

# *B777 Training Manual*

The Boeing 777 Study Guide is a compilation of notes taken primarily from flight manuals, but also includes elements taken from class notes, computer-based training, and operational experience. It is intended for use by initial qualification crewmembers, and also for systems review prior to recurrent training or check rides. The book is

written in a way that organizes in one location all the buzz words, acronyms, and numbers the average pilot needs to know in order to get through qualification from an aircraft systems standpoint. The guide covers 777-200 and 777-300 series airplanes. The author is a retired Air Force Fighter pilot with flight experience in seven different aircraft types including the F-101, F-106 and F-15,

and instructional experience in the T-33, F-101 and AT-38B aircraft. He also consulted on the acquisition and development of the F-22 and helped to write the F-22 operating manual. Transitioning to the airline world in 1990, he began writing and publishing transport category aircraft study materials and software guides. He holds type ratings in Boeing 727, 737, 757-767 and 777 aircraft as well as the

Airbus A320 series aircraft. He has over 17,000 flight hours and has written seven titles which have sold a total of over 100,000 volumes. He retired with over 27 years work as an airline captain, certification as a flight engineer check airman, and management work in the area of managing operational specifications for a major airline. Marketing Management Text and Cases, 1/e includes a new

collection of cases from Harvard Business School. HBS sets the standard for effective case writing and teaching, and provides here the latest cases in Marketing Management. Um das Funktionsprinzip von Turbinentriebwerken zu verstehen, reicht es nicht aus, das grundsätzliche Funktionsprinzip einer Gasturbine zu kennen. Es ist ebenfalls erforderlich, die Funktionen und den Aufbau der

Triebwerkssysteme zu verstehen. Dieses Buch bietet eine Einführung in die Systemfunktionen von modernen Turbofan-Triebwerken. Es ist für Leser geschrieben, die mit dem Funktionsprinzip des Turbinentriebwerks vertraut sind und sich grundlegend mit den Funktionen der Triebwerkssysteme befassen wollen. Mit Hilfe dieses Buches erhält der Leser auch eine Orientierung in dem scheinbaren Gewirr von Rohrleitungen,

Schläuchen, Kabeln und Systembauteilen an einem Turbofan-Triebwerk. In diesem Buch findet der Leser Informationen über den Betrieb der Triebwerkssysteme, die Aufgaben ihrer Komponenten und die in der Luftfahrtindustrie übliche Terminologie. Die englischen Begriffe werden ebenfalls genannt oder auch im Text verwendet, wenn dies sinnvoll ist. Die Triebwerkssysteme werden anhand von Beispielen erklärt, die von heute

in Verwendung  
befindlichen  
Triebwerkstypen  
verschiedener Hersteller  
stammen. Dieses Buch ist  
eine nützliche  
Informationsquelle für  
Mechaniker und  
Ingenieurs-Studenten.  
Auch Flugschüler in der  
Berufspilotenausbildung  
finden hier  
Informationen, die das  
in ihrer Ausbildung  
vermittelte Wissen  
erweitern. Selbst für  
Leser ohne  
Ingenieursausbildung und  
für solche, die sich

nicht beruflich mit der Materie befassen, bietet das Buch umfassende und leicht verständliche Informationen. Es hilft ihnen, die Funktionsprinzipien der Systeme von Turbofan-Triebwerken zu verstehen.

Investigating Human Error

Air Carrier MRO Handbook  
The 737 MAX Tragedy and the Fall of Boeing  
Boeing 737 Study Guide, 2022 Edition

A Training Manual for Flying Single-Engine

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Aircraft

Guide to Sources for  
Agricultural and  
Biological Research

*Extensive animation and clear narration highlight this first-of-its-kind CD-ROM. It shows all major systems of jet and turboprop aircraft and how they work. Ideal for self-instruction, classroom instruction or just the curious at heart.*

*The things that airlines, aircraft manufacturers, and the FAA are not sharing with the public. This book is the result of the author's doctoral research-Safety Culture, Training, Understanding, Aviation Passion: The Impact on Manual Flight and Operational Performance. The*

*study began with the question as to why pilots were not manually flying their aircraft. Regulatory officials identified this to be a problem, not only with manual flight and skill loss, but lack of understanding of their equipment and associated displays. This Federal Aviation Administration (FAA) then recommended all airlines to encourage manual flight. While the intent of this research was to learn what predicted manual flight, what was learned may have predicted and, if heeded, prevented the Lion Air Flight 602, 2018 crash, Ethiopian Flight 302, 2019 crash, and Atlas Air Flight 3591, 2019 crash. What was learned, if heeded, could also have prevented*

*the Air France Flight 447 crash. There is never one reason an accident occurs, but a chain of events. At the core of all four of these accidents were failures in safety culture, reporting culture, pilot training, lack of understanding and, as a result, performance. The research identified the significant predictors of manual flight to be pilot understanding, pilot training, aviation passion, and safety culture. In the sequence of events from corporate processes to the flight line, the research identified that safety culture is the core of operational performance. Safety culture influences training, training influences pilots' level of understanding, and that level of*

*understanding influences the pilot's decision to manually fly. Therefore the answer as to why pilots are not flying their aircraft begins with safety culture. if you travel, fly, or touch aviation in any aspect, you have every reason to read this book. If you wish to read the actual dissertation, it may be found at <https://petittaviationresearch.com>. A vital resource for pilots, instructors, and students, from the most trusted source of aeronautic information.*

*der Einfluss eines zusätzlichen visuellen Assistenzsystems zur Steigerung des Situationsbewusstseins bei kritischen Wetterbedingungen hinsichtlich vertikaler Fehler im*

*Endanflug*  
*Takeoff Safety Training Aid*  
*Announcement of Availability*  
*A Human-Centered Design*  
*Approach*  
*IATA Ground Operations Manual*  
*(IGOM)*  
*Airbus Flight Control Laws*  
*Text and Cases*

The Boeing 777 Study Guide is a compilation of notes taken primarily from flight manuals, but also includes elements taken from class notes, computer-based training, and operational experience. It is intended for use by initial qualification crewmembers, and also for systems review prior to recurrent training or check rides. The book is written in a way that organizes in one location all the buzz words, acronyms, and numbers the average pilot needs to know in order to get

through qualification from an aircraft systems standpoint. The guide covers 777-200 and 777-300 series airplanes. The author is a retired Air Force Fighter pilot with flight experience in seven different aircraft types including the F-101, F-106 and F-15, and instructional experience in the T-33, F-101 and AT-38B aircraft. He also consulted on the acquisition and development of the F-22 and helped to write the F-22 operating manual.

Transitioning to the airline world in 1990, he began writing and publishing transport category aircraft study materials and software guides. He holds type ratings in Boeing 727, 737, 757-767 and 777 aircraft as well as the Airbus A320 series aircraft. He has over 17,000 flight hours and has written seven titles which have sold a total of over 100,000 volumes. He retired with over 27 years work as an airline captain, certification as a flight engineer check

airman, and management work in the area of managing operational specifications for a major airline.

The book provides a data-driven approach to real-world crew resource management (CRM) applicable to commercial pilot performance. It addresses the shift to a systems-based resilience thinking that aims to understand how worker performance provides a buffer against failure. This book will be the first to bring these ideas together. Taking a competence-based approach offers a more coherent, relevant approach to CRM. The book presents relevant, real-world examples of the concepts and outlines a change in thinking around pilot performance and data interpretation that is overdue. Airlines, pilots and aviation industry professionals will benefit from the insights into organisational design and alternative approaches to training. FEATURES

Approaches CRM from a competence-based perspective  
Uses a systems model to bring coherence to CRM  
Includes a chapter on using blended learning and virtual reality to deliver CRM  
Features research on work/life balance, morale, pilot fatigue and link to error  
Operationalises ‘resilience engineering’ in a crew context

This book constitutes the refereed proceedings of the 4th International Conference on HCI in Mobility, Transport, and Automotive Systems, MobiTAS 2022, held as part of the 23rd International Conference, HCI International 2022, which was held virtually in June/July 2022. The total of 1271 papers and 275 posters included in the HCII 2022 proceedings was carefully reviewed and selected from 5487 submissions. The MobiTAS 2022 proceedings were organized in the

following topical sections: Designing Interactions in the Mobility, Transport, and Automotive Context; Human-Centered Design of Automotive Systems; Driver Information and Assistance Systems; Studies on Automated Driving; and Micro-mobility and Urban Mobility.

The Turbine Pilot's Flight Manual

Marketing Management

United States Army Training Manual

Boeing 777 Study Guide, 2019 Edition

A Flight Attendant's Essential Guide

Performance-based Navigation (PBN) Manual

Up-To-Date Coverage of Every Aspect of Commercial Aviation Safety Completely revised edition to fully align with current U.S. and international regulations, this hands-on

resource clearly explains the principles and practices of commercial aviation safety—from accident investigations to Safety Management Systems. *Commercial Aviation Safety, Sixth Edition*, delivers authoritative information on today's risk management on the ground and in the air. The book offers the latest procedures, flight technologies, and accident statistics. You will learn about new and evolving challenges, such as lasers, drones (unmanned aerial vehicles),

cyberattacks, aircraft icing, and software bugs. Chapter outlines, review questions, and real-world incident examples are featured throughout. Coverage includes: • ICAO, FAA, EPA, TSA, and OSHA regulations • NTSB and ICAO accident investigation processes • Recording and reporting of safety data • U.S. and international aviation accident statistics • Accident causation models • The Human Factors Analysis and Classification System (HFACS) • Crew Resource

Management (CRM) and  
Threat and Error  
Management (TEM) •  
Aviation Safety Reporting  
System (ASRS) and Flight  
Data Monitoring (FDM) •  
Aircraft and air traffic  
control technologies and  
safety systems • Airport  
safety, including runway  
incursions • Aviation  
security, including the  
threats of intentional  
harm and terrorism •  
International and U.S.  
Aviation Safety Management  
Systems  
The Boeing 737-800 Study  
Guide is a compilation of  
notes taken primarily from

flight manuals, but it also includes elements taken from class notes, computer-based training, and operational experience. It is intended for use by initial qualification crewmembers, and also for systems review prior to recurrent training or check rides. The book is written in a way that organizes in one location all the buzz words, acronyms, and numbers the average pilot needs to know in order to get through the events above from an aircraft systems standpoint.

The major objective of this book was to identify issues related to the introduction of new materials and the effects that advanced materials will have on the durability and technical risk of future civil aircraft throughout their service life. The committee investigated the new materials and structural concepts that are likely to be incorporated into next generation commercial aircraft and the factors influencing application decisions. Based on these

predictions, the committee attempted to identify the design, characterization, monitoring, and maintenance issues that are critical for the introduction of advanced materials and structural concepts into future aircraft.

4th International  
Conference, MobiTAS 2022,  
Held as Part of the 24th  
HCI International  
Conference, HCII 2022,  
Virtual Event, June 26 –  
July 1, 2022, Proceedings  
Systeme von Turbofan-  
Triebwerken  
Incidents, Accidents, and

Complex Systems, Second  
Edition

Human Factors Training  
Manual

Aviation Instructor's  
Handbook

Normalization of Deviance

**A Flight Attendant's Essential Guide is written for airline executives, university lecturers who specialize in the airline industry, and for undergraduate students preparing for a career as a flight attendant. Those working in passenger, aircraft, airport as well as general communications at an airport or aircraft can benefit from this book though a thorough understanding the responsibilities**

**of flight attendants. This guidebook primarily focuses on the passenger aspect of in-flight service, including operations and communication skills, and how flight attendants interact with passengers at each phase of a flight.**

**In this book the author applies contemporary error theory to the needs of investigators and of anyone attempting to understand why someone made a critical error, how that error led to an incident or accident, and how to prevent such errors in the future. Students and investigators of human error will gain an appreciation of the literature on**

**error, with numerous references to both scientific research and investigative reports in a wide variety of applications, from airplane accidents, to bus accidents, to bonfire disasters. Based on the author's extensive experience as an accident investigator and instructor of both aircraft accident investigation techniques and human factors psychology, it reviews recent human factors literature, summarizes major transportation accidents, and shows how to investigate the types of errors that typically occur in high risk industries. It presents a model of human error causation influenced**

**largely by James Reason and Neville Moray, and relates it to error investigations with step-by-step guidelines for data collection and analysis that investigators can readily apply as needed. This second edition of Investigating Human Error has been brought up to date throughout, with pertinent recent accidents and safety literature integrated. It features new material on fatigue, distraction (eg mobile phone and texting) and medication use. It also now explores the topics of corporate culture, safety culture and safety management systems. Additionally the second edition considers the effects of the**

**reduction in the number of major accidents on investigation quality, the consequences of social changes on transportation safety (such as drinking and driving, cell phone use, etc), the contemporary role of accident investigation, and the effects of the prosecution of those involved in accidents.**

**"...the most complete explanation of aeronautical concepts for pilots pursuing a Private Pilot certificate."-- cover.**

**A Threat to Aviation Safety**

**An Introduction to Systems**

**Functions**

**Systems of Commercial Turbofan**

**Engines**

**From Passenger Relations to**

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**Challenging Situations  
Boeing 777 Study Guide, 2018  
Edition**

**New Materials for Next-  
Generation Commercial  
Transports**

***The Technological Marvel. Details the technology behind the first airliner to be digitally preassembled. The Boeing 777 Study Guide is a compilation of notes taken primarily from flight manuals, but also includes elements taken from class notes, computer-based training, and operational experience. It is intended for use by initial qualification***

**crewmembers, and also for systems review prior to recurrent training or check rides. The book is written in a way that organizes in one location all the buzz words, acronyms, and numbers the average pilot needs to know in order to get through qualification from an aircraft systems standpoint. The guide covers 777-200 and 777-300 series airplanes. This title is part of UC Press's Voices Revived program, which commemorates University of California Press's mission to seek out and cultivate the**

***brightest minds and give them voice, reach, and impact. Drawing on a backlist dating to 1893, Voices Revived makes high-quality, peer-reviewed scholarship accessible once again using print-on-demand technology. This title was originally published in 1981. The Handbook of Human-Machine Interaction  
Boeing 777 Study Guide, 2021 Edition  
Aircraft Weight and Balance Handbook  
Boeing 777 Study Guide, 2020 Edition  
A Competence-based***

## **Approach for Airline Pilots Boeing 777**

*A-Z fact-packed guide to MRO leadership and training  
Industry shorthand for maintenance, repair, and overhaul, MRO is the key to air carrier safety and profitability (it could help you see as much as 25% growth over the next 5 years!). Written by Jack Hessburg, the award-winning chief mechanic and developer of the Boeing 777's computerized maintenance system, Air Carrier MRO Handbook fully explains and illustrates MRO in air carrier operations with charts, graphs, forms,*

tables, data, statistics, and figures -- the most complete and usable collection of MRO data ever assembled. This expert tunes up your knowledge base so you can streamline all phases and facets of operation. This is the resource you need to help your managers, engineers and technicians work within the industry's guidelines and interdependent network to facilitate partnerships, leadership, and profits. Boeings advanced 777 is taking passengers through the millenium in style and with all the benefits of the latest design and technology. Here Philip

*Birtles details the 777s early design, manufacture, production and service record, offering an inside look at how the 777 works and how Boeing engineers made it happen. Contains line drawings and full technical specs.*

*To understand the operation of aircraft gas turbine engines, it is not enough to know the basic operation of a gas turbine. It is also necessary to understand the operation and the design of its auxiliary systems. This book fills that need by providing an introduction to the operating principles underlying systems of modern commercial turbofan engines*

and bringing readers up to date with the latest technology. It also offers a basic overview of the tubes, lines, and system components installed on a complex turbofan engine. Readers can follow detailed examples that describe engines from different manufacturers. The text is recommended for aircraft engineers and mechanics, aeronautical engineering students, and pilots.

*Private Pilot*

*HCI in Mobility, Transport,  
and Automotive Systems*

*Crew Resource Management  
Training*

*The Technological Marvel  
Commercial Aviation Safety,*

*Sixth Edition*

*Faa-H-8083-9a*

*The Handbook of Human-Machine Interaction features 20 original chapters and a conclusion focusing on human-machine interaction (HMI) from analysis, design and evaluation perspectives. It offers a comprehensive range of principles, methods, techniques and tools to provide the reader with a clear knowledge of the current academic and industry practice and debate that define the field. The text considers physical, cognitive, social and emotional aspects and is illustrated by key application*

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*domains such as aerospace, automotive, medicine and defence. Above all, this volume is designed as a research guide that will both inform readers on the basics of human-machine interaction from academic and industrial perspectives and also provide a view ahead at the means through which human-centered designers, including engineers and human factors specialists, will attempt to design and develop human-machine systems.*

*Designed for ground instructors, flight instructors, and aviation maintenance instructors, the Aviation Instructor's Handbook*

*was developed by the Flight Standards Service, Airman Testing Standards Branch, in cooperation with aviation educators and industry to help beginning instructors understand and apply the fundamentals of instruction. This handbook provides aviation instructors with up-to-date information on learning and teaching, and how to relate this information to the task of teaching aeronautical knowledge and skills to students. Experienced aviation instructors will also find the updated information useful for improving their effectiveness in*

*training activities. While this handbook primarily uses the traditional term "student" to denote someone who is seeking certification in aviation, the accepted term in educational psychology is "learners."*

*An exploration of the Airbus fly-by-wire flight control laws that become active when Normal law can no longer function. A follow on to Airbus A330 Normal Law.*

*Flying the Mountains : A Training Manual for Flying Single-Engine Aircraft*

*Airplane Flying Handbook (FAA-H-8083-3A)*

*Normal Operations Safety Survey (NOSS).*

*Proceedings of the First  
Symposium on Aviation  
Maintenance and Management-  
Volume I*

*Guided Flight Discovery*

*Funktionen der*

*Triebwerkssysteme von*

*Verkehrsflugzeugen*

NEW YORK TIMES BUSINESS BEST  
SELLER • A suspenseful behind-the-

scenes look at the dysfunction that  
contributed to one of the worst

tragedies in modern aviation: the 2018

and 2019 crashes of the Boeing 737

MAX. An "authoritative, gripping and  
finely detailed narrative that charts the

decline of one of the great American  
companies" (New York Times Book

Review), from the award-winning

reporter for Bloomberg. Boeing is a

century-old titan of industry. It played a major role in the early days of commercial flight, World War II bombing missions, and moon landings. The planemaker remains a cornerstone of the U.S. economy, as well as a linchpin in the awesome routine of modern air travel. But in 2018 and 2019, two crashes of the Boeing 737 MAX 8 killed 346 people. The crashes exposed a shocking pattern of malfeasance, leading to the biggest crisis in the company's history—and one of the costliest corporate scandals ever. How did things go so horribly wrong at Boeing? *Flying Blind* is the definitive exposé of the disasters that transfixed the world. Drawing from exclusive interviews with current and former employees of Boeing and the FAA; industry executives and analysts; and family

members of the victims, it reveals how a broken corporate culture paved the way for catastrophe. It shows how in the race to beat the competition and reward top executives, Boeing skimmed on testing, pressured employees to meet unrealistic deadlines, and convinced regulators to put planes into service without properly equipping them or their pilots for flight. It examines how the company, once a treasured American innovator, became obsessed with the bottom line, putting shareholders over customers, employees, and communities. By Bloomberg investigative journalist Peter Robison, who covered Boeing as a beat reporter during the company's fateful merger with McDonnell Douglas in the late '90s, this is the story of a business gone wildly off course. At once riveting

and disturbing, it shows how an iconic company fell prey to a win-at-all-costs mentality, threatening an industry and endangering countless lives.

This is an illustrated technical guide to the Boeing 737 aircraft. Containing extensive explanatory notes, facts, tips and points of interest on all aspects of this hugely successful airliner and showing its technical evolution from its early design in the 1960s through to the latest advances in the MAX. The book provides detailed descriptions of systems, internal and external components, their locations and functions, together with pilots notes and technical specifications. It is illustrated with over 500 photographs, diagrams and schematics. Chris Brady has written this book after many years developing the highly successful and informative Boeing 737 Technical Site,

known throughout the world by pilots, trainers and engineers as the most authoritative open source of information freely available about the 737.

A Flight Information Manual for the Cessna 172, for use when learning to fly on the C172 or during type rating training, and a great reference manual for pilots who fly the aircraft. Compiled from engineering manuals, manufacturers handbooks, and the author's extensive flight experience. Provides straight forward, useful explanations of the aircraft, systems and flight operations including performance planning, with photographs, diagrams and schematics.

The Boeing 737 Technical Guide  
Pakistan Labour Cases  
Advanced Qualification Program

Covering the 777-200 & 777-300  
Versions

Cessna 172 Training Manual  
Covering the 777-200 and 777-300  
Versions

**Proceedings of the First  
Symposium on Aviation  
Maintenance and Management  
collects selected papers from  
the conference of ISAMM 2013  
in China held in Xi'an on  
November 25-28, 2013. The  
book presents state-of-the-art  
studies on the aviation  
maintenance, test, fault  
diagnosis, and prognosis for  
the aircraft electronic and  
electrical systems. The  
selected works can help  
promote the development of**

**the maintenance and test technology for the aircraft complex systems. Researchers and engineers in the fields of electrical engineering and aerospace engineering can benefit from the book. Jinsong Wang is a professor at School of Mechanical and Electronic Engineering of Northwestern Polytechnical University, China.**

**The constant growth in aviation requires the introduction of new technologies, in order to meet the demand for increasing capacity. Especially the airport often represents the limiting factor. Poor visibility**

**conditions and an insufficiently equipped ground infrastructure, regarding navigation facilities, can lead to restrictions in maintaining the prevailing traffic flow - especially during the approaches. The conventional instrument landing system consists of numerous technical components, which are causing expenses regarding maintenance and operation. Smaller airports are often only partially or not at all equipped with the appropriate ground facilities. This can bring air traffic to a total halt during certain visibility conditions. New satellite-based approach**

**procedures offer the possibility to keep up air traffic even during poor visibility conditions, regardless of the ground infrastructure required in the past. These also offer now a barometric guidance or an augmented satellite signal for the vertical flight guidance component. With the use of these approach procedures there is however the possibility of new faults and errors of the vertical flight guidance signal. In a system based on electromagnetic radio waves a fault is angular, meaning if the airplane gets nearer to the transmitter on**

**ground the absolute possible failure of the target approach path gets smaller. In a satellite based approach, on the other hand, it is constant during the whole approach. The result can be a great deviation from the target approach path even just before reaching the runway threshold. Often only after reaching the decision height and the herewith connected visual contact to corresponding ground features, these faults can be recognized during poor visibility conditions close to the minima of a precision approach flight. The larger the**

**absolute error to the target approach path, the more crucial it gets to initiate a missed approach procedure and therefore preventing a drop out of the relevant obstacle clearance limit. Research has shown that through the currently present visual characteristics of the approach lighting system the actual position cannot be determined sufficiently regarding the runway threshold and the target approach path in order to estimate the decision height correctly. The here presented “Advanced Approach Light System” is supposed to be an**

**additional visual aid in order to support the cockpit crew in its decisions. Therefore it should amount to improve the awareness of the situation regarding constant vertical faults. The new navigation lighting system has been integrated into a flight simulator and was tested by licensed airline pilots within two test series with varying visibility conditions and decision heights. Next to basic functionality operational usability in existing procedures of practical routines in the cockpit has been evaluated. The results of the test series have**

**demonstrated a significant improvement in identifying vertical faults with the support of the “Advanced Approach Light System”. The decision to initiate a missed approach was made immediate and prompt and therefore the airplane stayed within the obstacle clearance limit even in a low decision height. In contrast, the trial participants without the new system took reluctant and often far too late decisions, which lead to a drop out of the obstacle clearance limit. The “Advanced Approach Lighting System” has significantly improved the situation awareness for pilots**

**in command in recognizing vertical faults when reaching the decision height. The integration in existing work routines and its operative use happened flawlessly and was highly accepted by the trial participants. Das stetige Wachstum in der Luftfahrt erfordert die Einführung neuer Technologien, um der Nachfrage nach steigender Kapazität gerecht zu werden. Insbesondere das System Flughafen stellt hierbei oftmals den limitierenden Faktor dar. Schlechte Sichtbedingungen und die unzureichende bodenseitige Ausrüstung mit**

**Navigationseinrichtungen können für Einschränkungen in der Aufrechterhaltung des bestehenden Verkehrsflusses sorgen - insbesondere bei Landeanflügen. Das konventionelle Instrumentenlandesystem besteht aus einer Vielzahl an technischer Komponenten, die hohen Aufwand hinsichtlich Wartung und Betrieb verursachen. Kleine Flughäfen sind oft nur teilweise oder gar nicht mit den entsprechenden Bodenkomponenten ausgerüstet, so dass der Flugbetrieb bei bestimmten Sichtbedingungen vollständig eingestellt werden muss. Neue**

**satellitengestützte Anflugverfahren bieten die Möglichkeit, den Flugbetrieb auch bei schlechten Sichtbedingungen aufrechtzuerhalten, unabhängig von der bisher notwendigen Bodeninfrastruktur. Diese bieten mittlerweile ebenso eine auf der barometrischen Höhenmessung oder einem aufgewerteten Satellitensignal basierende vertikale Flugführungskomponente. Allerdings besteht mit der Verwendung entsprechender Anflugverfahren auch eine neue mögliche Fehlercharakteristik des**

**vertikalen  
Flugführungssignals. Ist ein  
Fehler beim auf  
elektromagnetischen  
Funkwellen basierenden  
Instrumentenlandesystem  
winkelförmig - d.h. je näher  
sich das Luftfahrzeug dem  
Sender am Boden nähert,  
umso kleiner wird die absolute  
Ablage zum Sollanflugweg - ist  
dieser bei satellitengestützten  
Anflügen konstant über den  
gesamten Endanflug. Eine  
große Abweichung vom  
Sollanflugweg auch kurz vor  
Erreichen der  
Landebahnschwelle kann die  
Folge sein. Bei schlechten  
Sichtbedingungen nahe den**

**Minima eines Präzisionsanfluges kann der Fehler oft erst bei Erreichen der Entscheidungshöhe und dem damit verbundenen visuellen Kontakt zu entsprechenden Bodenmerkmalen erkannt werden. Je größer die Ablage zum Sollanflugweg, umso entscheidender ist das unverzügliche Einleiten des Fehlanflugs, um ein Verlassen der entsprechenden Hindernisfreibereiche zu verhindern. Untersuchungen haben gezeigt, dass die aktuell vorhandenen visuellen Merkmale der Anflugbefeuerung nicht**

**ausreichend sein können, die tatsächliche Position bezüglich der Landebahnschwelle und des Sollanflugweges bei Erreichen der Entscheidungshöhe einzuschätzen. Das hier vorgestellte Advanced Approach Light System soll die Cockpitbesatzung als zusätzliches visuelles Merkmal bei der Entscheidung unterstützen und so zur Verbesserung des Situationsbewusstseins hinsichtlich konstanter vertikaler Fehler beitragen. Das neue Befeuerungssystem wurde in einen Flugsimulator integriert und innerhalb zweier**

**Versuchsreihen mit unterschiedlichen Sichtbedingungen und Entscheidungshöhen von lizenzierten Verkehrspiloten getestet. Dabei sollte neben der grundsätzlichen Funktionalität auch die operative Einsetzbarkeit in den bestehenden Ablauf der Handlungsroutinen im Cockpit untersucht werden. Die Ergebnisse der Versuchsreihen haben eine erhebliche Verbesserung im Erkennen vertikaler Fehler mit Hilfe des Advanced Approach Light System aufgezeigt. Die Entscheidung zum Einleiten des Fehlanflugs erfolgte direkt**

**und unverzüglich, wodurch das Luftfahrzeug auch bei sehr niedriger Entscheidungshöhe noch innerhalb des Hindernisfreibereiches blieb. Im Gegensatz dazu wurde bei den Versuchsteilnehmern, denen nicht das neue System zur Verfügung stand, die Entscheidung eher zögerlich und oftmals viel zu spät getroffen, was zu einem Verlassen des Hindernisfreibereichs führte. Das Situationsbewusstsein der Luftfahrzeugführer zum Erkennen vertikaler Fehler beim Erreichen der Entscheidungshöhe wurde durch das Advanced Approach**

**Light System wesentlich erhöht. Die Integration in bestehende Arbeitsroutinen und der operative Einsatz erfolgten bei hoher Akzeptanz problemlos durch die Versuchsteilnehmer.**

**This training guide diminishes the dangers and doubles the thrill--and safety--of flying single-engine aircraft at high altitudes in mountainous regions. Logically organized by phases of flight--from preflight preparation to landings--the author combines statistics, techniques, and examples of actions (correct and incorrect) that real pilots have taken in actual flight scenarios. \***

**Details training that offsets  
mountain flying mistakes \***  
**Describes the effects of  
altitude on pilots and aircraft \***  
**Outlines cold weather  
operations and precautions \***  
**Includes search and rescue  
operation procedures \***  
**Reviews take-off conditions  
from airport mountains**  
**Jetliner for a New Century**  
**Advanced Approach Light  
System**  
**Flying Blind**  
**Doc# 9683-an/950**  
**The Reconfiguration laws**