

## 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 owns 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).

# Air Traffic Controllers Are Like Eyes in the Sky

by Laurie Einstein Koszuta

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After adjusting some cockpit settings, John finally taxied to the runway threshold. We paused for system checks and another call. I was already exhausted, wondering if flying always involved this much communication and waiting. It seemed much simpler when we flew with visual flight rules (VFR).

Finally, the controller called out our tail number, released us for takeoff and stated that our clearance would be void if we weren't in the air by a specified time. He also provided a departure frequency and instructed us to report when airborne. John then skillfully guided the plane onto the runway. The engine roared, and we sped down the asphalt and into the air. He immediately radioed our altitude and location to the controller. For the next two hours, he communicated with multiple controllers and received information about barometric pressures, altimeter settings and traffic updates. Like a kid flipping TV channels, he seamlessly switched flight plan details, frequencies and settings while keeping pace with the auctioneer-like chatter.

## From Confusion to Understanding

That flight was a year and a half ago, and we have flown many times since then. I'm no longer the aviation newbie puzzled by every exchange with ATC. Looking back, I am amused by my initial misunderstandings. There's no "clearance" in the retail sense, ground controllers aren't physically on the ground giving instructions and not every controller works in those tall towers. With experience, I've learned to interpret ATC's specific cadence and phraseology and have occasionally spoken to controllers.

**After finishing his preflight procedures, my husband John motioned me to climb into the right seat of our Cirrus SR22.** As he reviewed his checklist and prepared for taxiing, he mentioned that we would fly under Instrument Flight Rules (IFR) and communicate with Air Traffic Control (ATC) throughout the flight.

As an aviation newbie, the prospect of listening to ATC conversations was intriguing. So, when John pushed a button on the yoke and started speaking, I listened intently, trying to decode the rapid exchanges. Since we were departing from a non-towered airport, I wondered where the controller was located. How could they issue directions without seeing us? Was there someone on the ground giving instructions? I had always assumed controllers sat in tall airport towers, watching airplanes through those huge, slanted windows, just like in the movies.

I heard John call someone who sounded like "Clearance." For a brief moment, it made me think of a department store clerk. Who was this person, where were they and why did we need their approval if they weren't at our airport? Next, he tuned into "CTAF," the common traffic advisory frequency. When I asked where they were, he explained that it was a local broadcast to alert nearby pilots of our movements.



**A visual of the phase of flight** and the specific controller overseeing the airplane.

## VFR and IFR

Pilot responsibilities differ significantly between VFR and IFR conditions. To fly IFR, both the plane and pilot must be certified, and the pilot must maintain instrument currency. Pilots who fly under instrument conditions must constantly communicate with ATC to ensure adherence to assigned flight plans. VFR flights often operate independently and are not required to communicate with ATC in uncontrolled airspace or at non-towered airports. In controlled or busy airspace, VFR pilots must maintain radio contact with ATC for permission to enter. Even in uncontrolled airspace, pilots may voluntarily contact ATC and ask for “flight following.” If controllers are not busy with IFR flights, they will monitor VFR flights and provide traffic advisories and alerts.

## What It All Means

“When an IFR pilot files a flight plan, it is printed out 30 minutes before the proposed departure time for the controller responsible for that specific controlled airspace,” said Ryan Hampton, a former Federal Aviation Administration (FAA) air traffic controller, a current first officer with a major U.S. carrier and co-host of the “Opposing Bases” podcast. “That controller then prepares the necessary clearance, checks for potential conflicts with other aircraft and assigns the route.”

Hampton explained that pilots generally contact clearance before starting their engine or while parked on the ramp. This communication allows pilots to confirm the details of their flight plan, including the assigned route and the initial altitude

they are cleared to climb after takeoff. ATC assigns a unique transponder or squawk code to identify that airplane on radar and frequency for communication after takeoff.

“An important aspect of this process is that when the controller gives runway hold short instructions, it has to be read back verbatim by the pilot,” added John Covino, a retired FAA air traffic controller, current ATC instructor and Cirrus SR20 G2 pilot. “The readback has to include the tail number to ensure the correct aircraft received the control instruction and will taxi to the correct runway.”

Runway hold short instructions issued by ATC ensure that aircraft stop and don’t enter or cross an active runway without authorization.

“Clearance delivery,” said Hampton, “is typically used at larger airports or in controlled airspace where coordination of departing aircraft is critical to avoid congestion and maintain safety.”

## What About Those Towers?

“Most general aviation airports that Cirrus pilots fly in and out of do not have control towers,” said Hampton. “Thousands of airports in the U.S. don’t have towers. The only difference between towered and non-towered airports is the communication that happens at the beginning and end of a flight. Towers are usually found at busy regional or large commercial airports. At a non-towered airport, pilots manage their movements using standardized procedures to announce takeoffs and landings.”



## How Air Traffic Control Works

Hampton added that for every phase of flight, there's a specific controller responsible for guiding the airplane, whether on the ground or in the air. Those phases include ground control, tower control, Terminal Radar Approach Control (TRACON) and enroute control. These handoffs are seamless for the pilot, who switches to new frequencies at the direction of each new controller as the plane enters new airspace.

Although controllers help guide aircraft, it is still up to the pilot to make in-flight navigation and safety decisions. If specific ATC instructions cannot be followed, they must explain why to the controller.

### Ground Control

Ground control manages aircraft taxiing to the departure runway and guides arriving planes from the runway to the designated area for parking. They also oversee operations on closed or inactive runways. Coordination between the ground and local controller is required whenever an active runway needs to be crossed.

### Tower Control

Tower controllers manage the airspace around the airport. "They issue takeoff and landing clearances, ensure planes follow the correct sequence and prevent other aircraft from entering the area," said Hampton. "They also maintain safe separation between aircraft, both laterally and vertically."

When a pilot completes their engine runup and is ready for departure, the controller confirms readiness or issues instructions for the next steps, depending on incoming traffic or other departures. When issuing a "released



for departure" at a non-towered airport, ATC limits the time for takeoff. If not acted upon, the release will expire within five to 10 minutes, requiring pilots to request a new release.

"One of the things that tower controllers do," Covino also emphasized, "is use binoculars to actively scan the airport environment for any wildlife that may become a hazard to aircraft. They also may visually inspect aircraft taxiing (when close to the tower) for any issues such as affixed pitot covers or open baggage doors."

### Terminal Radar Approach Control (TRACON):

As airplanes ascend or descend, they transition to TRACON controllers, who manage airspace within approximately 60 miles of an airport. TRACON controllers generally work in large facilities, which may be separate from a tower or far from the destination. Their role is to guide planes as they approach or leave busy airports.

### Enroute Control (called Centers)

Once airplanes reach cruising altitude, they're handed off to enroute controllers, who manage the aircraft's progress through different sectors of airspace.

"While controllers cannot physically see the aircraft," Covino noted, "they rely on radar, satellite data and information from the aircraft's avionics to track the airplane's speed, position and altitude."

As the flight progresses, ATC may give instructions to change altitude or route to ensure traffic is safely separated. They also offer guidance to avoid adverse weather conditions, military operations or safety hazards such as rocket launches and smoke. Additionally, ATC assists in navigating restricted areas, including temporary flight restrictions (TFRs) for VIP movements.

(continued on page 34)

## Approach and Landing

When the pilot is ready to land, they transition from enroute control back to TRACON and then to the tower controller for landing instructions. After landing, pilots contact Ground Control for taxi instructions to the parking area.

When a flight lands and taxis to parking at a towered airport, an IFR or VFR flight plan is automatically closed. The flight plans are not automatically closed at a non-towered airport, and ATC must be notified when the flight is complete. Without this information at non-towered airports, controllers may assume a problem and initiate operations to locate the aircraft.

## Mic Fright

"Some pilots are reluctant to speak with ATC," Hampton said, "but controllers are there to help. Non-pilots should encourage the pilot to talk to ATC if they aren't doing it regularly. Ask for 'flight following' for VFR flights and become part of the system. In my opinion, there is no reason not to talk to ATC for a substantial portion of every flight."

"The best thing to do when speaking with ATC," Covino added, "is to know what you will say beforehand and try not to tie up a frequency with a lot of dead air. Keeping your transmission short and to the point works best for everyone."

Covino and Hampton stressed that it is essential for nonpilots to know the emergency squawk codes, how to get on the radio and how to ask controllers for help.

"It is much harder to find out who and where you are if you haven't been communicating with ATC," said Hampton. "We can help troubleshoot an emergency."

If a pilot is incapacitated, the passenger can be a vital help by entering the squawk code 7700 into the aircraft's transponder. This further alerts ATC of a dire situation.

Even though controllers and pilots are generally miles apart during a flight, in reality, they are just a radio communication away and work harmoniously to ensure a safe journey. ✈



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