CALLBACK

From NASA's Aviation Safety Reporting System

ASRS

Issue 503 December 2021

Every pilot likely recalls that first flight which produced feelings of exhilaration and awe, blended with anticipation of learning to move machine through air on their own. Beyond that lie additional certificates and ratings, all of which require the expertise and guidance of flight instructors to obtain. The journey is truly a team effort, rich with learning opportunities for instructor and student.

Flight instruction poses some unusual challenges not typically found in commercial operations. Mistakes must often be allowed to unfold so that students can learn to recognize them and correct on their own. A delicate balance exists between allowing students to carry out actions far enough so learning occurs but not so far that safety is compromised. Keeping a watchful eye on students, aircraft status, and other traffic is an ever expanding and contracting workload that requires non-stop vigilance.

Instructors must know when to intervene and when to cross their arms, lean back, and let the student continue. That takes practice and focus while anticipating the need for lightning-quick reactions. Both students and instructors savor the satisfaction of a lesson well executed and walk away with increased proficiency and new awareness in their toolkits.

This month, *CALLBACK* highlights some of the challenges and unexpected events that punctuate the chronicles of flight instruction.

A Solo Student's Mulligan

This solo flight presumably stirred both the thrill of victory and the agony of defeat in student and instructor alike.

■ *I was watching from the ground near the hangars on the north side of Runway XX. My student had completed two successful patterns to full stops. On his third final approach, he appeared to be on a normal descent until approximately 100 to 50 feet AGL. The aircraft then appeared to increase descent toward the runway. He pulled the aircraft to level flight just before the aircraft touched down. The aircraft touched and bounced back into the air. My student lowered the nose as the aircraft started to descend. The aircraft began to porpoise. On the third porpoise, the aircraft departed the runway…on the left-hand side, the nose gear collapsed, and the aircraft stopped just off the runway. I need to re-enforce with this student what to do when the aircraft bounces. A pitch attitude above the horizon must be maintained throughout the bounce, and a go-around must be initiated.*

The Opposite Direction Takeoff

Quick actions resolved a critical conflict that had no definitive singular cause nor any discernable warning.

■ *My student, whom I was instructing at the time, made his departure call from Runway 23 at Monroe. We cleared the runway visually and didn't see anyone. I always look at our oil pressure and temperature and verify 'airspeed alive,' which it was. We rotated at 60 [mph] and began to climb out. At about that time, I saw another small aircraft right in front of us climbing out from the opposite runway. I couldn't believe it! Where…did this aircraft appear from? Evasive action was needed, so I took control and turned to the right with approximately 30 degrees of bank and 40 degrees of [heading] change to avoid collision. I called out frustrated but not mad, "Aircraft departing Monroe opposite direction, didn't you hear us announce departure?" …They replied, "No we did not." …I think this situation…developed [from] the light and variable wind we had and the confusion it can create for which runway should be used. Also, my student has a strong accent. Could it be that the…pilots in the other plane didn't understand him? We had completed a radio check on UNICOM and had received a 'loud and clear,' so I know our radios were functioning properly. Another factor may be that our runway is highest in the middle and could have made it harder to see another aircraft coming [from] 7,000 [feet away] at the opposite end.*

Engine-Out Practice for Real

This instructor had to confront a situation thrust upon the crew when the engine that was intentionally shutdown for training subsequently became an unintended problem.

■ *I was conducting a training flight with my student, practicing engine failure during flight. I intentionally shut down the right engine and attempted an airstart with the unfeathering accumulator. The engine would not start, and the propeller was still feathered. [Without success], we tried an airstart using the starter. The engine heavily vibrated for 20 seconds, so we shut down and followed the procedure again, but the engine heavily vibrated again for another 30 seconds. We tried to adjust the power, but we had strong*

vibrations from the engine. After three unsuccessful attempts to airstart the engine per emergency checklist, I decided to shut down and secure the engine and come back…and land. I [requested priority handling], joined left traffic, and performed a one engine inoperative landing. We landed safely, …were towed back to the ramp, and parked the plane.

Unclear and Present Danger

Visibility had been restricted for the student during a practice approach. A conflict emerged when an unannounced, unknown intruder materialized in the aircraft's blind spot.

■ *We, a C172S [with] G1000 [avionics], were flying to ZZZ under VFR radar vectors [and planning] for the RNAV Y [as] a practice approach. …Approaching the FAF, right after Approach told us to contact Tower, we found a Piper Cherokee [at] our 11 o'clock, less than 500 feet horizontally, above us, descending, and approaching…us. We could not see them until the last moment. They were above our wing blind spot. Approach never mentioned…this traffic, and our G1000 display never displayed its ADS-B location. After I found the traffic, I took…control from the student, who was under the hood, and started a descent of about 500 to 700 feet per minute. We reported to Approach after the traffic passed behind us. Approach responded that [the traffic] was showing 1,000 feet of vertical separation with us, so Approach did not mention that traffic. Also, that traffic was not talking to Approach, so Approach did not know their intention. …We continued the approach and landed at ZZZ.*

A Difficult Chain to Break

A treacherous chain of unrelated events led this crew into some fast-changing situations and alternating decisions. The end result was preferable to many of the alternatives.

■ *We entered the traffic pattern at ZZZ for a simulated single-engine, full-stop landing after a 2.5-hour flight. In the traffic pattern, the student announced, "Landing checklist," but both the student and instructor were distracted by Tower calling a traffic alert. We were advised that the traffic to follow needed extra room. After locating [that] traffic, we were then advised by Tower that we were approaching a helicopter 200 feet lower. The student pilot turned base and despite extending the downwind, began an immediate descent below approach profile. After correcting the profile, I admonished the student to stay on speed and profile. The student struggled with unusually high speed on base and final. The student was showing signs of exhaustion, so I reminded him to keep up his scan and speed control on final approach. The student elected to execute a single-engine go-around from a low height, so I took control, reduced power, and continued the approach. While flaring for landing, I heard a scraping noise, realized the gear was not extended, applied full power, and climbed away from the runway. I then advised Tower we were going around and needed to return for an immediate emergency landing. No unusual vibrations or engine roughness were detected. On downwind, I executed the landing checklist and made a normal landing.*

I believe the distraction of two traffic alerts resulted in both the student and me failing to complete the landing checklist. The student, struggling with speed and profile, further distracted us, and we both failed to verify configuration and complete our final approach checklist. Contributing factors were high heat, student check ride stress, and a long flight.

Out of the Blue

A lower probability threat manifested itself in a dangerous incident that this instructor did not anticipate. Who would?

■ *I was instructing [my] student for a Commercial Multi add-on. After one hour of flight, we returned to practice touch and goes and short field landings and takeoffs.*

The student landed the airplane, then retracted the flaps and accelerated for takeoff. The student [then] suddenly retracted the landing gear. I took the controls to save the airplane, but the nose went down. I put the landing gear down, but it was too late, and the propellers hit the ground. I aborted the takeoff, retarded throttles, secured the engines, and shut off the fuel system. After notifying Tower, the electrical system was shut down as well. To avoid this as a Flight Instructor, [I will] put my hand on the landing gear lever to [deter] the student [from] handling it.

A Check Ride to Remember

When an unplanned problem arose for this ATP candidate, diplomacy, teamwork, and good judgment prevailed.

■ *On my ATP check ride, after completing…steep turns, stalls, a simulated inflight engine failure, …boxed memory items, and the QRH checklist, the Check Airman deemed the maneuver satisfactory and restored engine power. Upon restoration of…power, the engine began to run rough, intermittently. …Realizing it was not an action by the Check Airman or myself, we agreed to pause the check ride to work together to determine the issue. We tried various power settings and adjusted the mixtures attempting to resolve the…roughness, but we could not identify which engine was running rough, as all indications were normal. As PIC during the check ride, I determined the best course of action was to return to ZZZ to a full stop and discontinue the check ride.*

ASRS Alerts Issued in October 2021	
Subject of Alert	**No. of Alerts**
Aircraft or Aircraft Equipment	4
Airport Facility or Procedure	16
ATC Equipment or Procedure	6
TOTAL	**26**

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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 2021 Report Intake	
Air Carrier/Air Taxi Pilots	4,400
General Aviation Pilots	1,411
Flight Attendants	661
Controllers	348
Military/Other	266
Dispatchers	173
Mechanics	172
TOTAL	**7,431**