

# HOW TO FLY AN RV

The First of a series of Flight Training Articles

Van

## RV TRANSITION TRAINING

In October, the FAA issued a Notice of Proposed Rule Making which would permit limited commercial use of Amateur Built aircraft licensed in the Experimental category for transition training. This NPRM had a short comment period, which will have expired by the time you read this. We hope this rule will soon be placed in effect so that we can begin implementing an expanded RV transition training program.

In our own back yard, such training has been happening for quite a while. With cooperation from the local FAA, both Mike Seager and Jerry VanGrunsven have been flying with transition students regularly. We feel that many "fender benders" and perhaps more serious accidents, have been avoided or prevented because of this training. A fringe benefit is that Mike and Jerry have been able to observe and categorize some common areas of piloting weakness. We plan to write a series of instructional articles on these and other topics, in hopes that all readers of the RVator can benefit from them.

Based on what we have learned from Mike and Jerry, we are slowly developing a comprehensive syllabus that we will provide to instructors with RVs (preferably RV-6/6As). They will teach the basics of RV flying to those who are about to fly the airplanes that they have built. Training will also be available to those purchasing flying RVs. As we envision it, several instructors with training airplanes will be scattered around the country, all teaching the same basic program. The student will contact the instructor nearest him and arrange the training at a mutually acceptable time and place. The individual instructor will set the cost of the program. Training may also take place in the student's airplane, if the Phase I requirements have been fulfilled.

## BETTER PILOTS OR BETTER AIRPLANES

All of us involved in amateur built airplanes (we at Van's, the EAA, etc.) are always talking about ways to improve safety. 'Better airplanes,' say some; 'better pilots,' say others. Let's take a general look at RV accidents and see if that might be a starting point for determining corrective action.

The accident history of RVs in some ways mirrors general aviation accidents, but there are some differences. Since RVs are good aerobatic airplanes, and most are used (or abused) somewhat in this capacity, a higher percentage of RV accidents involve aerobatics than you find in the rest of the general aviation fleet. Though 99 of 100 RVs use standard aircraft engines, engine failure accidents are higher than for the rest of general aviation. This is probably because of the experimental nature of engine installations in amateur built aircraft. This is also understandable...many RVs start out with high time engines, not new ones like factory airplanes. Variations in engine accessories and poorly thought-out installation details can lead to a higher incidence of failures. Also, "performance enhancement" modifications can shorten the lives of some engines. However, even considering these differences, that old demon "pilot error" dominates the picture.

If you accept the premise that homebuilt airplanes are inherently subject to a higher accident rate because of factors such as the above, then the logical approach to reducing the overall accident rate would be to improve the pilots. After all, it isn't usually the

airplane's fault if the accident happens during take-off or landing, or if a stall results in a spin, or if a VFR flight ends up in IFR conditions.

We know that accidents, particularly fatal accidents, occur to only a small fraction of the RV fleet. Does this mean that only a small fraction of the pilots are deficient in flying skills and/or judgement? Not necessarily. Let's look at the entire cadre of RV pilots and rank them from bottom to top.

A theoretically completely untrained and unskilled pilot will have an accident on 100% of his or her flight attempts. On the opposite end of the scale, the best pilot, while never perfect, is so good that the probability is that he or she would not have an accident in many lifetimes of flying. The rest of us fit somewhere in between.

Back at the lower end of the scale, several percent of the new RV pilots face a probability of accident within, say, 10 to 50 flights. At that rate, they might not have an accident for a year because they don't fly much. For the slightly less incompetent, the probability may rise to one in 250 flights. An average pilot may have a probability that works out to one in 50 years, or a lifetime. The best pilots may have a probability of only one accident in several lifetimes. (These probability numbers are strictly hypothetical, and are presented only to illustrate a numerical relationship between flying ability and safety.)

For the lowest skilled pilot, just a little training or skill improvement could decrease their accident potential by a factor of 5, 10, or more, perhaps lowering the probability period of an accident to more than their flying lifetime. Since only a very few RV pilots fly so poorly, it would follow all we need do is upgrade that small fraction and we have eliminated most RV accidents! (I realize that this sounds very smug and judgmental, but I mean it only as a blunt analysis of facts; a means of categorizing pilots and identifying their dangerous deficiencies so that they might be corrected. The stakes are high and false politeness serves nobody well.)

I wish that it was that simple. None of us is godly enough to identify all "at risk" pilots, and effect a perfect upgrade training of them. None of us knows when even the best pilot will make a mistake or exhibit poor judgement. The truth is that we are all imperfect and can all benefit from self-analysis, practice, and training. For the very low risk pilot who's accident probability is already 10 lifetimes, a very precise honing of skills is required to lower his risk to 15 lifetimes, but it is possible, and it does improve the odds.

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Most of us routinely apply some effort toward becoming safer pilots. We practice the basics now and then (usually the week before our BFR!) and consider ourselves safe pilots. But things creep up on us when we aren't looking. If we become rusty in one particular aspect of our flying, it becomes uncomfortable and we just let it slide. The apprehension grows, practice stops, and that skill erodes completely.

For example, the private pilot exam requires that a pilot be able to make precision landings within certain prescribed limits. But if this pilot chooses to fly his entire career from airports with over 4000 ft. runways, precision landings are not absolutely necessary, and are therefore ignored and that skill slips into oblivion. So, big deal; some pilots can't make fancy-dancy landings — it's not like the world is coming to an end because of it!

Well, guess what one of the most common findings of our transition instructors is? A considerable number of pilots — and these are not new student pilots — are not able to put the airplane anywhere near a specified point on the runway. They quit flying at 5-10 feet above the runway. Apparently, at that point they feel "close enough" and just let the airplane land how and where it wants. I doubt if this is the procedure they were taught as student pilots. Even if an airplane is

rugged enough to withstand this sort of abuse, it will at the very least lead to higher maintenance costs, and at worst, to major repairs. And it is damn sure not going to earn compliments from instructors like Mike and Jerry. The result is that pilots such as this require a considerable level of "re-training" before they can even begin any meaningful transition training.

Another factor is age: most of us are in the age bracket where our motor skills are slowing down, and our vision is not what it used to be. We need to be constantly improving our knowledge base and judgement skills to offset the irreversible effects of aging.

In the beginning (of Van's Aircraft) I would never imagined the need to write articles instructing pilots in the rudiments of flying. They learn that at flight schools, don't they? Usually, but then some pilots regress in the many years between that training and now. And, some training was better than other training. There are different ways of viewing training and flight tests:

- 1) The Private Pilot flight test consists of demonstrating the *minimum* skills necessary to exercise the privilege of that certificate. From this viewpoint, it follows that the pilot will continually strive to add to and improve upon these minimum skills after he gets his certificate.
- 2) The Private Pilot exam includes everything that a pilot would every need to know to handle any circumstance he might encounter in his flying career. From this viewpoint it could follow that a pilot might choose to ignore some of the knowledge and skills required by that exam, on the basis that they do not apply to the exact circumstances in which that pilot chooses to fly.

I think choice 1 makes better, more confident pilots, and reduces accident risk.

Our hope is that this series of "how to fly" articles will serve as a refresher to long past training, and maybe take over where a marginal training curriculum left off. We hope that many more than those in the lower 10 percentile will read, analyze, and benefit from them. For instance, *Sport Aviation* magazine long ago recognized the need for on-going pilot training and began running the 'Flight Ops' column. I, like no doubt many of you, have traditionally skipped this column on the basis that "I am an experienced pilot and don't need no more stinking training." Motivated by my involvement with the insurance industry regarding transition training, I read a few Flight Ops articles to see what they might contain to benefit 'other' pilots. Guess what? There's stuff in those columns that applies to *me*. How about you?

Bear with us as we get this feature off the ground. We will be looking for your comments and input.

