PILOTING WITH CONFIDENCE

CHARTS, CHECKLISTS, SYSTEMS & COCKPIT TIPS

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First Edition

James Spudich

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To Mike Nash, my first instructor who took me through my private pilot certificate and beyond and taught me the meaning of feeling one with the airplane, and to Avram Goldstein, who trained me in precision instrument flying and emphasized the importance of making my own checklists.

Thank you for purchasing this book. While it has been carefully proofread, mistakes undoubtedly have been missed. Any corrections that you may have, no matter how small, would be greatly appreciated. They can be emailed to ajpublic@ajpublicationsca.com, or mailed to AJ Publications, LLC, P.O. Box 7435, Menlo Park, California 94026.

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Illustrations

Preface

Organization in the cockpit is essential to safe flying. A good pilot is never finished improving his or her organizational skills. The point of this book is to instill into young pilots' minds the importance of generating their own charts, checklists and other helpful aids that reflect their own personal needs and habits. Examples of such charts, checklists and cockpit tips that I have generated for myself over the last thirty years of flying are illustrated in this book.

I find the charts and checklists that I describe invaluable for every flight that I take. I love flying in the West, and scattered throughout the book are selected photographs from various trips. These are a reminder of how spectacular and magical flying can be.

While a major point of this book is to stimulate you to create your personal charts and checklists, you may find mine useful as basic templates. The more you indulge in this activity, the more confidence you will have as a pilot and the safer you will be. And the safer you are, the happier you and your passengers will be.

In the process of creating checklists, you should constantly be asking why you are checking the things that you do. That is, be sure that you understand the airplane systems. The second chapter emphasizes this and gives brief descriptions of a variety of systems in your airplane. Understanding the systems makes you a safer pilot.

Additional chapters include methods for easily checking your weight and balance before every flight, getting started with the use of GPS equipment, and mastering and remembering the diverse rules and regulations associated with flying. Making use of your computer and personal digital assistant (PDA) is emphasized throughout the book.

Keep the skies safe and enjoy the magic of flying!

Acknowledgments

This book owes its existence in a fundamental way to my wife Anna, who encouraged me one summer day in 1975 to take flying lessons out of Friday Harbor Airport, in between experiments that she and I were carrying out on cell division of fertilized sea urchin eggs at the Friday Harbor Marine Biology Laboratories. She only asked that I do whatever it takes to be extra careful. I thank Avram Goldstein for encouraging me to write this book, Dominique Marais, Suzanne Pfeffer, and Channing Robertson for editing an early draft and offering useful suggestions, and John Mercer and Uta Francke for sharing with me some of their great photographs taken from the cockpit of small planes, which are intermingled with my own throughout the book.

Photo by James Spudich

The serenity of flying in calm conditions between layers is an unforgettable experience

Chapter 1
Create Your Personal Written Checklist

My thirty years of flying have taught me the importance of creating my own charts and checklists to use in flight. How many times have you searched for the written preflight checklist that is supposed to be in your rental plane? With more experience, you also have discovered that such checklists are minimal and not necessarily organized in a fashion that suits you. In the absence of finding it, you may have even been willing to lapse into using the acronym CIGAR and forego the written checklist completely. This may take care of some of the essentials, such as Carb heat and Cowl flaps-Instruments-Gas-Attitude (trim)-Radio, but do not expect to get away with this for very long without getting yourself into a compromising situation.

Flying is a wonderful and personal experience. You owe it to yourself to personalize written information that you have with you while sauntering along the Pacific Coast at sunset, flying to your favorite airport for an evening dinner with a friend, taking a flying weekend fishing trip to Montana, or simply doing pattern work at your home airport.

Chapter 2 deals with additional charts and checklists, but let's

start with creation of your basic personal checklist that will aid you in checking your airplane before takeoff as well as in all phases of flight, including shutdown and tiedown upon reaching your destination.

Create Your Personal Checklist

Create a personal checklist for each airplane that you fly. Each of mine is two-sided and measures 5 x 8.5 inches, which fits neatly into one Jeppesen or ASA 7-ring sheet protector, as do most of the charts and diagrams that I describe in this book. I fly the Piper Dakota a lot, and I use that as an example here (Fig. 1A and B).

Figure 1A has information relevant to before starting through cruise, and Figure 1B deals with descent through shutdown, with extra space used for short field information. Each major block is divided into subgroups (separated by underlines).

Under **BEFORE START**, Figure 1A, the first thing I do is make sure that external preflight is complete. Issues often overlooked are making sure there is no tow bar left in the nosewheel and that the airplane is completely untied. Then I check that all required documents are on board (when did you last check that?), that the avionics master and all relevant switches are off, that the circuit breakers are in, and that lights are as required.

My next subgroup is to check trims, fuel selector, flaps, and carb heat (*notice they are all near one another in the cockpit*). Next I brief my passengers, make sure all seats are locked and seat belts are secure, and make sure the cabin door is locked (a logical subgroup, right?).

ENGINE START is self explanatory.

BEFORE TAXI includes getting the ATIS and setting the altimeter and directional gyro (DG). While I **TAXI** and I'm sure that I'm clear of crowded areas, I check my brakes, make sure my

PIPER DAKOTA PA-28-236/G

BEFORE START	
Preflight (Documents)	complete
Avion Mstr/ All Switches	off
Circuit Breakers	in
Lights (check)	as reqd
Trims	set for T/O
Fuel Selector (check)	fullest tank
Flaps	up
Carb Heat	off
Passenger Brief	complete
Seats	locked
Seatbelts	secure
Cabin Door	locked
ENGINE START	
Mixture/Prop	full forward
Throttle (cold/pump 1x)	1/4 " open
Carb Heat	cold
Primer	5c/2h/lock
Aux Fuel Pump	on
Propeller Area	clear
Battery Master	on
Alternator Switch	on
Beacon lights	on
Starter	engage
Throttle	900 rpm
Engine Instruments	check
Oil Press	green
Aux Fuel Pump	off
BEFORE TAXI	
Mixture	lean
Transponder 1200	standby
Radio Master	on
Avionics	set / check
ATIS	copy
Altimeter	set
DG	set
Flight Instruments	check
Fuel Selector	fullest tank

TAXI	
Brakes	check
MC, AI, DG, TC, VSI	check
Takeoff Briefing	complete
BEFORE TAKEOFF	
Flight Controls	correct
Mixture	rich
Throttle	2000 rpm
*Magnetos (175dp,50Δ)	check
*Prop (RPM,OilP,ManP)	cycle 3x
*Carb Heat (100dp)	check, cold
*Engine Gauges	check
*Ammeter & Alternator	check
*Vacuum (4-6")/Alt Stat	check both
Throttle	900 rpm
Fuel Selector, Aux Pump	fullest, on
Trim	aft neutral
Transponder	Alt, 1200
Annunciator Panel	set
Flight Instruments	set, check
Primer	in, locked
Lights	as reqd
Doors, Windows, Belts	secure
Autopilot	off
Time Off	note
NORMAL TAKEOFF Best Glide 85	
Flaps	up
Rotate	65 KIAS
Climb Out	80 KIAS
500' (MP, RPM)	25, 2400
1000' (Fuel Pump,Ldg Lt)	both off
CRUISE 140 KIAS	
Cruise Power	24, 2400
Landing Lights	off
Mixture	lean
Gauges	check
CRUISE CLIMB 100 KIAS	
Power	25/ 2400
Mixture	rich/ as reqd

Fig. 1A. Checklist for All Phases of Flight — front side
(Not to be used without verification of information from official sources)

magnetic compass (MC), directional gyro (DG), and turn coordinator (TC) are moving appropriately, and that my attitude indicator (AI) is not moving and my vertical speed indicator (VSI) is at zero.

I am now at the run-up area and ready for **BEFORE TAKEOFF**. The first thing I check is flight controls. I check full range of motion of the yoke and make sure that the various movements of the yoke are properly reflected in the movements of the aileron and elevator. This check is especially critical after maintenance, either 100-hour or annual maintenance, because cables may have been reattached incorrectly or simply not reconnected at all.

The next subgroup has all the checks using the throttle at 2000 rpm. These are checking the magnetos, cycling the props, and checking the carb heat, engine gauges, ammeter and alternator, vacuum, and alternate static port. The throttle is then reset to idle at 900 rpm.

The next subgroup is fuel, trim, mixture, transponder, and annunciator panel (yes, *all in the same general location in the cockpit*).

The final subgroup before takeoff is to check flight instruments, primer, lights, doors, windows, seat belts, autopilot, and noting the time of takeoff.

NORMAL TAKEOFF (best glide for the plane is noted here, considering its importance) is self explanatory, as is **CRUISE** and **CRUISE CLIMB**. But one point to remember is to check your floating compass when aligned on the runway for takeoff. This is an excellent time to check that it is giving the appropriate reading.

Now I'm ready for the second side of the checklist (flip side of the 7-ring sheet protector) (Fig. 1B). Note across the top important information about the airplane (useable fuel 72 gal, 4.9 hr fuel with 45' reserve, 235 HP@2400 RPM, 6 cylinder air-cooled engine).