope for the best, day in and day out.

This month, *CALLBACK* sends you Season's Greetings as we present incidents that reveal some heroes who arguably deserve the spotlight. Recognize the heroes and enjoy their stories as aviation devotees practicing their craft, which sometimes demands six-sigma performance. Then rhetorically ask yourself, "If that caliber of performance is what we all aspire to and train for, what is really average about aviation?"

### Part 91 – Mechanically Speaking

This FBO repair facility Aviation Maintenance Technician reported a serious safety issue. The investigation and level of concern clearly indicate superior professional dedication to the safety of flight and aviation itself.

AMENDED: The mission of ASRS is to de-identify and disseminate safety reports to the proper authorities who can investigate and determine if an action is warranted. In this case, after publication of the December 2024 *CALLBACK*, the fuel producer contacted us stating that they disagreed with the accuracy of the report and believed the fuel used by the reporter was not UL94. They stated that "UL94 has the same hydrocarbon chemistry as 100LL (absent tetraethyllead) and accordingly ASTM results show the fuel does not react to cadmium plated metals. ASTM requires every batch of UL94 to report a (more prone to react) copper strip corrosion test result – confirming there is no adverse reaction of UL94 to metals."

■ *Increased frequency of maintenance [is] required on carburetors and fuel injector systems due to suspected cadmium particulate matter being found in float bowls, fuel injector nozzles, fuel screens, and fuel jets. This impacts fuel flow and metering, impacting engine performance due to restriction of fuel flow. This phenomenon was observed on aircraft during unscheduled maintenance due to complaints of loss of power and also during routine scheduled maintenance. Particulate accumulation [was] also found in check valves, auxiliary fuel pumps and mechanical engine pumps. Clumps and screen obstruction [were] observed. This has been observed over the past four months, since aircraft started using Unleaded 94 Octane (UL94). The exact source of the cadmium is not definitively determined at this time. We suspect the cadmium is held in suspension in the fuel, and in addition to accumulating and clogging the fuel system, some particles are entering the combustion chamber with unknown impacts on cylinders, valves, and exhaust systems. A simple experiment was conducted. Aviation cadmium bolts were placed in [100 Octane Low Lead] 100LL and UL94 for a few hours. The bolts in 100LL remained intact with no change. The bolts in UL94 showed flaking with particles suspended in the fuel, sparking. Cleaning of all fuel parts in the fuel systems clears the problem, but it reappears. We are concerned since we have limited experience with UL94 and have not seen anything like this in our careers, which total over 50 years together as A&P and IA [Inspection Authority Mechanics].*

### Part 121 – A Hot Cabin Potato

This A321 Flight Attendant (FA) was confronted with a feverish problem during landing preparations. Great instincts, quick actions, improvisation, and outstanding teamwork likely prevented a more serious inflight condition.

■ *As we were preparing the cabin for landing...a passenger stated that she needed assistance. She was going through her purse and noticed her external charging battery was doing something weird. I noticed it was hissing, and [it] looked like smoke was coming from it. I ran to get a fire containment bag and asked FA A to follow with water bottles. He only had one, so we went to [the] seat and placed the battery in the bag along with water... Then I went to*

the aft cabin to get more water. FA B assisted me in opening water and placing it in the bag. ... I closed the bag, and we placed it in the cart. FA C kept checking on the bag for the remainder of the flight. We landed and the Fire Department removed the bag from the plane before deplaning.

## Part 121 – Through the Controller’s Eyes

A Nashville (BNA) TRACON Controller relates a few moments in the life of a professional Air Traffic Controller. Ensuring safety and separation, constant vigilance and split-second decision-making likely averted a midair collision.

■ *A non-participating, non-ADS-B, 1200 VFR code [aircraft] was observed violating the Class C airspace at 3,500 feet. The aircraft proceeded toward the final approach course for Runway 20L, where six aircraft were being sequenced onto final. The nonparticipating aircraft appeared to remain at 3,500 feet, so I descended all aircraft into BNA to 2,500 feet in order to go underneath the VFR traffic that was heading toward a 12-mile final. Aircraft X was on a 12-mile final when that VFR traffic was overflying, northwest bound, and starting to descend. I called traffic, and Aircraft X had the traffic in sight. I then called traffic to the preceding Aircraft Y and told them to expedite their descent to 2,500 feet. At that time, the VFR target started descending quickly and turning directly up the final for Runway 20L, head on to Aircraft Y. I then issued a traffic alert, probably the best one you will ever hear in your life, and told Aircraft Y to stop their descent and to turn to heading 110 immediately. I did not cancel their approach clearance because I felt the traffic alert and avoiding a head on collision in 10 seconds was slightly more important. I then told the preceding traffic to Aircraft Y, [which was] Aircraft Z, to turn and stop their descent to avoid the VFR traffic and keep the sequence. No RAs and no deaths were reported.*

*Expand the Class C and start working on finding the non-ADS-B aircraft that violated the Class C. Although the aircraft violated the Class C, the almost near midair occurred outside the Class C.*

## Part 121 – Pilot ↔ Dispatch ↔ ATC Teamwork

This Captain encountered a safety hazard that lasted the entire flight. Dispatch became the critical link between the pilots and ATC, as ingenuity, coordination, and teamwork combined to overcome a paralyzing handicap and safely recover the mission.

■ *My First Officer and I...taxied out to Runway XXL. On the takeoff roll, as soon as the main wheels got airborne...*

*we heard an incredibly loud squeal over the radios and intercom. It was the same loud squeal we hear when the Ramp plugs in a faulty headset. It was so loud, we were unable to hear ATC, communicate with each other over the intercom, or communicate with the flight attendants. We immediately used hand signals to communicate, raising the landing gear and flaps in accordance with the AOM. As soon as we were clean and safely away from the ground, the First Officer turned right to 360, continued the climb to 4,000 feet, engaged the autopilot, and we began troubleshooting. We tried unplugging each individual headset as well as unplugging both headsets and selecting the overhead speaker. We also tried selecting COMM 2. No matter what we did, the continuous loud squeal remained. So, we unplugged our headsets and began making all radio transmissions in the blind utilizing the hand-held microphone. We squawked XXXX and proceeded on our cleared route...and began our climb to FL280. We sent Dispatch a message and had her coordinate with ATC to make sure we were cleared to FL280. Dispatch also relayed our clearance to descend [and] cross ZZZZ1 at 9,000 feet, as well as our clearance to descend to 4,000 feet and shoot the [approach for] Runway XYZ. Dispatch also contacted ZZZ1 Tower and relayed our clearance to land.*

*Because I was unable to verbally communicate with ATC or the flight attendants, I determined this could develop into a safety of flight incident, so I began looking for ways to lower this risk. Because the QRH does not address this scenario, in accordance with the AOM, I told the FO I'd like to pull the Circuit Breaker (CB) to COMM 1 and then COMM 2 to see if we could get rid of the squeal. She agreed it was worth a try. In accordance with the AOM, I first pulled the CB to COMM 1. We plugged our headsets back in, but the squeal remained. So, I reset the CB to COMM 1 and then pulled the CB to COMM 2, but the squeal remained. At cruise, the flight attendants called us. Since I was unable to communicate with them, I got up out of my seat, looked through the peephole, and opened the door. I told them what was going on, asked them to secure the cabin, and give me two chimes when they were seated. They complied with this and later gave me two chimes to let me know they were seated. The FO and I briefed the [arrival] to XYZ, then completed the Descent and Approach Checklist. After landing on XYZ, we cleared the runway and came to a stop. I called Tower on my cell phone and received our clearance to taxi to the gate.*

*After pulling into the gate, I made two logbook write-ups, contacted Dispatch, talked to the Chief Pilot on Call, the Company, and the local ZZZ1 Chief Pilot.*

ASRS Alerts Issued in October 2024	
Subject of Alert	No. of Alerts
Aircraft or Aircraft Equipment	2
Airport Facility or Procedure	4
ATC Equipment or Procedure	2
Maintenance Procedure	1
Hazard to Flight	2
<b>TOTAL</b>	<b>11</b>

539  
 A Monthly Safety  
 Newsletter from  
 The NASA  
 Aviation Safety  
 Reporting System  
 P.O. Box 189  
 Moffett Field, CA  
 94035-0189  
<https://asrs.arc.nasa.gov>

October 2024 Report Intake	
Air Carrier/Air Taxi Pilots	4,950
General Aviation Pilots	1,677
Flight Attendants	1,632
Military/Other	885
Controllers	260
Mechanics	243
Dispatchers	235
<b>TOTAL</b>	<b>9,882</b>