



**STEVE KROG**

COMMENTARY / THE CLASSIC INSTRUCTOR

# Attitude + Attitude = Fun, Safe, and Exciting Flight

It's true — I did the math

BY STEVE KROG

**THOSE WHO HAVE FLOWN** with me have heard me stress “attitude,” as well as stating every flight must be “safe, challenging, and fun.”

I'm from the old school of flight training, where you learn how to fly your airplane by understanding and employing flight attitude (nose in relation to the horizon). My convictions are strong. If a pilot can learn to fly an airplane by “attitude,” the individual will be a better, smoother pilot and will have a much easier time transitioning to other aircraft.

What does “attitude” mean to you? Attitude has several meanings depending on how it is employed. According to Webster, one definition states that the position of an aircraft is determined by the relationship between its axes and a reference datum (the horizon). Attitude also refers to a way of acting or behaving that shows what one is thinking or feeling, or a state of mind. Good pilots will employ both definitions every time they make a flight.

Before beginning any flight, every pilot should do a quick attitude self-evaluation. What is your frame of mind? Are you so focused on a situation, either work- or home-related, that you can't

get it out of your head? If you have become so preoccupied with such an occurrence, you may want to take a walk around the hangars for a while to clear your head. Sure, you could easily fly the airplane under these circumstances, but what about the other pleasure-flying aviators also flying that day? Your preoccupation with personal issues may prevent you from looking and seeing things, such as other aircraft, which can compromise flight safety.

Now that you cleared your head and your full attention is on the flight, let's look at attitude regarding the takeoff roll. If you're flying a tailwheel aircraft, in many cases, depending on the make and model of the aircraft, forward visibility is obstructed due to the nose pointing above the horizon while in the three-point attitude. To keep the airplane tracking straight, the pilot's line of sight needs to change by looking diagonally to either side of the aircraft. By that, I mean looking about 30 degrees left or right. Where that line of sight contacts the runway edge, that is where your eyes should focus before beginning the takeoff roll. On a 65- to 75-foot-wide runway, this distance is about two runway lights forward of the airplane.

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Once the power has been smoothly applied and while keeping the aircraft tracking straight down the runway via rudder inputs, one quick glance at the airspeed indicator is all that is needed to assure it is functioning. Thereafter, control inputs are done by feel and sound. With the control stick deflected fully back, the pressure on the elevator begins to build and this pressure can be felt in the control stick. Slowly ease the control stick slightly forward and you'll feel the tail lift off the runway. Here is where attitude becomes important. Many pilots have a strong urge to keep pushing the stick forward until they're able to see over the nose. This maneuver positions the aircraft in a neutral or even a negative angle of attack attitude. It won't make any difference how much speed you attain because the airplane won't fly without establishing a positive angle of attack.

Ideally, when on the takeoff roll and you feel the tail lift from the runway, it is important to keep the aircraft in a positive angle of attack attitude. By doing so, the aircraft will lift off the runway when it is generating enough lift to do so.

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**A good pilot should be able to achieve the desired cruise power setting by listening to the engine sound, even if wearing a headset. Become familiar with the engine sounds for a full power climb, cruise power, and a reduced power descent.**

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There is no need to fixate on the airspeed indicator during the takeoff roll. I find this to be a common mistake when working with individuals transitioning from tricycle to tailwheel aircraft. They have never been taught to "feel" the airplane, but rather they stare at the airspeed indicator until it reaches a pre-determined speed and then yank back on the stick or yoke. Good pilots will learn to feel the airplane.

Once airborne, it's important to place the nose (top of the engine cowling) of the aircraft just above the horizon and hold it steadily in the position. If this is the first time flying this airplane and you know what airspeed is recommended for best rate of climb, the airspeed will stabilize, indicating your current speed. If it shows that you are too fast, raise the nose attitude another quarter-inch on the horizon and again let the airspeed stabilize. Once you've achieved the desired climb speed and attitude, commit the sight picture of that attitude to memory so that you can use it again the next time you establish a climb.

If a pilot attempts to reach an exact airspeed during a climb by staring at the airspeed indicator, the nose attitude will be constantly increasing and decreasing. Remember, the airspeed indicator lags behind the aircraft by 2-3 seconds. It becomes important that all corrections are made by slightly raising or lowering the nose attitude, then holding it stable while the indicator catches up to the aircraft.

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*Going for a pleasure flight after a long day of frustration is a great way to relax. However, it is vital that you first take some time to clear your head, removing or compartmentalizing these frustrations before attempting flight.*

When leveling off at a desired altitude after a climb, we again want to position the nose attitude in relation to the horizon. This becomes our straight and level attitude, again committed to memory. While holding the aircraft in this position, power will be adjusted, first by sound and then followed by a quick glance at the tachometer to fine-tune the power setting. Good pilots should be able to achieve the desired cruise power setting by listening to the engine sound, even if wearing a headset. Become familiar with the engine sounds for a full power climb, cruise power, and reduced power descent. You will need to know this if your tachometer would ever fail. Better to become knowledgeable of the sound of these power settings through practice rather than when it may occur for real. It is also a good practice to learn to trim the aircraft by feel.

Do you know the correct nose attitude for making shallow, medium, and steep turns in your airplane? Can you make 180-degree turns holding a constant altitude without staring at the altimeter or vertical speed indicator, if you have one in your airplane? I strive to have all my students be able to make various bank angle and heading turns by knowing where the nose attitude is in relation to the horizon. Little cues can be used to help with this. For example, the row of rivets on the top left of the engine cowling can be placed on the horizon when turning right in a medium bank turn to hold a constant altitude. Good pilots will be creative in looking for, learning, and then using these cues to become better pilots and to maintain flight proficiency.

Learning how to perform a desired descent by attitude and sound is also

important when learning to fly. What if your pitot tube decides to mate with a big bumblebee and plugs the inlet? If this, or something similar occurs, the airspeed indicator will drop to zero and the altimeter readings will become erratic. Could you make the desired and safe airspeed descent, approach, and landing if faced with this situation? Nose attitude in relation to the horizon and proper power settings are critical to achieving a safe descent, approach, and landing. If you're uncomfortable practicing these situations, invite a friend to join you as a safety pilot. Your friend can monitor the altimeter, airspeed, and tachometer settings to maintain safety margins while you're practicing performing these maneuvers by sight and sound without the benefit of instrumentation.

One other maneuver I like to have students perform via attitude, sight, and sound is stall recognition. Depending on the make and model aircraft I'm flying that day, I'll disconnect the stall warning indicator. Then I have students remove hands and feet from the controls and look down at their lap. I maneuver the aircraft into various stall configurations and have them tell me when they feel the stall approaching. After doing this a few times, students become quite good at stall recognition as it can easily be felt in the seat of your pants. Knowing this may save them from experiencing an embarrassing incident, or worse, in the future.

However, knowing and understanding the aircraft and flying by attitude is only half of the equation for safe flight. Your personal attitude or frame of mind is also critical for practicing safe flight. Going for a pleasure flight after a long day of frustration is a great way to relax. However, it is vital that you first take some time to clear your head, removing or compartmentalizing these frustrations before attempting flight. Don't be a potential danger to other pilots who are also out there enjoying an evening pleasure flight.

Every flight should be safe, challenging, and fun. If all three parts cannot be accomplished, then polish your airplane and fly again another day. *EAA*

**Steve Krog**, EAA 173799, has been flying for more than four decades and giving tailwheel instruction for nearly as long. In 2006 he launched Cub Air Flight, a flight-training school using tailwheel aircraft for all primary training.