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COMMENTARY / THE CLASSIC INSTRUCTOR

Checklists Are Necessary

Don't just go through the motions

BY STEVE KROG

PROBABLE CAUSE: Failure of pilot in command to use a checklist resulting in a gear-up landing. No injuries other than pride, but substantial damage was done to the aircraft.

If you are like me, you're always in learning mode and read about every aviation incident/accident reported by the FAA. It's amazing to me how many of these incidents occur because a checklist wasn't used due to the pilot being either distracted or overly confident in their personal skills. "After all, I am the ace of the base, right?" An attitude summed up by this quote can and will eventually get a pilot in trouble. Sadly, that attitude is frequently displayed.

What is a checklist? Some might refer to it as a to-do list to manage the tasks in the cockpit. It acts as your memory or reminder card to make sure that all necessary safety tasks are completed to reduce mistakes.

Reading a checklist and using a checklist are two different things. An example of this was shared with me several months ago. An instructor who had previously flown at Cub Air Flight had upgraded to flying as second in command (SIC) on a well-known turbine aircraft. This particular flight was the first time she had flown with this captain.

As per the required sterile cockpit procedures, she began reading the lengthy startup checklist to the pilot, who in turn responded properly to each step. After both engines were running, the second part of the checklist was conducted, again with the SIC reading the items to be checked and the pilot in command (PIC) responding. Everything appeared normal at this point.

After receiving taxi clearance and moving to the runway, the pretakeoff checklist was conducted. Each item was confirmed by the PIC, and they were ready to depart.

The takeoff was uneventful. Gear and flaps were retracted, props were adjusted, and the aircraft was handed off to departure while climbing through a thin overcast cloud layer. While making the initial call to departure, the entire glass panel went dark, flickered for a few seconds, and then went completely dark.

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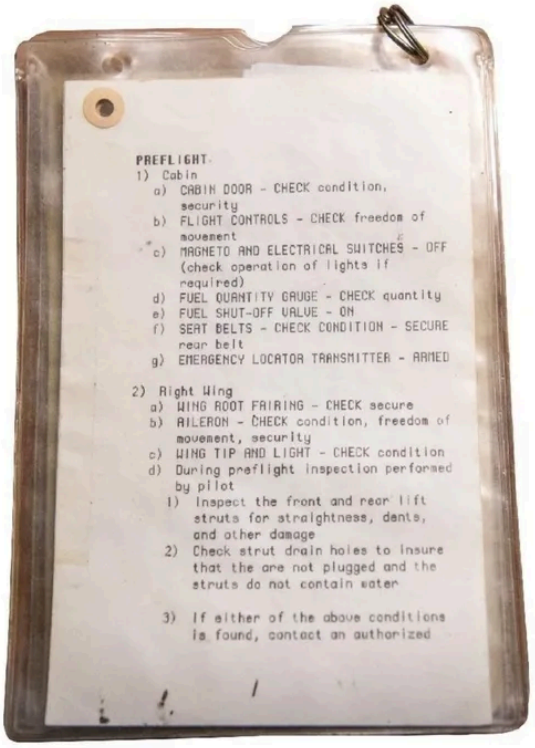

The SIC looked at the pilot who had instantly broken out in a heavy sweat and began shaking uncontrollably. The SIC took control of the aircraft and asked the pilot to get the emergency manual out and begin extending the landing gear.

However, the pilot remained in a near catatonic state. The SIC made a 180-degree turn and began a slow level descent through the thin cloud layer. While doing so, she shouted at the pilot and loudly told him to read each step of the gear extension to her. He did so and with her urging managed to get the gear extended.

With the SIC on the controls, they reentered Class C airspace and began circling the airport. Tower controllers spotted the aircraft in distress and shot them a steady green light. The SIC brought the airplane around, made a smooth landing, taxied to the ramp, shut the engines down, and then advised the passengers of a malfunction that caused the flight to be returned to the departure point for safety.

After a phone call to the tower advising controllers of what occurred and thanking them for their instant aid, the SIC returned to the cockpit and began revisiting every step of the checklist. They found the problem almost immediately.

When starting the engines, the procedure is done using battery power. Once started, the checklist calls for switching from batteries to alternators. This step was called out to the pilot twice, once after

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starting and again while conducting the pre-takeoff checklist. Both times the pilot replied the switches were in the alternator position. But they were not.

By the time the aircraft was in the air using only battery power for the entire glass panel, gear, and flaps, the batteries were drained, causing the panel to go black.

This situation, created by a moment of absent-mindedness, could have led to a major accident. The pilot looked at the alternator switches and responded they were on, but never really saw the switch position. He looked but didn't see. What if the cloud layer was several thousand feet thick? There would have been no way to safely descend while keeping the wings level.

By thinking quickly and remaining calm, the SIC was able to take command of the aircraft and get the airplane and passengers back on the ground safely.

I observed another situation that could have been serious but only resulted in some bent tin and a wounded ego. On a summer Saturday afternoon, the conditions were VFR with light winds out of the east favoring Runway 11. A Beech Bonanza pilot called in, entered the pattern, and proceeded to land. He then took off, remained in the pattern, and again landed on 11.

A student of mine and I had completed a dual cross-country flight and were discussing it while seated at the picnic table near

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my hangar. The Bonanza continued to do stop-and-go takeoffs and landings as we watched. On about the ninth approach, we both commented that the gear was not down, and we began running toward the runway waving our hands and shouting, hoping to get the pilot's attention but to no avail.

The sickening sound of the metal step scraping on the runway was followed by the distinct tink-tink of propeller blades making small divots in the asphalt. We approached the aircraft, making sure the pilot was okay. He was slumped over the yoke in despair but unhurt. After a moment, he spoke and said, "Every time on downwind I would look at the checklist, doing what needed to be done including the gear extension, throttle, and prop settings. Then I got distracted for a few seconds and never looked at the checklist."

Virtually every postwar-produced standard category aircraft has a pilot's operating handbook (POH) that includes every checklist needed from startup to shutdown and covers most situations one might encounter while in between. Unfortunately, most of these additional checklists are never reviewed. All that is needed to fly is the startup, pre-takeoff, and pre-landing checklist, right?

A local designated pilot examiner (DPE) shared a situation he encountered. While in flight, he said there was a simulated condition with smoke coming from under and around the cowling. The student pilot continued flying straight and level, ignoring the simulation. A minute or two later, the DPE stated there was heavy smoke now billowing from around the cowling. What will you do as the pilot in command? The student did nothing.

Later, the failed student commented that he had never looked at the checklist for in-flight fires, nor had his instructor ever talked about it. The mistake was sadly twofold.

Checklists, when used correctly, help you make sure nothing is forgotten in preparation for a flight. In a more complex aircraft such as a Bonanza, if you do not double-check that the door is closed and locked, it can lead to a potentially serious problem. There are several FAA incident/accident reports detailing what happened in this circumstance. The pilot, while attempting to close the door while in flight, flew the aircraft into the ground, causing major damage. The incident could easily have been prevented.

Flying with students nearly every day, it can be easy to point out how critical it is to use the checklist. Many students fall into a phase where they feel they know everything on the checklist. They breeze through it and state they're ready for departure. I've been pretending to be preoccupied up to this point. Then I'll ask if they checked to see if my door is closed and locked — it isn't. A bit flustered, I'll then ask if there is anything else that might have been missed. "No, I think I've covered everything" is the common reply.

What about setting the directional gyro (DG)? Oops, forgot that. Were the flaps checked for proper operation? Oops, forgot that, too!

What about the mixture control? We set it to a lean mixture for the taxi, but did it get pushed to full rich for the takeoff? Darn, forgot that, too. Now the student is a bit rattled, so I'll ask if they recall the rpm drop on each mag. Unable to tell me, I've made my point. They may be looking at the checklist, but they aren't seeing what is on it. Instead, they are going through the motions without seeing and comprehending what the airplane is telling them. We then taxi off to the side, allowing other aircraft to get by us, and start the pre-takeoff checklist all over again.

Usually, after one lesson like this, the student becomes a believer in the checklist and is conscientious about using it thereafter.

One day last summer I was going to go with a student on a dual cross-country flight. All the preplanning was done including getting a detailed weather briefing. The aircraft was preflighted, and we taxied to the runway where the pre-takeoff checklist was performed. One item was overlooked, the DG.

Rather than flying north following our checkpoints, we headed west-southwest, using the DG heading. About 10 minutes into the flight, the student commented that none of the checkpoints were making sense, and the landmarks didn't either. Without saying anything, I pointed to the compass and then at the DG.

Somewhat embarrassed, the student reset the DG, turned the aircraft to the north, and began recalculating how to get back on track. It was a lesson learned, and I'm quite certain a mistake like that will never again happen to this young pilot.

I'm not a believer in memorizing checklists. Every item on the list is there for a specific purpose to help prevent an incident or an accident. Use the checklist by reading and comprehending it. Had this rule been followed in each of the examples I've described, these incidents or accidents could have been prevented. EAA

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