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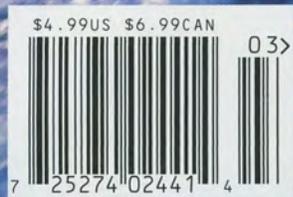
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PLANE&PILOT

Of Bachs & Ganns & Fabulous Words

Over the years, I've followed and enjoyed Budd Davisson's articles but have never been compelled to write and say, "Fine job!" until now. As a pilot, both privately and professionally, I've enjoyed the writings of all the people mentioned in "Grass-roots" [December 2008] (along with Richard Drury and Len Morgan), and have been dismayed at many a crew member who responded to mention of these authors—on those quiet nights across the Pacific—with blank stares. How can anyone rise to any level in aviation when they've no concept of its roots? I leave you with two quotes:

A master in the art of living draws no sharp distinction between his work and his play; his labor and his leisure; his mind and his body; his education and his recreation. He hardly knows which is which. He simply pursues his vision of excellence through whatever he is doing, and leaves others to determine whether he is working or playing. To himself, he always appears to be doing both.—François-René de Chateaubriand

I fly because it releases my mind from the tyranny of petty things.—Antoine de Saint-Exupéry

Don't give up, someone had to point the way for us, we should do the same.

Jimmy Rollison
Vacaville, Calif.

I couldn't agree more with the musings of Mr. Davisson, but I submit that he missed a name: Gordon Baxter.

David B. Sirota
Via e-mail

I'd like to recommend a book that will acquaint the uninitiated to a variety of superlative aviation stories: *The Greatest Flying Stories Ever Told: Nineteen Amazing Tales from the Sky*. It's a great way to discover some terrific aviation authors.

Chris M. Front
Office of Aerospace Medicine, FAA
Washington, D.C.

Backcountry Safety

I was overcome with emotion when I read Laurel Hilde Lippert's "Doglegs & Dirt" [December 2008] and remembered

the great joy I experienced while flying with Laurel that week. Each time she mentioned her thoughts and daily experiences, I felt a breath of strength to help me through another year of teaching in this wonderful environment, helping pilots expand their wings over the backcountry. I work so hard to touch pilots in a way that will save their lives. Each year, every one of my instructors expresses the same sentiment...this is the philosophy for the school and has become my goal. You've done a wonderful job expressing this goal: aviation safety, saving lives and really caring about every person we ride with! You've truly lifted me up!

Lori MacNichol
Owner, McCall Mountain/
Canyon Flying Seminars
McCall, Idaho

Down & Welded

I enjoy reading your magazine and try to learn something new every month. I have a bone to pick, however, with a column in your December 2008 issue. In "NTSB Debriefer: Glass-Cockpit Blackout," Peter Katz writes of a Cherokee Six pilot who experienced an electrical failure. After making his way back to the airport, he requested a flyby of the tower to check whether his gear had extended. As a Cherokee Six owner, one of my greatest reliefs at the end of each flight is knowing that my gear is "down and welded" and that I don't have to wait for "three greens." Maybe it wasn't really a Six?

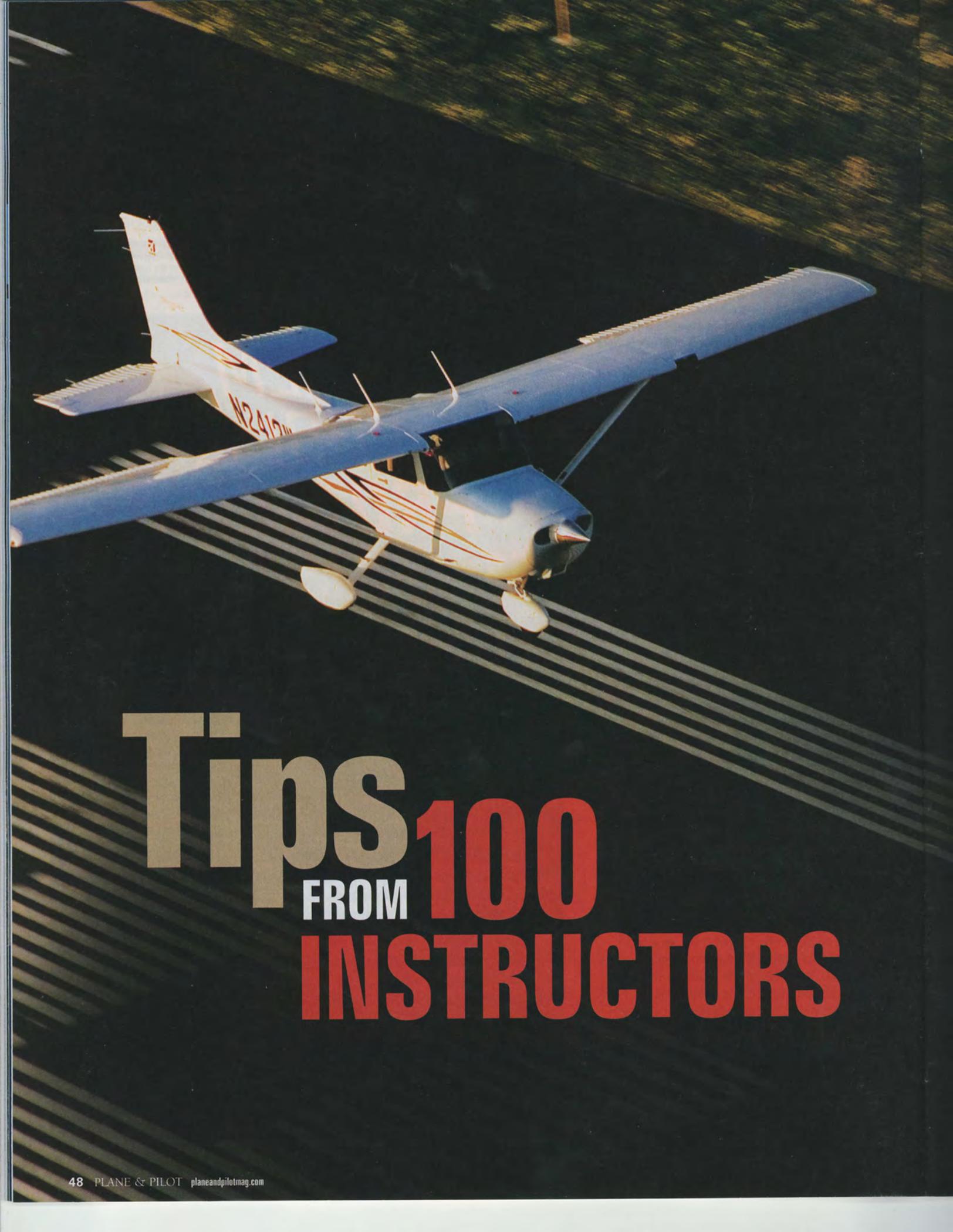
Mark Riordan
Sanford, Fla.

Editor's Note: Mark Riordan is correct, of course, about the Cherokee Six being fixed-gear. The model number given in the ASRS database report was for a PA32, and the Lance and Saratoga models with retractable gear are designated PA32R. A warning horn should have sounded.

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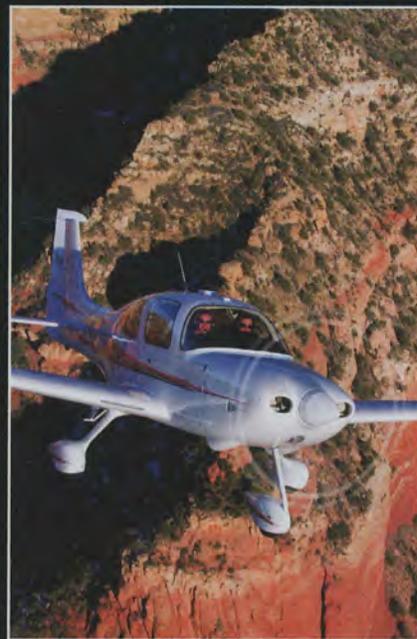
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Tips **100** FROM **100** **INSTRUCTORS**

- ✓ RIGHT RUDDER
- ✓ RUNWAY CENTERLINE
- ✓ TRIM!
- ✓ MAINTAIN AIRSPEED
- ✓ THINK AHEAD



EXPERIENCED INSTRUCTORS SHARE FROM THEIR YEARS OF WATCHING PILOTS MAKE MISTAKES BY BILL COX

Fly with instructors a lot. Virtually every new pipe demands a check-out, whether it's a loan of a new model for a week or merely a half-day evaluation in the local area. Testing new and used aircraft for *Plane & Pilot* and *Pilot Journal* often dictates an insurance checkride for many models, especially more exotic types such as twins and turboprops.

Experience doesn't count for much, either. During Sun 'n Fun or Oshkosh, I may fly a dozen different types in a week, many of which I may have a hundred or more hours in but haven't flown for a year or more. It's virtually impossible to maintain recency requirements on more than a few. For that reason, I'm allowed the benefit of regular instruction in a wide variety of aircraft.

The majority of manufacturer demo pilots are consummate professionals, often with thousands of hours in type, and they're frequently former or current instructors who still teach in their spare time. Others are less enthusiastic. Aviation, like most other vocations, isn't a perfect world. Every instructor isn't striving for perfection. Some are merely marking time, working toward the peak of the pyramid—an airline job—and each hour is a step closer to that goal.

Too often, a busy demo pilot saddled with checking out "the magazine guy" will simply make certain that I have the basic skills necessary to get the airplane into the sky and back onto the ground without breaking anything, then climb out and send me on my way. But many other check pilots really care, and I

decided there had to be hidden wisdom available for the asking. I began questioning these check pilots about their experience, asking them to give me some tips on the two most challenging and potentially dangerous phases of flight, takeoff and landing. If you exclude midair collisions, the only time you can come to grief in an airplane is when you're in contact with the ground.

I hit a nerve. Otherwise quiet instructors began opening up and revealing their pet peeves. Not all their advice was exclusive to student pilots. Most of it applied to all of us.

Here's the short list of check pilot complaints, the things that demo pilots and experienced flight instructors see us do wrong most often. Some are little more than traditional wisdom, but many are insightful and revealing, the observations of professionals who've been watching pilots make mistakes for years.

In chronological order from takeoff to landing:

- If you subscribe to individual engine run-ups in multi-engine airplanes, then be certain the nosewheel is centered to avoid side loads on the nosegear. One way to avoid such indignities is to run up both engines at the same time, checking both left mags and both right mags at the same time, then the props independently. Similarly, when you turn onto the active runway in any aircraft, allow the third wheel to trail to make certain the aircraft is pointed down the centerline before adding power.

- Be prepared with right rudder immediately during the power up. Don't wait

for torque to begin turning the nose left before you correct. Stay ahead of the forces, and anticipate the need for right rudder. Similarly, be ready for P-factor when you lift off, and put in the right rudder simultaneous to rotation, not after the nose has started drifting left.

- Assuming there are no crosswinds, visually confirm that the control yoke is level or appropriately centered early in the run. Many instructors complained that some pilots set themselves up for a poor takeoff even before they add power by improperly positioning the controls. When you do rotate, bring the yoke straight back without inducing any aileron deflection left or right.

- During initial climb, make a special effort to maintain directional control with the runway centerline. When you lose the centerline after rotation, pick a spot on the horizon and maintain directional control toward that point. This can be especially critical in a parallel runway environment when too much drift can ease you into the opposite pattern.

- Always keep the airplane trimmed. You're only working against yourself if you allow control pressures to accumulate and fight your inputs. Failure to maintain hands-off trim was one of the instructors' most common complaints. Try releasing your grip on the yoke from time to time to make certain you're not unconsciously holding unnecessary pressure.

- If your airplane requires a maximum except takeoff (METO) power adjustment, don't make it any sooner than necessary. Most climb power adjustments

allow three to five minutes at full throttle, and that should be enough to get you to pattern altitude or higher. If you're departing the airport, climb as long as possible at full power. Some pilots mistakenly believe they're abusing their engine(s) at full power, when more often, the opposite is the case. Reducing power in climb can cause engines to run hotter (not cooler), reduce climb rate and place the plane and passengers at greater risk.

- Don't assume you can relax all right rudder during a climbing, crosswind turn to the left. You may have to back off a little, but not much. Try to keep airspeed near V_y at all times by holding the nose up, even in the turn. Get into the habit of using slightly more trim than you think you'll need.

- If your technique is a little rusty or if you're just learning, don't try to do too many things at once, especially in the pattern when you're close to the ground. Don't try to adjust the power, sync the props, turn downwind and level the aircraft all at the same time. Finish the turn in the climb or level first, then make the downwind turn. Better to be a little high or wide on downwind than low and tight.

- Once you're established and stabilized on downwind, don't take a nap. Instructors complained that pilots tend to relax when they should be planning their next move. Look for traffic, double-check power and airspeed, scan engine instruments, recheck gear and flap position, etc.



Aviation Tips From The Dream Team

BY MARC C. LEE

Wouldn't it be great if you could get a bunch of experienced pilots under one roof to give you personalized aviation advice? Imagine how much you'd learn. *Plane & Pilot* asked several expert pilots in different areas of aviation for their best flying tips. Think of this as your own personal instruction—without the hourly rate! For even more tips, visit planeandpilotmag.com.



Max Trescott



Patty Wagstaff



Lori MacNichol



Damian DelGaizo

John & Martha King On Managing Risk

Founders of King Schools, producer of aviation training courses. Visit www.kingschools.com.

A good pilot is one who gets the utility from flying while controlling the risks. Apart from the physical skill needed to fly, risk management is the key to safe flying. Eighty-five percent of accidents happen because pilots didn't manage the risks, not because of failure of skill. We suggest both the "PAVE" and "CARE" checks to manage flying risk:

P-PILOT: Make a frank assessment of your own readiness for this flight. Am I up to the tasks I'm asking myself to do? Am I feeling okay? Am I current in the airplane?

A-AIRCRAFT: Is this airplane capable of this flight? (Density altitude, weight and balance, etc.)

V-ENVIRONMENT: Evaluate environmental factors like weather, terrain, day versus night, airspace, etc.

E-EXTERNAL PRESSURES: Why am I making this trip? What might influence me to complete this flight when I shouldn't?

In addition to the PAVE check, we suggest you manage the factors that change throughout a flight using an "attention scan" through the CARE check:

C-CONSEQUENCES: What's changing in the flight? What are the consequences?

A-ALTERNATIVES: Do I have more than one alternative course of action? Should I land now and remove pressure to land in adverse conditions?

R-REALITY: Deal with things as they really are, not as you planned them to be. Has the goal to land at my destination put me in denial?

E-EXTERNAL PRESSURES: Am I ignoring risk factors in order to reach my destination?

Hal Shevers On Safety

Founder of Sporty's Flight Academy and Pilot Shop. Member of National Flight Instructor Hall of Fame. Visit www.sportys.com.

- 1) Never be below the glideslope.
- 2) Never cancel IFR until you have the runway in sight.
- 3) Use very little flaps with ice accumulation.
- 4) Never reset a circuit breaker more than once.
- 5) After turning off generators and after going to emergency battery in case of fire, get the airplane on the ground (not necessarily at an airport).
- 6) Circling to land single-pilot, make left turns or land somewhere else. At night, don't circle to land.
- 7) The most boring time in the world should be between the outer marker and the runway threshold.
- 8) Never start a missed approach until the missed-approach point.

Patty Wagstaff On Aerobatics

National aerobatic champion and air show pilot. Inductee into the National Aviation Hall of Fame. Visit www.pattywagstaff.com.

1) Be methodical in your flying and don't rush. Always brief the flight and think about what you're trying to accomplish. Make each flight mean something and make the most of every flight. Always have a plan.

2) Leave your ego on the ground. It has no place in the cockpit, and you'll soon find out that the best pilots have no ego and are the most humble.

3) Trust your intuition: It has saved my life. It's amazing how often intuition speaks to you in aviation.

4) Aerobatics is the most fun you'll ever have in an airplane, but, ironically, it requires the most discipline. Be careful who you fly with and make sure they also take it seriously.

5) Use your feet. Rudder control is very important and makes flying a lot safer. Also, always do a CIGAR and GUMP check.

Max Trescott On Glass Panels

2008 National CFI of the Year and FAA Gold Seal CFI. Specialized flight instruction in advanced glass-cockpit aircraft. Visit www.maxtrescott.com.

1) When teaching in glass cockpits, I often see autopilot "surprises," where the autopilot isn't in the mode pilots think they selected. I recommend that every time you push a button on the autopilot, you look at the status indicators to verify that the autopilot is actually in the mode you intended. Some keys have toggle functions and select two different modes. If you don't look at the status indicators after you push a key, you won't know which mode was selected.

2) When flying an instrument approach, I like to have XTK (the cross track error) displayed. XTK tells me how far left or right of course I am within one-hundredth of a nautical mile (about 60 feet, or roughly an airplane width). When intercepting the final approach course, I watch XTK decrease in the turn and finish rolling out onto the final approach course just before XTK reaches zero. Once established, watching XTK also keeps me close to the final approach course.

Lori MacNichol On Mountain Flying

Founder of Mountain/Canyon Flying Seminars at McCall Airport in McCall, Idaho. ATP-rated CFI specializing in backcountry and mountain flying. Visit www.mountaincanyonflying.com.

1) Know your aircraft: Experienced pilots know the power settings and airspeeds for their aircraft for different weights, drag configurations and rates of descent.

2) Hot and steamy: Constantly think of density-altitude problems that could affect your plane's performance. Nearly every accident in the backcountry is a result of a surprise to the pilot regarding the lack of aircraft performance. Remember that when it gets *hot* and you get *steamy*, density altitude has raised its ugly head. Get out your performance charts and know exactly how your aircraft will perform. Be prepared with knowledge and don't get surprised!

3) Abort point aviation: This means picking out a safe point or altitude during landing that will allow you to abort the approach safely. Instead of committing yourself to land, commit yourself to the predecided abort altitude. Factor in density altitude, aircraft weight, condition of the air mass and the environment surrounding the airstrip. Abort the approach before you find yourself in a "no go-around" situation. This means your airspeed must be mastered, your aim point held and your approach stabilized. The idea of "abort point aviation" takes much of the pressure off of backcountry flying.

Joe Justice On Busy Airspace

Owner of Justice Aviation at Santa Monica Airport in Santa Monica, Calif. CFI and CFII with more than 14,000 hours of experience. Visit www.justiceaviation.com.

1) When flying in congested airspace, always leave yourself a way out. Carefully preplan what you're going to do if you can't get clearance through the airspace, and you'll avoid having to explain a violation to the FAA. Your "way out" should include alternative plans to either circumnavigate the airspace or land at an alternative airport to reconsider another route and altitude under those conditions. You'll usually be able to find a "local" at that airport who can give you information to keep you out of trouble.

2) Preplan decisions like what highways to stay north or south of and what landmark to keep off what wing. These decisions should be made on the ground.

3) In the early stages of your planning, a phone call to a flight school at the destination airport can sometimes provide helpful information at no charge. We instructors love the sound of our own voices.

Damian DelGaizo On Tailwheel Flying

Owner of Andover Flight Academy at Andover-Aeroflex Airport in Andover, N.J., renowned tailwheel instructor and creator of Tailwheel 101 instructional DVD. Visit www.andoverflight.com.

1) You want to master directional control: that means being able to track the airplane straight. During takeoff and landing, treat the rudder pedals like you're balancing a stick on two fingers. Making many small corrections is better than waiting until you need large ones.

2) Understand and adapt to the changing sight picture. Tailwheel airplanes have varying visibility over the nose. During the approach and landing phase you may be able to see over the nose, but as the flare progresses, the nose might block the end of the runway and the centerline. Instead of using the centerline to determine that you're straight and centered, use the runway edges.

3) If you're making a three-point landing, make sure the airplane expends all of its energy just before it touches down. In your mind's eye, pretend the main wheels don't exist and try to land slightly tail first.

Mary Alverson On Seaplane Flying

Owner of Wings Over Water in South Saint Paul, Minn., specializing in seaplane training. Visit www.wingsoverwaterseaplanes.com.

1) While operating amphibious aircraft, do a GUMP check three times before landing: once on downwind, once on base and a confirmation gear check on final. Gear up when landing on a runway will result in damage to the floats. Gear down when landing on the water will probably result in the loss of the airplane.

2) Think ahead of your airplane. This sounds basic, but in a seaplane, once you launch from the dock or beach, you're in constant motion.

3) Know where the wind is coming from. Seaplanes weathervane into the wind. The ability to recognize and take advantage of wind conditions is critical for the seaplane pilot.

4) Use the rudders. As power is applied on takeoff, the torque effect is quite strong and requires a considerable amount of right-rudder pressure to maintain a straight line. Landings require rudder pressure for directional control as the floats make contact with the water.

INSTRUCTORS



- Hold your altitude in the pattern until you're ready to descend. This was one of the most common mistakes cited by the check pilot instructors. Too many pilots become distracted with other duties and forget what Captain Kirk would call the "Prime Directive": Fly the airplane. In this case, that means maintain altitude and airspeed. Any pilot, student or ATP, who fails to maintain the proper airspeed and attitude on approach will have a tough time taming the ultimate monster, the landing. Similarly, from a pure safety viewpoint, don't get in the habit of descending while heading away from the airport. That qualifies as a definite "duh!"

- Similarly, don't automatically reduce power and begin descent when you turn base. At busy terminals, the downwind leg may sometimes extend two to three miles from the runway. It hardly makes sense to reduce power three miles out just as you would from the key position abeam your touchdown point.

- When you're ready for the power reduction, power back to the appropriate setting and *immediately* trim. Don't lock your gaze on the tach or manifold pressure during power changes. Scan them quickly until you see what you want. Use more trim than you think you'll need and shoot for the exact approach speed, not a rough approximation.

- Think ahead at all times in the pattern. Plan what you'll need to do next so you won't feel rushed. Deploy flaps as necessary. Most instructors favor a third on downwind, the second third on base and full flaps on final, and trim out any elevator pressures immediately upon flap deployment. When you reach for the flap handle, don't fixate on it. Put your hand on it and put your eyes back in the sky or attend to other business.

- It may sound like an oversimplification, but remember that there are only three things to remember on final—

wings level, fly the proper airspeed and power settings, and hold the centerline. (Again, we're assuming no crosswinds.) If you begin to drift left or right, make your corrections early while you still have enough altitude to bank the airplane as necessary. Begin to break the glide at 15 to 20 feet, and don't initiate the flare until five to 10 feet.

- No matter how well you can land your airplane, don't relax after touchdown. The flight isn't over just because the wheels are on the ground. Taildragger pilots know this lesson well. Stay tight on the rudder pedals during the rollout, and correct any directional problem early after touchdown before you drift into the runway lights. If you need to use hard braking, simultaneously use full back stick or yoke after speed drops through about 30 knots. This puts more weight on the main gear and offers maximum aerodynamic drag to the relative wind to help slow the airplane.

- Always brake in a straight line. Don't try to brake and turn at the same time. It's true that most airplanes have no brake on the nosewheel or tailwheel, but neither tricycle- nor conventional-gear designs take kindly to such abuse. In the worst case, inertia may cause a trike to wheelbarrow away from the direction of turn.

- Finally, virtually all the check pilots suggested that pilots should be more assertive with the airplane. Make the airplane do what you want it to do, and don't be afraid to use all controls available to guarantee the desired result. That doesn't mean abusing power or slamming controls to the stop. It does mean manipulating power, ailerons, elevators, rudder and flaps to achieve the desired result and make the airplane do what you need it to do.

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