

# PARTNER'S PERSPECTIVE

» A View from the Right Seat



**LAURIE EINSTEIN KOSZUTA** has been a freelance writer for many years and along with her husband, John, now own a Cirrus SR22. With John as the pilot-in-command and Laurie as the partner, they regularly travel to see family, visit friends and enjoy our beautiful country. You can read more of Laurie's work on her website: [www.laurieeinsteinkoszuta.com](http://www.laurieeinsteinkoszuta.com).

## Sounds of the Cockpit

by Laurie Einstein Koszuta

**As we began our ascent into the clouds 800 feet after takeoff from Chicago Executive Airport (KPWK), a loud, attention-getting, warbling sound suddenly pierced the relative quiet of our headsets.** Seconds later, the tower controller asked if we needed assistance and then instructed us to turn

left to 280 degrees to avoid traffic. With the sound blaring in our headsets, my husband, who was piloting the plane and continuously monitoring the emergency frequency of 121.5, looked puzzled. I watched as he systematically scanned the Crew Alerting System (CAS), the Primary Flight Display (PFD) and the



« **Perspective+ avionics by Garmin** on Cirrus aircraft can generate up to 28 different audio alerts. Although some are generated in test mode and a number are routine during a typical flight, others warn that actions don't align with what was programmed or aren't compatible with the airport or surroundings.

Multi-Function Display (MFD) for any messages as to the cause of the alarm. As we were in solid IFR conditions, it was obvious that he was following his training to, first and foremost, “fly the airplane.” Strangely, two minutes passed before the sound stopped just as suddenly as it had started. I was grateful for the quiet, but my brain sputtered as I tried to discern whether this was an emergency or a routine sound. My husband reassured me

everything was fine based on his assessment, but I could tell he was somewhat perplexed.

Even as we broke through the clouds at 2,000 feet, I couldn't help feeling unsettled. At the time, the airplane was new, and my flight hours as a partner-in-command were limited. I knew instinctively that the sound was not routine from my husband's quiet but deliberate actions.

“I can't find any issues or problems in the system,” he reassured me again as we continued to our destination. Upon landing and taxiing to the ramp, I took a deep breath long enough for the linesman to marshal us into a spot and wait for us to turn off the engine and open the doors. Then, he calmly told us that the Federal Aviation Administration (FAA) wanted us to call them and handed us their phone number.

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⏏ **Airspeed and altitude callouts** may be heard on approach to landing to help the pilot understand their position to the ground and speed

I was taken aback. Call the FAA? That had never happened before and sounded extremely serious. As my husband made the call, I walked to the FBO feeling as if my legs were made of lead. Ten minutes later, my husband relayed his conversation with the FAA, informing us that our ELT had sent a distress signal upon leaving Chicago.

I had no idea what an ELT (Emergency Locator Transmitter) was, but I soon learned that a crash or hard impact causes it to trigger, sending an emergency audio alert on distinct frequencies. The ELT should never go off during routine flight and, once activated, will stay on continuously.

Our continuous monitoring of the emergency frequency gave us a “front-row

seat” to the piercing ELT transmission. The ELT unit itself was later replaced, but the actual cause of the transmission was a faulty relay switch. Just after the new ELT was installed, it went off again in the shop hangar. Fortunately, the mechanics were able to isolate the problem and replace the cockpit switch and we have had no further issues.

In retrospect, according to my husband, there might have been a flashing ELT alarm below the dash during those two minutes of activation. However, he said he did not see any light on the ELT after the sound stopped or on landing. This was probably due to the faulty relay switch.

“As aviation has advanced and automation in the cockpit has increased,”

said Jim Ratliff, a Platinum CSIP and a CPPP instructor with more than 18,000 flight hours and 4,700 hours of dual instruction on 35 different aircraft types, “attention-getting alarms and audible alerts built into the avionics of the airplane are important in-flight monitoring tools for pilots.”

“In the past,” noted Ratliff, a former Air Force fighter pilot for 23 years and a commercial pilot for American Airlines for 15, “the airliners always had a four-person, human crew – a captain, co-pilot, flight engineer and navigator. As GPS became more accurate and commonplace, flight navigators were phased out. Then, increased automation took over the tasks of the flight engineer. Now, in the Cirrus, the autopilot is the co-pilot. It will fly the plane when the

pilot is busy and continuously update the flight information. That is the impetus for onboard warning systems in general aviation.”

Ratliff further noted that the alarms help to increase situational awareness, reduce pilot workload and ultimately enhance flight safety. The problem is that pilots are accustomed to the dings, chimes, aural alerts and warning messages. Passengers, however, may be unfamiliar with those sounds and can interpret them as possible trouble.

“We always train our student pilots,” Ratliff said, “to explain the sound of the autopilot disconnect when they do passenger briefings. You don’t want passengers to feel empowered to pull the CAPS handle when they think something is wrong.”

“Pilots can always click a button and isolate passengers from hearing the cockpit sounds,” said Ratliff, “but it is still a good idea for them to have some understanding.”

Pilots must monitor many visual and auditory alerts and annunciations in the cockpit. The visual alerts can be seen in the CAS window with color-coded messages based on the alert’s severity. In addition to the CAS window there is an alerts window, and together, these areas will display any of 64 different prioritized messages to help the pilot deal with issues before they escalate.

For Cirrus aircraft that have the Perspective+ avionics by Garmin®, the system can generate up to 28 different audio alerts. A few alerts are pilot-generated while in test mode, while some are routine and expected during a typical flight. Still others warn the pilot that their actions do not align with how the plane has been programmed or represent a condition incompatible with the expected airport or surroundings. In contrast, some alerts like those for

traffic, stall warning on takeoff or the autopilot being disabled on approach can cause anxiety to passengers if not explained well by the pilot beforehand.

Depending on the age and generation of the Cirrus, an audio alert heard on one model might not be heard on another. However, message and audio alerts are generally broken into three escalating levels: advisory (white), caution (yellow)

and warning (red). Here are the most common ones that might be heard.

After takeoff, once the airplane has reached 600 feet above the ground, a synthesized callout voice says “600,” which reminds the pilot when CAPS (Cirrus Airframe Parachute System) is available. On approach to landing, “Altitude” may be heard when descending past the set altitude limit,

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**"Airspeed"** when the plane is moving slower than desired or **"500"** references when the plane is 500 feet above the airport elevation. These callouts help the pilot with their situational awareness and understanding of their position to the ground and speed.

An additional set of audible alerts is heard when flying in instrument conditions or on an instrument approach. Some airplanes are equipped with the Garmin Flight Management System (FMS), which can calculate when to descend based on information from the GPS and an audible **"Vertical Track"** reminder is called out for the pilot to arm that function. **"Minimums"** is heard when the plane has reached the preset limit based on the conditions outside the airplane. At this altitude, the pilot must decide to continue the descent and land, go around and try again or choose another airport with better conditions. If the pilot deviates too far off the expected

**"Glidepath,"** landing with too much of a **"Crosswind"** for the plane's capabilities or too much of a **"Tailwind,"** an audio alert will be heard. **"Flaps"** may be heard to remind the pilot to ensure the plane is configured correctly. **"Runway too short"** or **"Taxiway"** warns of unexpected runway characteristics if landing on too short of a runway, trying to land on a taxiway or even approaching a different runway than programmed. This is not uncommon with multiple airports in close proximity or where there are both right and left parallel runways. When the autopilot is disabled, there is a two-tone sound, which is part of the standard preflight checklist procedure and is commonly heard on approach to landing.

Finally, terrain or traffic callouts may be conveyed by visual and/or auditory alerts based on the airplane's capabilities. If the plane is equipped with Traffic Information Services (TIS), the

audible **"Traffic"** alert is heard, and often include more specific information with respect to distance, bearing and altitude. Whenever other airborne planes are in close vicinity, the voice alert activates. It could be just an advisory or something more serious. An example of a serious alert in an airplane with Traffic Advisories System (TAS) capability would be, **"Traffic, 2 o'clock, less than 1 mile."** This tells the pilot and passenger where to look to see if there is a potential threat nearby. Based on the software's capability, there may be increasing levels of **"Terrain"** or **"Obstacle"** visual and auditory alerts.

While visual and auditory alerts are intended to decrease the pilot's workload, passengers often have no frame of reference as to the significance of the sounds. Explaining their importance, particularly to nervous flyers and new partners, decreases anxiety for everyone. ☺



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