



LESSONS FROM THE LOGBOOK:



FLYING TECHNIQUES FROM THE BEST
TEACHER OF ALL: EXPERIENCE

RON FOWLER

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Library of Congress Cataloging-in Publication Data pending

Fowler, Ron

Lessons from the logbook, Flying techniques from the best teacher of all: experience.

1st Ed. February 2000

ISBN 0-916413-27-6

Cover Photo by Michael Terry/Aviation Legends, Copyright 1999. All rights reserved.
Special thanks to 1949 Cessna 195 owner Mike Meloche.

Layout & Design by Steve McGillivray, Sir Speedy Printing 0922, Seattle, WA

Printed in the United States of America by Consolidated Press, Seattle WA 98134

Published by
Aviation Book Company
7201 Perimeter Rd. South, Suite C
Seattle, Washington 98108
Tel: (206) 767-5232
1-800-423-2708
Fax: (206) 767-3428
www.aviationbook.com

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Chapter 1

Total Awareness and Colors of the Mind

Simply put, **total awareness** means never being caught by surprise in the cockpit. It is a concept most pilots have heard about, but not experienced. The majority of pilots who never attain total awareness let it elude them simply because they do not understand its simplicity. They feel it is only “theory stuff,” yet it is a real and very visible tool — a pilot’s seemingly sixth sense, which elevates the professionally-minded flier above the ordinary.

A certain pilot comes to mind when I think about total awareness and professionalism. The student had soloed two weeks earlier and was preplanning a dual cross-country flight. She finished her inquiries, calculations, and preparations so we headed for the airplane.

“Shouldn’t be a bad crosswind when we land,” she said.

“OK... why do you say that?” I asked.

“Well,” she said, “flight service gave the wind there as 30° at 12 knots; the *Airport/Facility Directory* shows the runway 350°. The airplane flight manual says the plane can take an 18-knot direct crosswind, and we’ve already landed with a 10-knot component.”

“Sounds great,” I said. She had put together available information and evaluated it against her plane’s ability as well as her own skill. She knew what she would likely face on landing even before we took off.

“Besides,” she added, grinning, “if the wind does kick up, there’s an airport eight miles beyond with three runways. OK, Teach?”

She had planned a possible “out.” Inexperienced in hours, maybe, but certainly experienced in a good flying awareness with her mind in the “green.”

Your total awareness stems from three primary sources: abundant aeronautical knowledge, adequate preflight planning, and a constant observation aloft.

Aeronautical Knowledge

Total awareness begins with knowledge, and in flying there is so much to learn. Just because you once passed a written test does not mean you’ve finished your studies; it only means you’ve satisfied minimum government standards. Stay a student of the art. Study each article and book you discover having significance to the type of flying you conduct.

If you asked me to list just three basic texts to read, study, and fully understand, I’d include:

1. *Aviation Weather* (US Government Printing Office publication). Weather is the stage upon which our flight plays across. You need to know its changing character. A good understanding of this book will make you more weather-wise than the average meteorologist giving forecasts on the evening news.

2. *Aeronautical Information Manual* (US Government Printing Office publication). Our lives aloft are directed by standard operating procedures. This publication is a concise, explicit guide to these procedures — from preflight activities, to communications, airport operations, and beyond. It is well indexed. If there is *any* procedure that confounds you, you will likely find the solution here.

3. *Airplane Operating Manual (AFM)* or *Pilot’s Operating Handbook (POH)* for the plane you fly. There is no such thing as a

“forgiving airplane.” All planes have operating limits in terms of airspeeds, aerodynamic forces, loading, and performance. Particularly in light planes, the parameters of these limits are quite narrow. Operate the plane within these limits and it will behave and perform as expected. Try to operate *beyond* these design limits, however, and *no one* knows what to expect. You suddenly become a test pilot engaged in on-the-job training. The manufacturer’s recommended procedures for specific flight situations are stated with the prime intent to keep you within the plane’s design limitations.

The quest for aeronautical knowledge is a never-ending effort. Any pilot would be wise to apply a rule of thumb: set aside one evening a week for continuing study.

Preflight Planning

Total awareness depends upon gathering the facts of the flight before departure. For as many years as I can remember, the FAA has listed “inadequate preflight planning” as the number one reason for aircraft accidents. Accordingly, the success of your flight is largely determined before your wheels even leave the ground. Let your research follow the format of total preflight planning: the environment, the airplane, the pilot.

The Environment

Basically, environmental elements of awareness that effect a flight fall into four categories: departure and arrival, en route, communications, and traffic movement.

Departure and Arrival

Aware pilots understand how four environmental factors influence their plane’s takeoff and landing performance:

1. Runway surface. As a rule of thumb, unpaved runways add about 20% to distances charted in the AFM for paved surfaces; 30% if the grass needs mowing or is wet.

2. Field elevation. Each 1,000 feet of field elevation requires about 10% additional takeoff distance and about 5% extra on landing.

3. Field temperature. As a rule of thumb, each 25°F above standard temperature for the field elevation adds about 10% takeoff distance and decreases rate of climbout by the same percent. (Figure "standard temperature" as 60°F at sea level; decrease by 3° for each 1,000 foot field elevation.)

4. Surface wind. In general, light planes require about 20% less takeoff and landing distances for each 10 knots of direct headwind.

En route

Environmental factors that must be part of your awareness en route include:

1. Obstacles and terrain. Study your sectional chart closely and "red pencil" any obstacle or terrain within 5 miles of your route that rises within 1,000 feet of your planned cruising altitude (2,000 feet in mountain areas where rising terrain comes very quickly to planes with a sluggish rate of climb).

2. Alternate airports. Be aware of the closest *paved* airport along each 100 mile segment of your route. Unpaved airports are too hard to find when you need them. For the same reason, select airports with beacons for night flight.

3. Route mid-point. Calculate your mid-point ETA and mark it on your sectional chart. An awareness of gaining journey's mid-way gives a time and place for review; adjustment of destination ETA, evaluation of fuel needs, revision to filed flight plan and the like... a time, perhaps, to munch an apple.

4. Expected visibilities. Be aware of the hazards associated with reduced visibility, as you receive your weather briefing:

- a. Weather ahead and around is often hidden. You can fly right into it before you can see and avoid.
- b. Navigation becomes difficult. Chances increase for getting lost, with associated fuel concerns.
- c. Disorientation is possible, particularly with a fatigued or anxious pilot.
- d. Chances increase for collision, particularly as you descend toward your destination; rising terrain, obstacles, or traffic.

5. Extent of cloud cover. A VFR pilot is wise not to over-fly a cloud layer that exceeds the weather briefer's term "scattered." And once above an acceptable layer, an aware pilot will descend well before the clouds cover more than a quarter of the terrain below.

Aware pilots recognize the hazards:

- a. Scattered bases can close up quickly. Once trapped above, without ample terrain in sight, there is strong likelihood of getting lost.
- b. Once vertical development begins, clouds can out-climb light aircraft and often exceed the plane's service ceiling.
- c. Once lateral development begins, a cloud deck can easily outrange the plane's remaining fuel.

6. Extent of precip. Aware pilots know it is difficult to dodge between showers of precip that exceed a forecast's "widely scattered," which is up to 25% terrain coverage. The precip areas just move around too much to stay out of them. "Isolated" thunderstorms need at least 10 miles clearance.

7. Turbulence. Aware pilots have learned through painful experiences that passengers will not tolerate more than the briefer's "moderate" turbulence, defined as changes in altitude and attitude. Passengers will feel strains against their seatbelts and loose objects in the cockpit will move about.

8. Winds aloft. Know the winds aloft so you can select the cruising altitude most advantageous to your flight. These known