



STEVE KROG

COMMENTARY / THE CLASSIC INSTRUCTOR



Are You an Airplane Hack or a Smooth Operator?

Choose wisely

BY STEVE KROG

SITTING AT THE PICNIC table and observing airport activity, I'd swear at least 50 percent of the pilots mistreat their aircraft. What do I mean by this? Read on.

We have an active nontowered airport at Hartford Municipal Airport (KHXF). In addition to a high volume of flight training, we have an active glider club. Additionally, our self-serve, 24-hour fuel island offering 100LL, auto fuel, and Jet A attracts a lot of area and transient traffic because of competitive fuel prices.

I spend a lot of time on the ramp and in front of the hangar monitoring all the activity taking place. This gives me time to observe

pilots and how they handle the aircraft they are flying. I cringe and turn away when I see the abuse of an airplane by the pilot. Here's what I mean.

An aircraft has just landed and is taxiing to the ramp and fuel island. Rather than stopping on the edge of the warning area in front of the pumps, the pilot taxis nose first to within inches of the fuel pumps before shutting down. Had the pilot advanced another few inches, the prop would have struck the concrete posts protecting the pumps. The action, I presume, is attributed to not wanting to reel out the fuel hose and get your hands dirty. If one brake pedal had

failed, the cost would be astronomical to tear down the engine and replace the prop.

How many times have you observed someone starting a cold aircraft engine and immediately setting the throttle at 1500-1800 rpm? Even though the engine oil is multigrade, it is still about the equivalent of honey on a normal day. The wear and tear on the engine are almost criminal in my opinion.

When starting a cold or cool engine, we teach our students to never allow the rpm to exceed 1000 for the first two to three minutes. Then we have them advance the throttle only enough to get the aircraft to begin taxiing. It may take a short power increase to get the aircraft moving, but then we throttle back to a setting that will advance the airplane. Take great care of the engine. Your life depends on it while in flight.

A pet peeve of mine is watching an aircraft start and begin to taxi with the power at 1800 rpm while the pilot is riding the brakes. There is no finesse demonstrated here, only abuse and lack of appreciation for the aircraft. This action, often repeated, adds significant expense to properly maintaining the aircraft. A good pilot under normal conditions should be able to taxi from the ramp to the runway without needing to touch the brakes.

Here at Cub Air Flight, when giving dual, we challenge students to try and do just that – taxi to the runway without ever touching the brakes. Yes, brakes are needed when crossing an intersecting runway or when holding for another aircraft movement. Brakes are also allowed for safety and for observing airport surface markings. This challenge is made with tailwheel students as well. If the tailwheel aircraft has a properly installed and maintained tail wheel, a pilot should be able to do the bulk of the taxiing without touching the brakes.

Another frustration is watching a pilot line up for takeoff and then slam the throttle to the firewall. This action is extremely abusive to the engine, and it causes near instant engine torque and propeller P-factor, influencing the aircraft's track down the runway. Stressing the engine in this manner places an extreme load on the

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The advertisement for Zenith Aircraft Company features a top row of four aircraft models: STOL CH 750 Super Duty, Zenith CH 750 Cruiser, Zenith STOL CH 701, and Zenith CH 650. Below this, the main headline reads "Build It. Fly It! With Zenith Aircraft Company" in a large, bold font. Underneath the headline, it says "Building your own Zenith kit airplane is easier, quicker and more affordable than ever!" followed by "Factory Workshops | Quick Build Kits | Easy to build. Fun to fly! www.zenithair.com". To the right of the text is the Zenith Aircraft Co. logo, which includes a stylized 'Z' and 'A' inside a circular emblem with the text "ZENITH AIRCRAFT CO." and "Build It. FLY IT! Since 1992". The central part of the ad shows a detailed view of a Zenith CH 300 aircraft, with its fuselage and wings disassembled into various kit components. A circular badge on the left side of the aircraft says "Number One Light Sport Aircraft Brand". Below the aircraft, it says "Made and Supported in the USA". At the bottom of the advertisement, there is a line of text: "Zenith Aircraft is the Number One Light Sport Aircraft brand in the U.S. based on actual FAA registration numbers" and "Zenith Aircraft Company, 1881 Airport Rd., Mexico, Missouri 65265 573-581-9000".



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crankshaft and connecting rods. Magneto and oil pump gears also suffer. Repeated abuse of this nature will shorten the engine life by hundreds of hours, or in the worst-case scenario, it can cause engine failure while in flight.

Not long ago we experienced a situation where improper throttle usage reared its ugly head. An instructor and student were doing takeoffs and landings. Just after lifting off, the CFI noticed the oil pressure dropped to zero, yet the engine was running smoothly. He took immediate action, reduced power to idle, and made a precautionary emergency landing. Once back in the hangar, we began troubleshooting but couldn't find anything out of the ordinary.

At this point we decided to remove the accessory case and check the magneto and oil pump gears. The problem was immediately spotted. The oil pump gears have a square shaft to which a gear is affixed driving the pump. Over a period of throttle abuse, the square shaft had rounded the square hole on the gear. The gear could spin almost freely on the square shaft, causing the oil pump to quit functioning. Had this occurred anywhere but in the traffic pattern, an off-field landing would have been made — hopefully without damage or injury.

Slamming the throttle to the firewall, especially in cool or cold weather, will often cause the engine to hesitate or quit. The fuel/air mixture undergoes such an extreme instant change that the carburetor can't handle it, causing hesitation. I've experienced the engine quitting several times when training students what not to do.

The method we teach to prevent this engine abuse is to have the student count off four seconds while advancing the throttle from idle to full power. The gradual increase in rpm is much easier on the engine.

Power management when approaching to land is another situation requiring attention to prevent engine abuse. I've observed numerous aircraft enter the traffic pattern at near full power, and then pilots quickly reduce power to near idle for the approach and landing. The poor engine has been running hard and hot.

When the throttle is reduced to near idle, those air-cooled engine cylinders undergo a shock temperature change, sometimes a 200-degree or more drop. The lower horsepower engines can tolerate this drastic change much better than the higher compression and higher horsepower engines, but they still experience undo wear, tear, and abuse.

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Another aircraft abuse I observe regularly occurs just as the airplane touches down on landing. The pilot allows the nose gear to



slam onto the runway and then begins applying hard braking. Think of the wear and strain this action places on the aircraft. First, the nose wheel will more than likely develop flat spots from the hard landings slamming onto the runway. Once a few flat spots have developed, the nose wheel tire will be out of balance, causing the nose wheel gear to shimmy and shake on every takeoff and landing. In turn, this causes excessive wear on the entire gear assembly and more expense at the next 100-hour inspection or annual.

Hard braking causes the disc brake and brake pads to experience severe wear. Tires also show unusually hard wear. These items are somewhat costly to replace, adding significant expense to maintaining your aircraft.

Where I learned to fly, the flight school owner would take us aside if he saw us, whether a student or a renter, slam the airplane on the runway and apply hard braking. He would explain in a certain tone of voice that he was sick and tired of replacing brake pads every 100 hours. Sometimes, to prove his point, he would even have the individual help with changing the brake pads, giving the student a new perspective on aircraft maintenance.

The owner would then, in a firm voice, explain that he wanted to see the nose wheel held off the runway for as long as possible on every landing under normal conditions. Once the aircraft becomes a ground machine, the wings will act as huge air brakes and slow the airplane. There is no need for hard braking that causes excessive wear on the brakes and tires.

Most general aviation pleasure-flying pilots are flying older airplanes today. Yes, they are properly maintained, but remember they are old, and they aren't building new models to replace them. Treat them with respect and don't abuse them when you go on a flight. Treat the airplane nicely, and it will treat you to a delightful and safe flight.

Enjoy the rest of your summer and fly safely. *EAA*

Steve Krog, EAA 173799, has been flying for more than five 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.