

HOW TO LAND AN RV

VAN

We've been asked that question many times, and have never had a ready answer other than: "Just like you land any other airplane!" End of discussion!

No, it isn't really the end of this discussion, but hold that thought---there's a lot of truth there.

An RV lands both the same, yet differently, than typical light planes. That sounds like a full-fledged "waffle", but, really, the similarities are much greater than the differences. We feel that a pilot who is truly proficient in typical light planes should have little problem adapting to an RV. Now, it is a matter of defining "proficiency". Part of my definition would be that the pilot has mastered the basics of flight. One would hope, and you probably assume, that this is true of the vast majority of pilots. But, a few weeks after jotting down the simplistic "lands just like any other airplane" premise for this long overdue article, I happened to read the following in the Oct. 20th edition of the AOPA E-letter.

"DO YOU KNOW HOW TO LAND AN AIRPLANE, REALLY?"

Here's what caught my eye: A new, dynamic AOPA Air Safety Foundation seminar called "Ups and Downs of Takeoffs and Landings" features original—and clearly unrehearsed—videos of landing attempts by hundreds of unsuspecting pilots at a large fly-in earlier this year. "Every pilot thinks he or she knows takeoffs and landings," said ASF Executive Director Bruce Landsberg. "But I challenge you to say the same thing after seeing this seminar. The fact is, many of us have been fooling ourselves, and this seminar proves it." Pilots who viewed advance copies of the video used in the program described the landing efforts as "good, bad, and ugly, with lots and lots of ugly."

Apparently there are more than a few pilots out there who are having trouble landing any airplane. Either they did not receive a good training in the basics, or have permitted these basic skills to become rusty through lack of practice and use. I'm sure that many will take exception to this, feeling either that I am acting arrogant or that I am trying to make excuses for my airplanes being difficult to land. After all, don't these pilots have licenses and years of experience? How dare anyone say that they can't really land? I'd rather not have to make and defend this statement, but, when I search for a way to explain the many RV landing accidents, I simply cannot arrive at any other conclusion: It is my firm belief that the reason many pilots have problems landing RVs is that they haven't really mastered landing "other airplanes." The folks at AOPA apparently agree and this opinion is reinforced by the observations of RV Transition Training

Instructor Mike Seager and several other highly experienced pilots I have spoken with.

Now, despite some generalizations and seemingly harsh statements in this article, our purpose is not to pass judgement on any of our reader/pilots. Our intent is to open a discussion of the subject of not only how to land an RV, but how to prepare yourself so that you can easily learn how to land an RV. Whether or not you are satisfied with your ability to land your RV, or anticipate having problems doing so, we hope you will carefully read this multi-part article. We will try to make it a meaningful review of the basic principles as well as a presentation of some of the specific techniques for landing RVs.

First, how can anyone say that a licensed, active pilot cannot "really" land? He's been doing so for years and has not had a "damaged airplane" accident. The best answer we can offer is that our pilot in question has not actually been landing these other aircraft, but to a degree, these airplanes

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have been landing themselves. How can this be? Well, many of the entry level production aircraft such as Cessna 150s and 172s, the smaller Cherokees, even airplanes like the Cessna 210 and Beech Bonanza, have extremely forgiving flying qualities. They

are equipped with energy absorbing tricycle landing gears and gentle stall characteristics. If a pilot can manage to fly one of them to within a few feet of the ground in a stable flight condition and at a speed reasonably close to stall, then by simply holding the controls in position, that aircraft will settle to the ground in an acceptable manner. It may bounce a little, but a less than exacting pilot can consider it an acceptable landing. He can hold back on the elevator controls and drop the airplane in and let it dribble itself onto the runway. Or, he can push the elevator control forward, force the airplane onto the runway, and let it dribble itself onto the runway. Sometimes this "autopilot" landing doesn't work out, and the aircraft's bounces get progressively worse until a go-around is needed, or until some part of the airplane bends. Whatever the result, in none of these examples has the pilot really *controlled* the airplane throughout the landing.

Fortunately, inability to "really land" an airplane is not an incurable disease or irreversible condition. The problem is that there is no magic cure; any more than there's a one-time pill to cure obesity. If I were forced to offer a single remedy, I'd say, "learn to master slow flight—really master slow flight". What does mastery of slow flight have to do with landing? Everything!

Airplanes land best at or very near their stall speed. At or below stall speed, they will stay on the ground. Above stall speed, they have enough lift to (sort of) fly again. If you cannot control the airplane precisely at near stall speeds, how can you possibly expect to control the airplane precisely enough to effect a smooth and safe landing?

It's always distressing to hear new RV pilots ask "how do you land an RV smoothly", or complain that "I just can't seem to make a good landing with it". We like pilots to be satisfied and happy with our planes—to love them unconditionally as we do. Because we land our RVs in what we feel to be a conventional manner, basically the same way we land other airplanes, we are at a loss to explain specifically "how to" land an RV. Other than to say that the controls are lighter and respond more quickly, or that the RV landing gears may be "more springy" than those of some other airplanes, we don't have any magic tricks to offer.

Usually, after a more in-depth discussion of how the pilot is making his approach and attempted touch down, we get a few clues as to the source of the problem. And that, usually, is that the pilot does not *really* know how to fly slow.

PRACTICE, PRACTICE, PRACTICE

One of the best things a pilot can do is learn how to fly the airplane, with precision, right down through stall speed. This is not the same thing as practicing a few stalls, where one rapidly decelerates to stall speed, waits for the break, lowers the nose, adds power and recovers. That may be minimally OK for stall avoidance and recovery training, but falls far short of qualifying the pilot as a master of slow flight. Being prepared to make precision landings requires that the pilot be able to fly the airplane precisely, for at least several seconds, in slow flight, accurately controlling attitude, direction, and altitude during those last few feet before contacting the ground. The real "trick" is to contact the ground at a low sink rate and in a straight flight path. It sounds easy enough, but many pilots are apparently not able to do so.

Any pilot who is capable of controlling his airplane for a prolonged time within 5 mph of stall speed should have little trouble landing. That capability does not come automatically. It must be learned and learning requires practice and repetition. Practice stalls by reducing speed slowly, striving for a deceleration rate of 1 mph per second. This approximates the deceleration rate which will be experienced during a normal landing. Thus, the landing approach approximates the approach to the stall. The difference is that in landing, the wheels touch the ground at the time the stall occurs.

Practice flying the airplane at a speed between 5 and 10 mph above stall speed, while maintaining a constant altitude. When you are comfortable with this, include gentle turns. Again, work to maintain coordination and a constant altitude. This does not exactly simulate any portion of a normal landing approach. However, it does teach precise control of the aircraft at a critical flight condition. During the idealized landing, the airplane decelerates and loses altitude in a perfect sequence. At just the right time

the wheels touch the ground and the need for flight control has ended. In the real world, the upsetting effects of wind gusts, and an imperfect, rebounded touch down, requires that pilot make immediate and precise corrective control input adjustments at critically slow flight speeds. That's the reason for practicing prolonged flight at minimum speeds. An advanced method of practicing slow speed control is to fly within 10 mph above stall speed and 5 ft. of the runway for a prolonged distance. This is a good test of whether or not you can demonstrate precise control in the landing condition.

In a broad sense, a good landing is the culmination of a good landing approach, which starts on the downwind leg. You probably remember this from the days of your flight training. Target a certain speed and power setting opposite the numbers; after turning base leg; after turning final; over the numbers, etc. Flaps down, or partially down at given points—approximate altitudes at key points. This can be classified as a planned approach, or perhaps a stabilized approach. Its purpose is to bring the airplane to a certain point, at a certain speed and altitude, so that a good landing can be made with a minimum amount of further control input and/or maneuvering. You might equate this to the flight of a hand launched model airplane glider. Properly trimmed and launched, it will glide at a steady speed and angle until it skims onto the lawn and slides to a stop. Up to the point of touch down, there is a close similarity between the stabilized approach of the real airplane and the glider. Even in an ideal condition, because of speeds and scale factors, the real airplane needs precise control inputs at specific speeds and altitudes, to effect a smooth touchdown. If the flight path of our hand launched glider is disturbed by air turbulence or poor trim, it will crash. So will our real airplane if the pilot does not possess and exercise slow flight skills.

In the next installment we'll talk about the differences between RVs and common light planes. Then I will describe, step by step, how to land an RV -- or at least, how I do it. It will do little good, though, if the pilot is not capable of flying with the precision and finesse required to follow these steps. Grab whatever airplane you have access to, find a few hours of good weather and go practice. Practice. Practice.

