



Landings

Several weeks ago on a beautiful fall afternoon I sat in the back of my Super Cruiser as a very dear friend of mine flew us down to Candlelight Airport, located in Western Connecticut. We were flying there so that she could get to fly a PT-17 Stearman. She has long admired the airplane that was used to teach so many pilots how to fly prior to WW II, and I thought that it would be a great treat for her as a way of my saying “thanks” for all the help she had given me over the previous year.

Tim Preston runs a marvelous operation, offering Stearman training out of the Candlelight Airport, in Connecticut during the summer, and moving to the Mid-Florida Airport for the winter months. His Stearman is a 1941 N2S4, built originally as a PT – 17 but then taken over by the Navy and converted. Tim is not only a CFI, but an IA as well and keeps his Boeing in pristine condition. If you are interested in flying with him then check out: www.flytailwheel.com. (He also offers training in a J-3 Cub.)

My friend had been a little nervous about flying this big Bi-Plane, particularly the landing phase. Although she had many hours in my PA-12, it appeared quite small when parked beside the PT-17. I assured her that it would probably be an easier airplane to fly than the Super Cruiser, and that as soon as she recognized just how much higher her posterior would be above the ground in the flare, she would have no problems with the landing.

She did, after all, thoroughly understand that a landing is not just one short moment where and when we transition from air-bound to ground-bound, but that it is a five phased sequence of events. If we know where we are, and what comes next, it becomes a very simple process. The only thing that would be different for her would be the sight pictures (well I guess the sweet rumble of that big round engine turning at a much slower RPM than she was used to would be different too), and as soon as she got used to the proper landing attitude I was confident that her landings in the Stearman would be as fine as her landings in the Super Cruiser.

So what are those five phases, you might be asking? They are: The Glide; Breaking the Glide; Dissipating the Energy; Touching Down; and Rolling Out. I have observed more landings than I’ll ever remember, but most that I do remember are remembered because they were examples of the fact that the pilot did not understand those five phases. Just spend a little time on the flight line of any major fly-in and you’ll have ample testimony to the fact that many pilots don’t quite have a complete appreciation of the progression of phases leading to a safe landing. So let’s take a closer look at those five phases.

The Glide. The glide has to be on target and on speed. By on target I mean that the pilot has chosen an aim point on the runway. These could be the touch down zone marks, the numbers, a center line (I quite typically choose the second center line when landing at shorter runways), or an area of different color grass (this works great for me at my home base of Kline Kill Airport). Whatever you have chosen as your aim point, you must now make sure that it is not moving up or down in the window. If it’s moving up, you’ll land



short of your mark, and vice versa if it's going down. But now in addition to keeping your aim point constant in your sights you must assure that you are on speed. You must fly the appropriate approach speed for your airplane. If you are too fast, you will indeed get to your aim point, but then you'll float forever in the next phase. And if you get too slow you'll rival gliding granite in the ensuing sink.

The next phase is Breaking the Glide. For most of us vision is the most useful tool in this phase. We need to know when to start pulling back on the stick or yoke to break our glide, and this is best done by transitioning our visual aim point down the runway. But it is not only vision alone that helps us through this phase. It is a proprioceptive moment, meaning that it uses all the senses. I once had a client that had some major vision problems. I had told her at the outset of her training that she was facing some perhaps insurmountable obstacles, but through steadfast determination she reached a point where she could grease it on repeatedly. She couldn't see for beans, but by using every other sense that she had (her hearing, her touch, etc.) she would "feel" her way into excellent landings.

Obviously if we don't time the breaking of the glide correctly we will either fly into the runway, with all the correlated problems that will present, or find ourselves at the next phase at an altitude that will result in an arrival rather than a landing at the conclusion of that phase, which is... Dissipating the Energy.

If we have come down the glide slope on target and on speed, and if we have broken the glide at the proper height above the runway, we now have to dissipate our energy. It is in this phase that I see many pilots yield to the hazardous attitude of resignation. They take a laissez faire attitude, and it's kind of "que sera, sera..." until they touch down. We have to remember that we cannot stop flying yet. As we dissipate the energy still stored in our airplane we will have to continue to increase the deflection of our control surfaces as we decelerate. This means that we will have to keep pulling back on our stick or yoke to deflect the elevator more and more, maintaining the proper landing attitude, as the elevator gets less and less effective in our decreasing speed. (The same holds true for ailerons and rudder if landing in a cross wind!)

The next phase will occur just once, if everything preceding it has been done correctly. And that phase is the Touchdown. But if you are not in the proper attitude, and have not dissipated enough energy it will undoubtedly occur more than once. I could probably write a whole article on this, and the following phase, particularly for tailwheel pilots, but suffice to say that if everything prior to this phase has been flown properly it will occur just once. Unfortunately many pilots act as if this is the conclusion of the landing scenario, and relax the pressures they are maintaining on the controls, forgetting that it's not over 'til the fat lady sings".

She's only just clearing her throat as we now enter the final phase of the landing scenario...the Rollout. For you Ercoupe pilots it's a pretty simple phase, but if you happen to be flying a close coupled taildragger in a strong crosswind it's probably the



most exciting and demanding phase of the landing. We must remember to maintain proper control deflection while we maintain directional control. There are way too many incidents that never make it into the statistical data bases that occur during this phase of the landing. We cannot become complacent now, lest we find ourselves off the runway in a less than fortuitous situation.

So if we can keep track of where we are in the landing sequence of events, and can manage our aircraft's energy properly, every landing should be a great one. Perhaps you have heard it said that "a good landing is any one that you can walk away from... a great landing is one in which you can use the airplane again". There is no reason why all of our landings shouldn't be even better than that.

Now you might be wondering how my friend's landings went in the Stearman. Many eyes were on her as she came in for her first landing. She was on target and on speed; she broke the glide at the proper moment, and held the plane off as she dissipated the energy. When she touched down there was a slight bounce (of about six inches) but she kept working, not relaxing the controls, and the next touchdown she stayed down. Her rollout was right down the center of the grass runway. Her first landing in the PT-17 was much more than great. May all your landings be as good!

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