



A LITTLE BOOK ON

FLYING

2ND EDITION

Captain Ashutosh Chandra Chopra

A Little Book On Flying

By

Captain Ashutosh Chandra Chopra

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Dedicated to My Wife Ritu Chopra,
Without whose support in giving me
Encouragement, Space and Time
I could not have possibly written this book.

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List of Acronyms

Acronym	Definition
AFDS	Automatic Flight Director System
AFM	Aircraft Flight Manual
AGL	Above Ground Limit
ALAR	Approach and Landing Accident Reduction
ALT	Altitude
ALT HOLD	Altitude Hold Mode
AOA	Angle of Attack
AP	Autopilot
APU	Auxiliary Power Unit
ASD	Accelerate Stop Distance
ATC	Air Traffic Control
AUPTRA	Aircraft Upset and Recovery Training
AUW	All Up Weight
CAT	Clear Air Turbulence
CAVOK	Clouds and Visibility Okay
CB	Cumulonimbus Clouds
CC	Creative Commons License
CFIT	Controlled Flight Into Terrain
CHG	Change
COURSE	VOR or ILS 'Course' (Not Heading)
CPL	Commercial Pilot License
CRM	Crew Resource Management
CWS	Control Wheel Steering
DA	Decision Altitude
DDA	Derived Decision Altitude, Usually MDA + 50ft
DME	Distance Measuring Equipment
EFB	Electronic Flight Bag
EFIS	Electronic Flight Instrument System
EGPWS	Enhanced Ground Proximity Warning System
FAA	Federal Aviation Administration
FAF	Final Approach Fix
FCOM	Flight Crew Operations Manual
FCTM	Flight Crew Training Manual
FD	Flight Director
FMA	Flight Mode Annunciation
FMC	Flight Management Computer
FMS	Flight Management System
FPA	Flight Path Angle
FPV	Flight Path Vector
GPWS	Ground Proximity Warning System

Acronym	Definition
HDG	Heading
HDG SEL	Heading Select Mode
IAF	Initial Approach Fix
IAS	Indicated Air Speed
ICAO	International Civil Aviation Organization
IFR	Instrument Flight Rules
ILS	Instrument Landing System
ISA	International Standard Atmosphere
LHS	Left Hand Seat
LNAV	Lateral Navigation Mode
LOC	Localizer (also part of VOR/LOC AFDS mode)
LVL	Level
LVL CHG	Level Change Mode
LVTO	Low Visibility Takeoff
MCP	Mode Control Panel
MDA	Minimum Descent Altitude
MEL	Minimum Equipment List
MLW	Maximum Landing Weight
MORA	Minimum Off Route Altitude
MSA	Minimum Sector Altitude
MTBF	Mean Time Between Failures
ND	Navigation Display
NG	New Generation
NNC	Non-Normal Checklist
NPA	Non-Precision Approach
OAT	Outside Air Temperature
OEM	Original Equipment Manufacturer
OODA	Observation, Orientation, Decision, Action
OTOW	Operational Take-Off Weight
PAPI	Precision Approach Position indicator
PBN	Performance-Based Navigation
PF	Pilot Flying
PFD	Pilot Flying Display
PIREPS	Pilot Reports
PLI	Pitch Limit Indicator
PM	Pilot Monitoring
PNF	Pilot Not Flying
QFE	Altimeter Pressure Setting Displaying 'Height'
QNH	Altimeter Pressure Setting Displaying 'Altitude'
QRH	Quick Reference Handbook
RA	Radio Altitude
RHS	Right Hand Seat
RNP	Required Navigation Performance
ROC	Rate Of Climb
ROD	Rate Of Descent

Acronym	Definition
RT	Radio Telephony
RTFM	Read The F***ing Manual
RTO	Reject Take-Off Manoeuvre
SA	Situational Awareness
SID	Standard Instrument Departure
SOP	Standard Operating Procedure
STAR	Standard Terminal Arrival Procedure
TAS	True Airspeed
TAT	Total Air Temperature
TCAS	Traffic Collision Avoidance System
TMA	Terminal Manoeuvring Area
TOGA	Take-Off Go-Around Mode
VB	Vertical Bearing
VFR	Visual Flight Rules
VMC	Visual Meteorological Conditions
VMCG	Velocity (Minimum Control on Ground)
VNAV	Vertical Navigation Mode
VNE	Velocity (Never Exceed)
VOR	VHF Omni-Range
VOR/LOC	VOR/ILS Course Engagement Mode
VR	Velocity (Rotate)
V/S	Vertical Speed Mode
VS	Vertical Speed (or Vertical Speed Required)
VSD	Vertical Situation Display
VSI	Vertical Speed Indicator

About The Author



Capt Ashutosh Chandra Chopra, served in the Indian Air Force, as a fighter pilot for over 23 years. He is a CAT-A Qualified Flying Instructor and has trained ab initio Flight Cadets at training establishments, Under Training Instructors at IAF's Flying Instructors' School and Squadron Pilots. As a graduate of TACDE, IAF, he is also qualified to carry out airborne instructional in air-to-air combat and air-to-ground weaponry. He has over 4000 hrs of fighter flying experience.

Post his tenure in the IAF, he has flown over 8000hrs as a commercial aviator over the last 11 years and is currently a TRI-A flying the B737NG.

He is an enthusiastic mountaineer, paragliding pilot, and scuba diver, with keen interests in computer programming, photography, and reading.

Foreword

Why write another book on flying?

This is a book for pilots, written in a language they understand, with no frills. In this book, I have injected lessons learned by me, in flying over the last 35 years in a seamless style. I wrote this book because, on joining the world of commercial flying from the air force, I noticed a dismal lack of formal instruction on many issues concerning flying. To make matters worse, a large section of experienced pilots projected airline flying as a kind of black art to which only they were privy and reluctant to share. A new entrant into the field was left bewildered, at risk of learning incorrect habits and left with sizeable gaps in basic essential knowledge. Hence, the need for this book.

What I write in this book was learned over the last 35 years of flying and is distilled from the knowledge that I gained from formal instruction during my tenure in the Indian Air Force, many books I have read on the subject of flying and personal experience.

In all these years of flying, I have noticed areas where young pilots have doubts; areas, where they lack clarity on technique or lacked an understanding of the reasoning behind certain actions we take during critical situations. These were issues they would have liked to discuss, but are afraid to talk about for the fear of displaying a lack of knowledge. While I have done my best to help during formal and informal training sessions, I felt it would aid if I covered these issues in greater depth in the form of a book. This would also ease the process of reference. I hope this book fills in those gaps.

I write this book to share my knowledge and experience with you. Many books have been written on the topics I cover in this book. These books are dense, elaborate, dry, and academic. They do not directly address the 'meat of the matter' as they span volumes and most pilots just do not have the time to read them all. However, in this book, I provide my understanding of the essentials of each of these topics; just the basics that a new entrant, into the world of airline operations, should be aware of. I keep things as short and as simple as possible.

Through this book, I hope to be able to sensitize you to quite a few issues that you may not have pondered upon before. So when you read, stop and visualize what I am talking about. Think about why am I stressing on a certain issue, before moving forward.

For whom is this book?

This book is not aircraft specific and is aimed at a pilot just about to start a career in commercial flying; a pilot who may not be familiar with

the flying environment in the world of civil aviation. However, for the contents of this book to make sense, the reader should have at least done or should be in the process of doing a type rating on a commercial airliner or a similar general aviation aircraft.

This book is also aimed at more experienced civilian pilots. Pilots who wish to learn from my experiences in flying and instruction. It is also for those who wish to refresh their knowledge of some basics of flying. Basics, they may have forgotten over a period.

I have tried to write this book as a story rather than as a manual. So I suggest that you read it like that. It should be easy reading for all.

I presume that the reader has a certain level of knowledge and experience in flying. Yet, I cover a lot of basic manoeuvres like a visual approach, a manually flown ILS, and raw data VOR approaches. These areas need persistent attention. Especially, as our manual flying skills erode with increasing reliance on flight automation. If you find you have not had the opportunity to do such approaches, refresh your memory by reading about them here.

What's in this book?

In this book, I have touched upon topics important in daily flying operations. This book provides practical knowledge gained from my experiences in flying. It focuses on learning essentials. It is written in a crisp yet informal style. It is also rigorous in its approach. You will find it to the point, with no redundant words. However, you will find some recurrent themes. They constitute the crux of what flying is all about. I will constantly stress upon them to drive my point home.

Large sections of this book may appear as statements of the obvious. At times simplistic. Yet, my experience has shown that when things go wrong, errors of a very basic nature are to blame. Thus accidents/incidents are best avoided by focussing on basics. That is what this book does. Thus, this book is also about building up good habits to fly safely.

This book can also serve as a handy reference when you gear up for your simulator sessions. Take a look at the table of contents for a complete list of topics covered.

Is this book aircraft specific?

No, it is not. It has been deliberately written in a generic style. I fly the B737NG. While referring to automation, at times I do refer to the B737NG. I have kept this limited to very basic automation modes, which are not really aircraft specific. However, I have added a brief description

of B737NG automation modes at the end of this book, so that you can correlate those modes with the modes available in your aircraft.

Where I have used B737NG procedures for reference to explain a technique, do not dwell upon the exact procedure, but try and see what I am trying to impress upon you. This will allow you to visualize your actions, utilizing procedures applicable to your aircraft and to incorporate and adapt the technique for yourself.

You will be surprised, despite the debate about the differences in operating philosophies of aircraft from different manufacturers; they essentially are all the same. Their automation modes are similar, their flying parameters are similar, and their instrumentation is also similar. The overall procedures, also, are nearly the same. They have so much in common that the differences need not be dwelled upon in this book. Therefore, this book remains generic in its approach and is readable by a large cross-section of pilots flying different types of aircraft.

Lastly, there may be a difference of opinion on issues covered in this book. You are welcome to share them with me. If I state anything incorrectly, please bring it to my notice. I have made my best efforts to give attribution to sources I have referred, to ensure what I write from experience is collaborated by existing knowledge on the subject. I give these in the references section at the end of this book. Yet, I may have written something that I may have read or learned a very long time ago and cannot find proper attribution for it. If you can help me in this regard, please do; so I can add that reference. If you have any suggestions on how I may improve the book, please do let me know. I shall try to do so.

Disclaimer: Aircraft specific manuals, AFMs, FCTMs, Company SOPs, Regulatory Mandates, etc are your masters. They override everything written in this book. All those manuals contain procedural information, which is mandatory.

This book only provides guidance precipitated from personal experiences in flying, and lessons learned in the process. It gives my perspective on the topics I cover. The techniques given here are for you to develop your own. Never follow them blindly. You must take responsibility for your thoughts, beliefs, and actions. Be warned to trust and use what's given in this book at your own risk. I am not responsible for your actions!!

If you find this book useful, please do not forget to review this book. Not only will this help others understand the value of this book, but it will also help me in revising the content to make it better.

This is your last chance. After this, there is no turning back.

You take the blue pill, the story ends. You wake up in your bed and believe whatever you want to.

You take the red pill, you stay in Wonderland, and I show you how deep the rabbit hole goes.

Remember, all I'm offering is the truth. Nothing more!

-Morpheus to Neo, In the Film 'The Matrix'

