



The Flight Instructor's Manual



Based on the original text by
William K. Kershner
6th Edition | Edited by William C. Kershner

William K. Kershner began flying in 1945 at the age of fifteen, washing and propping airplanes to earn flying time. By this method he obtained the private, then the commercial and flight instructor certificates, becoming a flight instructor at nineteen. He spent four years as a naval aviator, most of the time as a pilot in a night fighter squadron, both shore and carrier based. He flew nearly three years as a corporation pilot and for four years worked for Piper Aircraft Corporation, demonstrating airplanes to the military, doing experimental flight-testing, and acting as special assistant to William T. Piper, Sr., president of the company. Bill Kershner held a degree in technical journalism from Iowa State University. While at the university he took courses in aerodynamics, performance, and stability and control. He held the airline transport pilot, commercial, and flight and ground instructor certificates and flew airplanes ranging from 40-hp Cubs to jet fighters. He is the author (and illustrator) of *The Student Pilot's Flight Manual*, *The Instrument Flight Manual*, *The Advanced Pilot's Flight Manual*, *The Flight Instructor's Manual*, and *The Basic Aerobatic Manual*. Kershner operated an aerobatics school in Sewanee, Tennessee using a Cessna 152 Aerobat. He received the General Aviation Flight Instructor of the Year Award, 1992, at the state, regional and national levels. The Ninety-Nines awarded him the 1994 Award of Merit. In 1998 he was inducted into the Flight Instructor Hall of Fame, in 2002 was installed in the Tennessee Aviation Hall of Fame, and in 2007 was inducted into the International Aerobatic Club Hall of Fame. William K. Kershner died January 8th, 2007.

Editor William C. Kershner received his early flight training from his father, William K. Kershner. He holds Commercial, Flight Instructor and Airline Transport Pilot certificates and has flown 22 types of airplanes, ranging in size from Cessna 150s to Boeing 777s, in his 15,000 flight hours. He works as an airline pilot and lives in Sewanee, Tennessee.

To my wife, Betty

and to the flight instructors, pilots, and others in aviation who tried to improve my aeronautical knowledge over the years: Pat Howell, Arch Agee, Horace Draughon, Waldo Rassas, Frank Knapp, Wade Hadley, Buford Ledbetter, Baxter Lehman, Clyde Brown, Piedmont Poindexter, L. M. DeRose, Truman W. Finch, E. B. Salsig, and many others to whom I owe much thanks.

W. K. Kershner

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Sixth Edition

William K. Kershner

Illustrated by the Author

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Introduction

This book is a reference for those in the process of working on the flight instructor's certificate and a guide for the new instructor.

I believe that too often newly certificated instructors feel they are left "on their own" and need a written reference to which they can turn for information about students' and more advanced pilots' problems that they will encounter. I've tried to list common errors in each area or maneuver and have suggested methods of coping with them.

The manual is set up so that an instructor who is starting to teach advanced stalls, for instance, can refer to that chapter for suggestions without reading the rest of the book. While each chapter is a part of the whole book, I've tried to write each so that it can be used by itself as a reference for a particular phase of instruction. As an example, the advanced stall material repeats some of the common errors noted earlier in the chapter on elementary stalls. Or a chapter on other advanced flying may cover a review and lead-in from the more elementary sessions.

The reader will note that I advocate the teaching of integrated ground and flight instruction, rather than a block of ground school that doesn't apply to the flying at that time. Lest it appear that I am a late convert to the system, I have been using this method of instructing with every student I've worked with since 1949, and *The Student Pilot's Flight Manual* was published in 1960 using this approach, I believe, for the first time in print. I feel that this is the best technique to keep the students' interest and to help them learn.

The Flight Instructor's Manual, with minor variations, parallels the material as presented in *The Student Pilot's Flight Manual*, *The Advanced Pilot's Flight Manual*, *The Basic Aerobatic Manual*, and *The Instrument Flight Manual*. This might be considered the instructor's text for those four manuals; and it is a "how to instruct" guide rather than a detailed text on the basics. The other manuals should be used for details as they would be presented to the new pilot.

Again, as in my other books, changes were made by the FAA in forms and releases during the process of writing. I've tried, in most cases, to stick to the general idea of teaching people how to become safe pilots. As you work on the flight instructor's certificate, use this manual for the principles, but refer to your Flight Standards District Office for the latest specific requirements.

I've been fortunate in that a number of knowledgeable individuals aided in the process. Any errors are mine, however.

W. K. Kershner's Acknowledgments for the 1st–4th Editions

I wish to thank the following people:

The late Bill Whitmore of the Nashville FSDO, whose knowledge of and common sense approach to instrument flying I particularly respect. Many of his suggestions were used here.

The late Lonnie Thurston of the Nashville FSDO gave me many good ideas about ground reference material.

Stanley Mohler, M.D., former head of the Aero-medical Applications Division of the FAA at Washington, who has visited Sewanee several times and with whom I have flown aerobatics in the checking of physiological effects of g forces on the pilot. His suggestions and information sent on that subject were very valuable to me in writing on aerobatics instruction.

Leslie McLaurin, airport manager at Sewanee, who read the complete manuscript and made good comments and suggestions that were incorporated.

Glen McNabb, flight instructor of Jasper, Tennessee, who let me use him as a "test project" while he was working on his certificate several years ago. Some ideas from his notes were used here.

Evelyn Bryan Johnson, flight instructor at Morristown, Tennessee, who reviewed the first half of the book and whose comments were much valued.

Genie Rae (Mrs. Dave) O'Kelley, flight instructor of Knoxville, whose attitude toward instructing should be copied by more of us.

Bob Bomar, veteran flight instructor of Shelbyville, Tennessee, with whom I've discussed flying and instructing many times over the years and whose opinions I respect highly.

Major Gary L. Moore, U.S. Army, for his paper "Integrated Flight Instruction," as part of his postgraduate work at Middle Tennessee State University.

John Anderton, former flight student at Sewanee, now a captain with U.S. Air, whose work with a camera in several spin sessions was above and beyond the call of duty.

The late Louis Cassels and *Nation's Business* for permission to refer to Mr. Cassels's article "Eight Steps to Better Training" (published March 1961, *Nation's Business*, 1615 H Street N.W., Washington, D.C.—check for reprints).

William E. Wells, who came to take my aerobatics program and left me with very useful copies of his own work in setting up flight instruction syllabuses.

I must acknowledge the help I received from *Cessna Aircraft Company*. My work with Ed McKenzie, Joyce Case, and Jim Kemper on the *Cessna 150 Aerobat Manual* remains one of the most enjoyable times of my writing career. Bill Thompson, Engineering Testpilot at Cessna, gave me the benefit of his knowledge and he furnished concrete help in the form of reports. I appreciate very much *Cessna Aircraft Company's* permission to use sections of the *Aerobat Training Manual* in the part on aerobatics.

James S. Bowman, Jr., of the NASA Spin Tunnel at Langley answered my questions on the subject, making me realize how much there is to learn.

Thanks must go to Callie Hood, Barbara Hart, Denise Childers, and Judy Rickman for typing the smooth copy of the manuscript; to my wife, Betty, who typed the rough copy; and to my daughter, Cindy, who helped arrange illustrations. Nan Thomas at the University of the South was helpful with facilities there.

In the second edition, Rowena Malone and Judy Timberg made further improvements in presentation and readability.

Working with editor Lynne Bishop has been a pleasure, not only on this 4th edition but also on my other books and editions. Her humor and astute advice have saved me from editorial disaster more times than I need to mention.

Thanks to Catherine Cavagnaro, CFI and professor of mathematics at the University of the South, for flying the glide tests in chapters 4 and 8 and helping with the cover of the fourth edition.

Appreciation is expressed to James W. "Pete" Campbell of the FAA for his efforts on behalf of flight instructor refresher clinics through the years and most of all for making FARs interesting. Figure 17-8 was inspired by one of his talks; other ideas on principles of instructing germinated at Pete's clinics.

Thanks to Scot Oliver of Sewanee for his aid in making movies of spins.

Special thanks to George Naff who came to take my aerobatics course and left me most useful ideas of syllabuses for this book.

The term *Pilot's Operating Handbook* is used here as a term to include the older airplanes' Owner's Manuals and/or Airplane Flight Manuals and other manufacturers' operating information.

As this book has to be a general approach to flying, the *Pilot's Operating Handbook* procedures for a particular airplane will naturally take precedence over procedures indicated—for example, use of carburetor heat, flaps, spin entries, and recoveries.

The instrument markings in the illustrations are generally close to those expected for the type of airplane being discussed, but in most cases the "numbers" (V_{S0} , etc.) have been fictionalized.

Needless to say, *none* of the performance or navigation charts are to be used for actual flight, but are examples for discussion.

A Note on the Fourth Edition

Thanks to Margaret Morrison and Tom Jones of the Richmond FSDO, former aerobatic trainees of mine for their input and information in writing this edition. Also, thanks to Catherine Cavagnaro, math professor and CFI, for helping with glide and other flight experiments.

Thanks also to Elizabeth Motlow for the photo for the cover of this edition.

The latest FARs and government publications have been checked for in this edition, but you should check with your FSDO and other sources for changes in FARs! (Fortunately, flying and instructing basics will remain basically the same.)

In the flight manuals I've often had to use the words "he" and "him" to refer to students, just because it's impossible to mention both men and women every time. However, an increasing number of flight instructors and students are women, and these manuals are meant to be for and about them as well as their male counterparts.

I would appreciate comments from flight instructors who use the book.

W. K. Kershner



Acknowledgments for the Fifth Edition

A novice pilot's entire flying life is influenced by the CFI, especially that initial instructor. The value of that foundation is too often under-appreciated.

My thanks to Jackie Spanitz, Jennie Trerise, Sarah Hager, Laura Fisher and Kelly Burch from ASA for their guidance and technical expertise in producing this edition. Linda Schumm (CFI and Chief of Aviation Safety for the Illinois Department of Transportation) and Rebecca Gibson (CFI and manager of the Sewanee Airport) gave me good insight in teaching primary students in technologically advanced (i.e., distraction-filled) airplanes. Thanks to Jim Efirm for catching my mistake on teaching slips pre-solo.

The fifth edition of *The Flight Instructor's Manual* is dedicated to my sister, Cindy.

William C. Kershner
Sewanee, Tennessee

Notes on the Sixth Edition

One of the biggest changes to flight instructing recently is the advent of the FAA's *Airman Certification Standards*. The ACS is a "from-the-ground-up" rework of the *Practical Test Standards* and a big improvement for checkride preparation. ACS breaks the practical test down into very logical Areas of Operation (e.g., "Traffic Patterns") with subject matter references,

followed by the task's Objective and three subsets of the task: *Knowledge, Risk Management and Skills*. The examiner is required to include at least one of the Knowledge and Risk Management points on the test, and evaluate all of the Skills requirements.

You won't find many direct references to the ACS in *The Flight Instructor's Manual*, because this book is written to teach how to teach, and to have students gain the skills of flying safely regardless of the latest methods of running a checkride. Of course, the ACS should

be used to ensure the student is fully prepared for the specific requirements of the practical test.

Additionally, 14 CFR Part 23 has been dramatically changed from *prescriptive* to *performance*-based standards. This greatly simplifies the regulations in hopes of making certification of new aircraft easier and cheaper, while lowering development costs with no loss of safety. The changes are somewhat analogous to changing the requirements of building a garage from,

"The trusses of the roof will consist of 2x6 lumber, spaced no farther apart than 16 inches, enabling the roof to withstand the weight of 6" of wet snow or wind gusts up to 45 knots in dry conditions..."

...to, *"The roof of a garage must be able to withstand the weight of 6" of wet snow or sustained wind gusts up to 45 knots when dry without failure."*

These new standards should allow for more innovation and will only apply to aircraft certified under the new part (effective August, 2017). Removed are the Normal, Utility and Aerobatic classes, replaced by "Normal" and "Normal approved for aerobatics." The entire population of aircraft certificated under the old Part 23 will continue under that part, so it will be some time before you might encounter a airplane built in accordance with the new FAA reg's.

—W. C. K.

On Being a Flight Instructor

Background

THE FLIGHT INSTRUCTOR'S CERTIFICATE IS THE MOST IMPORTANT ONE ISSUED. Unfortunately, it is not always viewed that way, but instead it is often thought of as a "license to build up time" for other flying jobs—or other certificates and ratings. If you're going to be a flight instructor (for whatever reason), be the best while you are doing it.

THE BEST FLIGHT INSTRUCTORS HAVE THE FOLLOWING THINGS IN COMMON:

1. **A KNOWLEDGE OF THE SUBJECT.** They continually study to update themselves.
2. **THE ABILITY TO TEACH.** They know how people learn and provide instruction appropriate to the individual and the circumstance. Their instruction is accurate and properly sequenced.
3. **A GENUINE INTEREST IN THE LEARNER.** They like working with people. The instructor-student relationship is good and they have the confidence of those who are learning. They have consideration of the student's point of view.
4. **PROFESSIONALS IN THE AIR.** They have skill and are self-disciplined in the airplane. Their relationship with students is that of friendly authority. (If they are authoritative only, that's bad; if they are friendly without authority they are ineffective and the student will pay later.)
5. **ADAPTABILITY.** If the old "proven" methods don't work with a particular student, professional flight instructors use new techniques, understanding that these new approaches apply only to these individuals.
6. **CONSISTENCY.** They don't change personality but use the same standards from one flight to another.
7. **UPDATED INSTRUCTING TECHNIQUES.** Every once in a while they take a look at themselves to see if they've gotten in a rut and change their outlook to rejuvenate their attitudes toward instructing.

Successful instructors' goals of teaching are to:

- a. instill high standards in students;
- b. teach precision habits;
- c. reduce tolerances as instruction proceeds;
- d. detect unsafe habits and correct them (or, more positively, teach safe habits from the beginning).

Your Influence

The flight instructor exerts more influence on flight safety than any other pilot. You may ask, "What about airline captains who fly thousands of passengers every year? Don't they have more influence than people who may instruct, at most, 30 people in that time?" Remember that those airline captains didn't spring fully rated into the left seat; much of their attitude toward flying, and their flying habits, are the result of the first few hours of their flight instruction. If they have been flight instructors at some point in their careers, be assured that they passed on some of the ideas they got in *their* early learning period. This passing of information by flight instructors includes bad ideas as well as good ones, unfortunately.

The student pilot tends to imitate his instructor: If you are the kind of person who thinks that Federal Aviation Regulations are for less-experienced pilots than you, think about the effect on the student if you buzz and show off at low altitudes. You might get away with it, but if a student gets in trouble because he was influenced by your actions, you'd feel low enough to put on a 10-gallon hat and walk under a snake's belly (and that's *low*).

It will bring the idea of your influence directly home when a student of 10 or 15 years ago stops by to say, "I'll always remember that time we were doing stalls, and you taught me that..." You don't even remember flying with him, it's been so long ago, but it *has* stuck with him. Another time, you may hear about one of your ex-students who, after inadvertently flying into

IFR conditions, saved himself and his passengers by using the emergency instrument flying instruction you hammered so hard at him. Your next reaction, though, after feeling that you've accomplished *something*, will be to wonder why you weren't able to instill enough judgment so that he would avoid getting into such a situation requiring the emergency training.

Speaking of judgment, throughout this book scenarios will be used to show how to help the student or low time pilot set up his own ideas of aeronautical decision making (ADM) or judgment calls.

You will be an obvious example, and how you act during flight training will affect how the student pilot makes his or her decisions in later years. You, the instructor, may lecture about aviation safety, but unless you fly the way you talk, there will be faint hope of student pilots taking you seriously.

You may later see one of your private or commercial (or instrument, or instructor) trainees getting careless. Will your influence be enough to straighten him out?

It's good to know that people come from miles around to get the word on flying because they know that you are the person who will give it to them straight. *Use your influence* to make these people fly safely.

General Responsibilities

As a flight instructor you will be responsible for:

1. Starting a student, giving him ground and flight instruction so that he may safely solo.
2. Overseeing his solo flights in the local area.
3. Giving periodic dual instruction to add to his knowledge and to check his progress.
4. Giving proper ground and flight instruction to assure him of safely flying the prerequisite amount of solo cross-country for the private certificate.
5. Preparing him to pass the private knowledge test and check ride.

That simple layout of requirements has a certain *now* aspect as it stands. It boils down to (1) assuring that he is safe to fly solo locally, (2) making sure that he is safe to fly solo cross-country, and (3) seeing that he can pass the private check ride and not embarrass you. What's not listed in the earlier list is implied. You'll make sure that (a) 2 years from now he doesn't neglect to preflight the airplane properly, resulting in problems in flight, (b) 3 years from now he uses judgment and cancels a flight even at great inconvenience because of weather he feels he can't handle, or (c) 4 years after he's left you, he gets several hours of dual because he's hit

a slump and knows he needs instruction. *Teach him to recognize his limitations.*

The same thing applies when you are working with a person on the commercial, multiengine, or instrument rating or flight instructor's certificate. You'll actually have three goals to accomplish:

1. Teach the particular item so that he can move on to the next phase.
2. Give him knowledge so that he can continue to complete the requirements to get the particular certificate or rating.
3. Teach him an attitude toward flying that is fixed in his mind long after he's forgotten exactly how to do a specific maneuver for the flight test.

You teach an instrument student *basic* instrument flying so that he will be ready to go on to radio work and take the practical test. After he takes the practical test, he will have to cope with the weather and ATC systems, so your real objective is for him to be successful in doing that, not just the short range aim to pass the practical test. The practical test *is* necessary because it covers areas of knowledge needed to cope with the system, but it's poor policy for an instructor to train an individual strictly for a practical test and even worse to train for a *particular check pilot*. ("This check pilot is heavy on GPS work so we will work on that and won't have to spend much time working on the VOR..." Both the instructor and check pilot are wrong in this case.)

You'll see that your personal responsibility can be heavy. A long distance call from a town to which your student left on a cross-country an hour ago can be quite a jolt until you find out he's okay, except that he had a flat tire when taxiing in there and will be delayed. Or, you'll worry about the student who should have been back 30 minutes ago until (finally) you get his call on the Unicom, or he comes into view over the horizon. You'll be relieved and just a little peeved at him but will give him a chance to explain before starting to discuss his shortcomings.

You'll feel the pressure, too, when you've worked with a person for several weeks or months, recommended him for a particular certificate, and sent him up for the practical test. It can be a very long interval from the time he taxis out with the check pilot until you find out he passed. You can remember all sorts of information that should have been covered in more detail. Of course, his busting a practical test is not a grave event—compared to his having an accident—but you'll sweat the practical test anyway.

Another of your responsibilities to the student is to be truthful if one of your demonstrations goes awry. Most of the times you goof will be obvious (or at least

that wasn't the way you explained it on the ground), so tell him that was not the way to do it. Then, when you do it slickly and say that is the way, he'll trust you.

Always be ready to add to your instruction. Many times an unplanned event gives a good opening to add some knowledge of flying. ("Notice how smooth the air got when we climbed out of the haze layer? Well, that's because...") Sometimes your throat is sore and you're hoarse from talking, you're beat and just want to get back on the ground; but then the airplane ahead of you on final is catching wake turbulence and doing violent maneuvers to get out of it, and you have a graphic way to make a point. So you talk about wake turbulence (and avoid it) while the sight of that airplane is still fresh.

Here's an example to sum up the personal and moral responsibilities you'll feel as an instructor:

Some years ago a flight instructor was asked by another, "Do you remember John R., who was your student a couple of years ago and moved away?" The instructor recalled him very well. The other instructor said, "Well, he got killed last week."

The instructor, who had worked with John R. from the first flight until he had gotten his private certificate, was shaken and tried to think of things he might have done wrong during the flight training. His thoughts were interrupted by the giver of bad tidings. "Yeah, they say that it was one of the worst freeway pileups in L.A. in years. Must have been 40 cars involved, and he was just riding as a passenger." Needless to say, in addition to feeling bad about John R.'s demise, there was a genuine feeling of relief that he wasn't killed as the pilot of an airplane.

Concentrate on *decision-making skills* with all the people you teach. All too often instructors forget that this is the most important skill of all. It's a nebulous quality, changing from situation to situation, but this book will try to give ideas on how to convince new pilots of its importance. The most important times for decision making will be after the pilot is out on his own and has to make a go/no-go decision without your help.

Your Personal Considerations

Integrity

Take a look at an area of most importance—personal integrity.

One of the biggest sources for gripes by flight students is for them to come to the airport at the scheduled time only to find that the instructor has departed on a more lucrative charter flight. Nobody bothered to

contact the student, who may have driven many miles and changed his own schedule to be there at that time.

You know that, if some individuals made the statement that the sun will definitely be coming up tomorrow, you'd rush out and stock up on candles. On the other hand, you'd bank your life on what some other people say. *Keep your word.*

Appearance and Other Things

Let's face it, some of us are born to look like 5 miles of bad road and that can't be helped, but the airplane cabin is a small world. Nowadays many of your students will be successful professional men and women, and they won't put up with a guy in greasy overalls who smells like he's been cleaning hangars for the past 5 days and nights. Clean slacks and sport shirts or a neat, clean flight suit are fine. A suit and tie may sometimes be carrying it a little too far, but it's a lot better than the other extreme.

Pilots (and instructors) have been known to take a very small drink of alcoholic beverage on very rare occasions, as anyone who has been to one of their parties will testify. That's fine, but it goes without saying that meeting a student for flying with beer or whiskey on your breath would hardly inspire confidence. Imagine your reaction if you took up scuba diving and on the first lesson the instructor leaned over, breathed 90-proof fumes in your face, looked at you with blood-shot eyes, and said, "Okay, let's dive." Give yourself at least *eight hours of sleep* between *any* drink and flying. After the plane is in the hangar, it's your business what you do—as long as you'll be completely ready for tomorrow's flights. Some instructors won't come to the airport after having a beer even if they aren't going to fly at all, because if somebody smells their breath, the final magnified story will likely be that they were "loaded to the gills and making inverted passes at the hangar." (All he did was drive back to pick up some charts for tomorrow's cross-country after having a beer at the airport lounge at the end of the day's flying.)

Actions

Even more important than appearance is your actions. Some instructors think that the louder they yell and the more they shake the student up, the more apt he will be to learn. Instructors could get away with it in olden days in military flight programs, but nobody learning to fly on his own is going to pay today's prices to be ranted at. A person who uses personal abuse has no business being a flight instructor.

It's probably most difficult to be patient in a group training program; you'll have five or six students and

they're at the same stage. The first student of the morning can do a pretty grim job of flying and gets nothing more than a humorous correction and careful extra instruction from you. The situation tends to deteriorate until the student who rides with you in the afternoon makes a minor bobble of the nature you've faced all day, and you want to snap his head off (sure you have a headache, but that's the first time *he* has made that mistake). So it boils down to this: Patience is one of the finest virtues of a flight instructor and a student shouldn't suffer for your, or other students', problems—only his (it says here).

Another point to remember is that sarcasm is no training aid and *has no place in the syllabus at any time*.

As far as your language is concerned, an occasional “hell” or “damn” may slip out to emphasize a point, but you have to know your student and you should generally avoid it. As for those four-letter Anglo-Saxon words, forget it. Sure, sometimes it may seem that they help when you hit your thumb with a hammer or some other such calamity occurs, but nobody is paying \$75 an hour to hear you swear. You'd be leery of a doctor who used obscenities as he treated you, right?

There's the strong, silent type of instructor who grunts occasionally and that's about all. Too much talking distracts a student, but often these are guys who rightly realize that if they ever open their mouths people will find out they aren't good instructors. In some of these extreme cases, the instructor makes no sound at all until the student goofs (which he is likely to do, since he hasn't been getting any instruction on the proper way to do it) and then the instructor violently grabs the controls, jerking the airplane around, and shouts something like, “You call that a &%*#! 720° turn?!?” (No, actually the student thought they were supposed to be doing spins; or was it slow flight?) Shouting and yanking the controls out of the student's hands shows a definite lack of self-control. See Chapter 2.

Prejudices

All people have prejudices of one kind or another, and some of your students may possibly be the combination of *all* of yours. The problem with prejudice is that learning can't proceed if the prejudice gets in the way. If you don't like long hair (on men) and beards, your student having these tonsorial accomplishments will sense it and your instructor-student relationship will be bad, as the education people say. Or maybe you don't like bald-headed men, or think women should be kept from the airport. You'll have to look at people as individuals, and usually after you fly with them awhile you'll get along well together.

Some people are permanently antagonistic to each other from first sight, and after a couple of flights with a student you may feel that it won't work at all. Transfer him to another instructor; there's no point in both of you getting an ulcer (and wasting the student's money). The necessity for letting a student fly with somebody else because of “personality clashes” will arise occasionally, so don't worry about it—unless you start to have a steady turnover.

Keeping up to Date

After becoming an instructor, *you should attend a Flight Instructors' Seminar every year if at all possible*. This gives you an inner confidence that will show in your instructing. When you come back from a seminar you won't be wondering whether the FAA might have changed some requirement in the last year that you haven't heard about. It will confirm that you are (1) teaching the items the FAA will want on the flight test, and (2), more importantly, you are getting the information on flight safety and the latest techniques. You are also learning a great deal informally as you and the other instructors exchange information (much of it in the form of hangar flying). As you attend the seminars over the years, you'll see the same group of instructors there—the ones who need the information most are always absent.

Reading aviation magazines is also a good way to keep current on what's happening in flight training, as well as proposed and actual FAR changes. Aviation organizations such as the Aircraft Owners and Pilots Association and National Association of Flight Instructors publish newsletters for their members.

Instructor's Library

You should have available for your use the following materials:

1. AIM (faa.gov)
2. *Chart Supplement U.S.* (faa.gov)
3. Federal Aviation Regulations—14 CFR Parts 1, 23, 25, 61, 67, 68, 71, 91, 95, 97, 107, 135, 141, and NTSB Part 830 (www.faa.gov or http://ecfr.gov)
4. The latest *Airman Certification Standards (ACS)* for private, commercial, instrument, multi-engine, flight instructor (airplane), and *Practical Test Standards (PTS)* for flight instructor (instrument) (www.faa.gov)
5. The latest FAA Knowledge Exam information (www.faa.gov)

6. The *Pilot's Operating Handbook* for the airplanes you are instructing in.
7. Notices of Proposed Rule Making (NPRM) for upcoming changes (www.faa.gov..you can subscribe to be kept up-to date).

Have on hand also copies of FAA and Weather Service pilot training manuals and Advisory Circulars (AC), and commercially published texts (see the Bibliography and www.faa.gov).

The Right Seat

This chapter has been on the theoretical side, but one practical aspect of being a flight instructor is that you must become fully proficient in flying the plane from the right (or rear) seat. Airplanes are designed to be flown from the left side (or front) and that's where nearly everything of importance is located. The first time or two in the right seat you feel as graceful as an elephant doing ballet. For one thing, the flight instruments are on the left side and the airspeed indicator is sometimes set so far back in the panel that the lower (and critical) speeds can't be read. Figure 1-1 shows how things will appear on your first flight from the right seat.

You will soon get used to the relative position of the needle in the various airspeed regimes, but you can help yourself during flight instructor training by putting various colored strips of tape on the panel by the important airspeeds (Figure 1-2).

Naturally, such things as switches, starters, and some fuel selectors tend to be left-oriented, but generally this will only be a problem on the student's first flight. Under your supervision, he will be doing the starting and pretakeoff checks on all the following flights.

Flight Instructor Requirements

In 14 CFR Part 61, you'll find the *specific* knowledge and skill requirements you'll consider in working toward the flight instructor's certificate in sections 61.181 through 61.199.

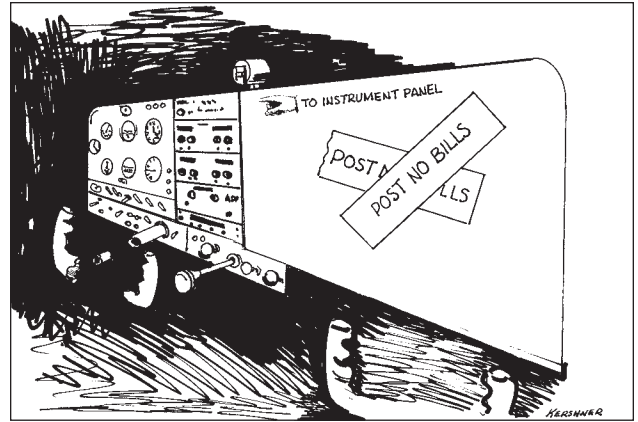


Figure 1-1. Things sure can look bare on your side of the instrument panel at first.

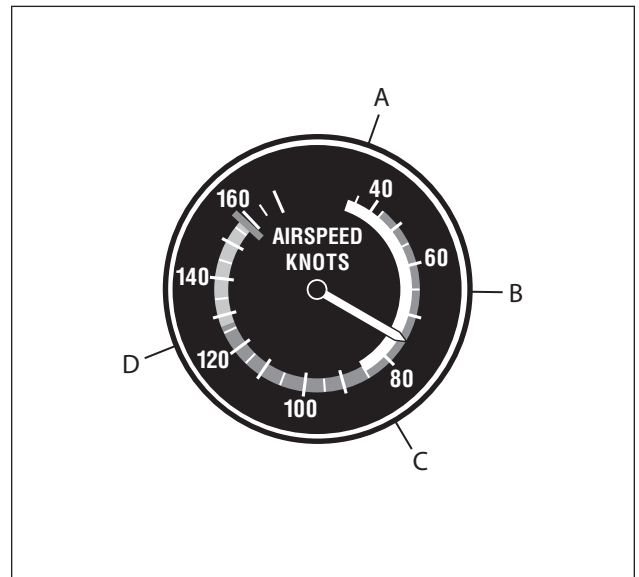


Figure 1-2. Using tape as a quick reference for various important airspeeds. **A** is the bottom of the white arc; **B** is the recommended approach speed; **C** is the top of the white arc; and **D** is the maximum structural cruising speed. (Usually you would be able to see the numbers on the left side of the airspeed indicator.)

Summary

This chapter has covered briefly what it means to be a flight instructor in general. Additional points will be made throughout this book on your responsibilities, influence, and other items as applicable to particular situations.

To be a good flight instructor, you must know your subject, understand how people learn, and be able to put yourself in the student's shoes—to treat the student as you would like to be treated.

Remember these points:

1. *Air discipline* or professionalism means that as an instructor you'll teach and strictly observe systematic rules and procedures adopted for flying. You won't compromise for an easy out in a particular situation. (For instance, cutting out part of the pre-flight check with a student because you're behind schedule.)
2. *Know your limitations.* Later, don't let the fact that you are experienced get you pushed into flying under marginal mechanical or weather conditions.
3. *Watch for overconfidence.* You'll probably hit this point after 200–300 hours instructing in the same airplane. You have the airplane and student situation wired, you figure, and nothing could happen that you couldn't handle.
4. *Stay current.* Keep up your studying and flying.
5. *Study emergency procedures.* Review from time to time what you would do in the event of an electrical fire or other actual emergencies. You owe it to the student to be able to get you both out of a problem.
6. *Don't surprise the student.* In a normal flight lesson, he should not encounter something unexpected from the instructor. You should tell him beforehand of the possibilities of errors during a maneuver or flight. If he has heard about what he's encountering, his anxiety level will decrease. Your student, like a good experienced pilot, should have surprises kept to a minimum. Let him know what to expect. Don't do something and then tell him what it was; *tell him about it and then do it.*
7. *Don't try to memorize many different airplanes' "numbers,"* but learn as much as possible about the principles of aerodynamics and engines so that this knowledge may be applied to a particular airplane as necessary. Be sure that you know the numbers of the airplane you are using for instruction, but don't worry if somebody asks for the landing speed of the Fokker D-7 (at max certificated weight, of course) and you don't have an immediate answer. *Know where to look for information.*
8. *Impress on your students from the beginning* that the first requirement is control of the airplane at all times. Too many accidents, fatal and otherwise, have happened because a pilot is distracted by things such as the smell of smoke (imagined or real), wasps or bees in the cabin, or a door coming open in flight. A wasp sting is less of a catastrophe than flying into the hangar because of distraction, and the airplane won't "fall" because the door is open. Planes have been landed gear-up because the pilot let a minor item (like a sick passenger) become a big distraction and got in too big a hurry to get on the ground. *Teach them to fly the airplane—and to use the checklist.*
9. *If you don't teach the student something new every flight* then you've wasted both his time and yours.
10. One thing of interest you will discover if you don't already know about it is that, *no matter how well you've trimmed the airplane*, when you turn it over to one of your advanced students or another instructor, *he will retrim it*—and so will you in the reverse situation. Perhaps this is an innate tendency to "claim territory," to establish control of the airplane by retrimming.
11. *When you have to analyze* what the airplane is doing and explain it in understandable terms to a beginner, you'll start really learning to fly.

Finally, opinion will vary widely among instructors as to what is the ultimate truth in flight instruction. A brand new flight instructor who was concerned about how he would be as a teacher approached a veteran of many years of rear- and right-seat experience. Could the experienced instructor sum up the most important factors of flight instructing, based on his great experience, in one sentence?

The crow's-feet at the corners of the older man's eyes deepened and his tanned face took on a very thoughtful look. There was a long pause, and as he started to speak, the new instructor took out a pencil and notebook to catch the ultimate truth. The old instructor cleared his throat and spoke.

"Don't let 'em eat chili and hot dogs just before you go up to do spins," he said.

The Flight Instructor's Manual

Based on the original text by

William K. Kershner

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An excellent instructor resource for information about the problems students and pilots encounter in flight training.

The Flight Instructor's Manual is an invaluable reference for flight instructor applicants and serves as an indispensable guide for both new and experienced instructors (CFIs). Organized so each chapter can be used as a stand-alone reference for a particular phase of instruction, allowing it to serve as a "how to teach" guide on topics including: fundamentals of flight instruction (FOI), presolo instruction, first solo to the private certificate, advanced VFR instruction, introduction to aerobatic instruction, and instrument instruction. The book also features a comprehensive spin syllabus, material on multi-engine airplanes, instructing international students, teaching ground school, and setting up tests.

With over six decades of experience as pilot-in-command in more than 100 types and models of airplanes, Bill Kershner was FAA/General Aviation Flight Instructor of the Year in 1992, and named Elder Statesman of Aviation in 1997. He was inducted into the Flight Instructor Hall of Fame in 1998. His son, William C. Kershner, was soloed by his father, and holds Flight Instructor and Airline Transport Pilot certificates. He has flown 22 types of airplanes in his over 15,000 hours of flight time, ranging from Cessna 150s to Boeing 777s.

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