Flight Theory and Aerodynamics

The newly revised Fourth Edition of Flight Theory and Aerodynamics delivers a pilot-oriented approach to flight aerodynamics without assuming an engineering background. The book connects the principles of aerodynamics and physics to their practical applications in a flight environment. With content that complies with FAA rules and regulations, readers will learn about atmosphere, altitude, airspeed, lift, drag, applications for jet and propeller aircraft, stability controls, takeoff, landing, and other maneuvers. The latest edition of Flight Theory and Aerodynamics takes the classic textbook first developed by Charles Dole and James Lewis in a more modern direction and includes learning objectives, real world vignettes, and key idea summaries in each chapter to aid in learning and retention. Readers will also benefit from the accompanying online materials, like a test bank, solutions manual, and FAA regulatory references. Updated graphics included throughout the book correlate to current government agency standards. The book also includes: A thorough introduction to basic concepts in physics and mechanics, aerodynamic terms and definitions, and the primary and secondary flight control systems of flown aircraft An exploration of atmosphere, altitude, and airspeed measurement, with an increased focus on practical applications Practical discussions of structures, airfoils, and aerodynamics, including flight control systems and their characteristics In-depth examinations of jet aircraft fundamentals, including material on aircraft weight, atmospheric conditions, and runway environments New step-by-step examples of how to apply math equations to real-world situations Perfect for students and instructors in aviation programs such as pilot programs, aviation management, and air traffic control, Flight Theory and Aerodynamics will also appeal to professional pilots, dispatchers, mechanics, and aviation managers seeking a one-stop resource explaining the aerodynamics of flight from the pilot's perspective.
Flight Theory and Aerodynamics

Aviation Medical Safety Training Manual eBundle: printed book and eBook download code The Pilot's Manual: Ground School will walk you through everything you need to know to pass your FAA Knowledge Exams and earn your pilot certificate. The Fifth Edition of this comprehensive textbook has been updated to reflect current rules, procedures, FAA Airman Certification Standards and technologies including drones, ADS-B, weather services available to pilots and BasicMed. Subjects covered include aerodynamics, the airplane and its performance factors, physiological factors affecting the pilot, weather, regulations, charts and airspace, airport operations, navigation, and flight planning, including specific instructions on how to use the flight computer. Helpful marginal notes are provided for quick definitions of terms, further emphasis of key points, and mnemonic devices that can be of tremendous benefit to study. Each chapter closes with review questions highlighting the important facts. Ninety percent of the material is for the private pilot applicant, and the remaining ten percent, well-separated, will raise you to the commercial pilot certificate standard. Also available in The Pilot's Manual Series: Flight School--How to fly all the maneuvers required for certification Instrument Flying--Aeronautical knowledge and skill required for the Instrument Rating Multi-Engine Flying--Aeronautical knowledge required to earn a Multi-Engine Rating Access to Flight--An integrated Private Certificate and Instrument Rating curriculum Airline Transport Pilot--Complete ATP certification training program

Defence Aviation Safety Management System

Safety Management System Manual

The effectiveness of safety management systems implementation in aviation maintenance Written by a range of international industry practitioners, this book offers a comprehensive overview of the essence and nature of airline operations in terms of an operational and regulatory framework, the myriad of planning activities leading up to the current day, and the nature of intense activity that typifies both normal and disrupted airline operations. The first part outlines the importance of the regulatory framework underpinning airline operations, exploring how airlines structure themselves in terms of network and business model. The second part draws attention to the operational environment, explaining the framework of the air traffic system and processes instigated by operational departments within airlines. The third part presents a comprehensive breakdown of the activities that occur on the actual operating day. The fourth part provides an eye-opener into events that typically go wrong on the operating day and then the means by which airlines try to mitigate these problems. Finally, a glimpse is provided of future systems, processes, and technologies likely to be significant in airline operations. Airline Operations: A Practical Guide offers valuable knowledge to industry and academia alike by providing readers with a well-informed and interesting dialogue on critical functions that occur every day within airlines.

Aviation Safety Programs Operations Manual

Aviation Risk and Safety Management A comprehensive aviation safety management resource that provides a full explanation of the aviation safety process. Includes customer contractor relationships, safety management systems, system safety engineering, aircraft ground operations, and human factors. Contains aviation safety checklists along with a sample aviation safety program. A valuable reference for teaching aviation safety, including how to start and maintain an effective safety
Aircraft Support Equipment

"Defence Aviation Systems are managed to ensure their capability is commensurate with Defence operational requirements. Central to this management is the safe operation of Aviation Systems which is effected through the Defence Aviation Safety Program (DASP). The DASP comprises an Airworthiness Management System (AMS) and an Aviation Safety Management System (ASMS). This guidebook focuses on the Defence ASMS and encapsulates some of the more noteworthy information found in AAP 6734.001-Defence Aviation Safety Manual (DASM). It provides a ready reference to enable personnel involved in Defence Aviation to contribute to the maintenance of an effective ASMS. The DASM remains the authoritative source for Defence ASMS policy"—Page 2.

21st Century U.S. Military Manuals Research Paper (undergraduate) from the year 2011 in the subject Sociology - Methodology and Methods, grade: 98%, University of Newcastle, course: Masters Of Aviation Management, language: English, abstract: Safety management system (SMS) program is a comprehensive, systematic and continuous process for recognizing hazards and managing risks for a viable aviation business to enhance safety. With proper guidance and planning from current literature, it recognizes the explicit complexity to distill more insights to the aspects of an SMS implementation. Real rigor must be in place for the underlying mechanism to detect the weaknesses within the defense mechanism, fix it before they are manifested as an undesired event. This is a shift from the traditional reactive systems to proactive/predictive systems. SMS is not a process to solve a specific safety issue, but rather an explicit, consistent and structured protocol which can resolve many issues to reduce risk realistically or as low as reasonably practicable (ALARP). The four essential constituents- safety policy and goals, risk mitigation management, safety assurance and safety promotion, represents the foundation for SMS. This article delineates the SMS processes and the integration of human factors perspectives with the intent to propose an initial implementation program for a maintenance organisation into four phases. Ultimately, the effectiveness of an SMS implementation means the organization can manage the complexity of these mechanisms to defend against risk incubation to ALARP.
Guide to Aviation Resources Management for Aircraft Mishap Prevention This book is a compilation of a half-century of flying experience in general aviation machines (sixteen thousand hours) and provides specific techniques and tips to enhance your knowledge of aviation and to improve your abilities and confidence as a pilot or student (and person). Coupling that flight background with decades of hands-on aircraft accident investigation involvement provides a completely fresh insight into being a pilot. The goal of this manual is to save lives! Small Aircraft Oper

US Forest Service Fire and Aviation Management: Aviation Safety Management System Guide The International Civil Aviation Organization has mandated that all of its member states implement Safety Management Systems (SMS) in their aviation industries. Responding to that call, many countries are now in various stages of SMS development, implementation, and rulemaking. In their first book, Safety Management Systems in Aviation, Stolzer, Halford, and Goglia provided a strong theoretical framework for SMS, along with a brief discourse on SMS implementation. This follow-up book provides a very brief overview of SMS and offers significant guidance and best practices on implementing SMS programs. Very specific guidance is provided by industry experts from government, industry, academia, and consulting, who share their invaluable insights from first-hand experience of all aspects of effective SMS programs. The contributing authors come from all facets of aviation, including regulation and oversight, airline, general aviation, military, airport, maintenance, and industrial safety. Chapters address important topics such as how to develop a system description and perform task analyses, perspectives on data sharing, strategies for gaining management support, establishing a safety culture, approaches to auditing, integrating emergency planning and SMS, and more. Also included is a fictional narrative/story that can be used as a case study on SMS implementation. Implementing Safety Management Systems in Aviation is written for safety professionals and students alike.

Risk Management Handbook The International Civil Aviation Organization’s (ICAO) decision to require aviation organizations to adopt Safety Management Systems poses a major problem especially for small and medium sized aviation companies. The complexity of regulations overstrains the aviation stakeholders who seek to fully advantage from them but have no clear guidance. The aim of the book is to show the implementation of such a new system with pragmatic effort in order to gain a gradation for smaller operators. This approach should illustrate the leeway in order to adapt the processes and to show the interfaces between Corporate Risk Management and Safety Management. The book shows how to build a system with reasonable effort, appropriate to the size and complexity of the specific operator. It also gives inputs on the key aspects and how to effectively operate such a system with the various interfaces. Furthermore, the book highlights the importance of Corporate Risk Management independent of Safety Management Systems based on ICAO.

Flight Theory and Aerodynamics The Federal Aviation Administration’s Airplane Flying Handbook provides pilots, student pilots, aviation instructors, and aviation specialists with information on every topic needed to qualify for and excel in the field of aviation. Topics covered include: ground operations, cockpit management, the four fundamentals of flying, integrated flight control, slow flights, stalls, spins, takeoff, ground reference maneuvers, night operations, and much more. The Airplane Flying Handbook is a great study guide for current pilots and for potential pilots who are interested in applying for their first license. It is also the perfect gift for any aircraft or aeronautical buff.
Implementing Safety Management Systems in Aviation

This book, despite the title, is a book about managing safety. It’s looking at the safety field as a whole from a different angle to see where improvements can be made. It’s also moving away from the word “safety” and taking a more practical approach that may be more accepted by employees that will, in turn, help with compliance. Sometimes, we need to back up and look at things in a different angle and change what needs changing. “Safety” is probably one of the most boring words in the English language, so it has an uphill climb no matter where you are in your safety program. It always needs help. It’s about being efficient with the materials we give employees that has value, not check-the-box, empty-content-type stuff.

Manual Concerning Safety Measures Relating to Military Activities Potentially Hazardous to Civil Aircraft Operations

Commercial Aviation Safety 5/E FLIGHT THEORY AND AERODYNAMICS GET A PILOT’S PERSPECTIVE ON FLIGHT AERODYNAMICS FROM THE MOST UP-TO-DATE EDITION OF A CLASSIC TEXT

The newly revised Fourth Edition of Flight Theory and Aerodynamics delivers a pilot-oriented approach to flight aerodynamics without assuming an engineering background. The book connects the principles of aerodynamics and physics to their practical applications in a flight environment. With content that complies with FAA rules and regulations, readers will learn about atmosphere, altitude, airspeed, lift, drag, applications for jet and propeller aircraft, stability controls, takeoff, landing, and other maneuvers. The latest edition of Flight Theory and Aerodynamics takes the classic textbook first developed by Charles Dole and James Lewis in a more modern direction and includes learning objectives, real world vignettes, and key idea summaries in each chapter to aid in learning and retention. Readers will also benefit from the accompanying online materials, like a test bank, solutions manual, and FAA regulatory references. Updated graphics included throughout the book correlate to current government agency standards. The book also includes: A thorough introduction to basic concepts in physics and mechanics, aerodynamic terms and definitions, and the primary and secondary flight control systems of flown aircraft An exploration of atmosphere, altitude, and airspeed measurement, with an increased focus on practical applications Practical discussions of structures, airfoils, and aerodynamics, including flight control systems and their characteristics In-depth examinations of jet aircraft fundamentals, including material on aircraft weight, atmospheric conditions, and runway environments New step-by-step examples of how to apply math equations to real-world situations Perfect for students and instructors in aviation programs such as pilot programs, aviation management, and air traffic control, Flight Theory and Aerodynamics will also appeal to professional pilots, dispatchers, mechanics, and aviation managers seeking a one-stop resource explaining the aerodynamics of flight from the pilot’s perspective.


Air Traffic Organization's most fundamental imperative is to ensure the safety of the national airspace system. Safety can be effectively determined not only by the current absence of accidents, but also the presence of safe conditions well into the future. Therefore, as we build the Next Generation Air Transportation System, the resulting cross organizational changes to the NAS will require us to maintain an intensive, proactive, and systematic focus on safety. This focus is achieved through the implementation of the Safety Management System (SMS). The SMS formally integrates the ATO's safety-related operational processes, procedures, policies, and programs. SMS stresses safety assurance, through the analysis of safety data, and promotes a vibrant safety culture among our workforce. SMS also guarantees that every step we take toward NextGen, we are identifying, analyzing, and mitigating risk. This manual outlines the procedures and responsibilities regarding the functioning of the SMS. This manual was developed as the result of a consolidated, agency-wide effort and reflects current international best practices. Safety experts and managers from across the FAA contributed to its development. This version of the manual marks an important next step toward a complete and
integrated SMS in the FAA. In support of the effort to provide a safer National Airspace System (NAS) using the Safety Management System (SMS), this manual describes the Air Traffic Safety Oversight Service (AOV) safety requirements and responds to International Civil Aviation Organization (ICAO) safety process requirements for the Air Traffic Organization (ATO). The manual also provides guidance, processes, and tools to ATO personnel for managing the safety of the NAS, building on existing ATO safety management capabilities. This manual was created to provide specific operational process information to support the daily activities of ATO employees. It describes the functions, components, and principles of the SMS and provides the guidance to apply them effectively. The first chapter of this manual is an introduction to the SMS. The remaining chapters are organized by the four components of the SMS: safety policy, Safety Risk Management (SRM), safety assurance, and safety promotion. Each chapter is described as follows. a. Chapter 1 – SMS Overview: An SMS introduction that includes the definition of the SMS, how it originated in the ATO, and the objectives, scope, and products. b. Chapter 2 – Safety Policy: A description of the safety management requirements, which are consistent with AOV SMS and ICAO safety process requirements; roles and responsibilities related to the SMS and the relationships among the different roles; why safety oversight is necessary; and responsibilities and authorities of AOV. c. Chapter 3 – Safety Risk Management: The types of changes evaluated for safety risk; processes and guidance available for determining the level of safety analysis required; detail and documentation required for safety analysis; SRM process; SRM terminology, tools, and techniques; risk acceptance requirements; tracking required NAS changes; and the development and approval of SRM documentation. d. Chapter 4 – Safety Assurance: The importance of safety reviews and evaluations in the SMS; assurance programs, including the Air Traffic Evaluation and Auditing Program, the NAS Technical Evaluation Program, the Independent Operational Test and Evaluation process, Independent Safety Assessments, and SRM audits; importance of safety data; types of data; how data are collected and reported; processes for reporting safety incidents and accidents; relationship between incident investigations and SRM; monitoring of mitigations through safety data tracking and analysis; and existing safety data reporting documents and processes. e. Chapter 5 – Safety Promotion: What a safety culture is; why it is important; responsibilities within it; and SMS training.

Safety Management Systems for Airports All the Information you Need to Operate Safely in US Airspace, Fully Updated If you’re an aviator or aviation enthusiast, you cannot be caught with an out-of-date edition of the FAR/AIM. In today’s environment, there is no excuse for ignorance of the rules of the US airspace system. In the newest edition of the FAR/AIM, all regulations, procedures, and illustrations are brought up to date to reflect current FAA data. This handy reference book is an indispensable resource for members of the aviation community, as well as for aspiring pilots looking to get a solid background in the rules, requirements, and procedures of flight training. Not only does this manual present all the current FAA regulations, it also includes: A study guide for specific pilot training certifications and ratings A pilot/controller glossary Standard instrument procedures Parachute operations Airworthiness standards for products and parts The NASA Aviation Safety reporting form Important FAA contact information This is the most complete guide to the rules of aviation available anywhere. Don’t take off without the FAR/AIM!

In-Time Aviation Safety Management

Woodgate Aviation The pilot's guide to aeronautics and the complex forces of flight Flight Theory and Aerodynamics is the essential pilot's guide to the physics of flight, designed specifically for those with limited engineering experience. From the basics of forces and vectors to craft-specific applications, this book explains the mechanics behind the pilot's everyday
operational tasks. The discussion focuses on the concepts themselves, using only enough algebra and trigonometry to illustrate key concepts without getting bogged down in complex calculations, and then delves into the specific applications for jets, propeller crafts, and helicopters. This updated third edition includes new chapters on Flight Environment, Aircraft Structures, and UAS-UAV Flight Theory, with updated craft examples, component photos, and diagrams throughout. FAA-aligned questions and regulatory references help reinforce important concepts, and additional worked problems provide clarification on complex topics. Modern flight control systems are becoming more complex and more varied between aircrafts, making it essential for pilots to understand the aerodynamics of flight before they ever step into a cockpit. This book provides clear explanations and flight-specific examples of the physics every pilot must know. Review the basic physics of flight Understand the applications to specific types of aircraft Learn why takeoff and landing entail special considerations Examine the force concepts behind stability and control As a pilot, your job is to balance the effects of design, weight, load factors, and gravity during flight maneuvers, stalls, high- or low-speed flight, takeoff and landing, and more. As aircraft grow more complex and the controls become more involved, an intuitive grasp of the physics of flight is your most valuable tool for operational safety. Flight Theory and Aerodynamics is the essential resource every pilot needs for a clear understanding of the forces they control.

The Pilot's Manual: Ground School

Flight Theory and Aerodynamics

Burn Your Safety Manual Today and Thank Me Tomorrow Every day in the United States, over two million men, women, and children step onto an aircraft and place their lives in the hands of strangers. As anyone who has ever flown knows, modern flight offers unparalleled advantages in travel and freedom, but it also comes with grave responsibility and risk. For the first time in its history, the Federal Aviation Administration has put together a set of easy-to-understand guidelines and principles that will help pilots of any skill level minimize risk and maximize safety while in the air. The Risk Management Handbook offers full-color diagrams and illustrations to help students and pilots visualize the science of flight, while providing straightforward information on decision-making and the risk-management process.

Airplane Flying Handbook (FAA-H-8083-3A) Although aviation is among the safest modes of transportation in the world today, accidents still happen. In order to further reduce accidents and improve safety, proactive approaches must be adopted by the aviation community. The International Civil Aviation Organization (ICAO) has mandated that all of its member states implement Safety Management System (SMS) programs in their aviation industries. While some countries (the United States, Australia, Canada, members of the European Union and New Zealand, for example) have been engaged in SMS for a few years, it is still non-existent in many other countries. This unique and comprehensive book has been designed as a textbook for the student of aviation safety, and as an invaluable reference tool for the SMS practitioner in any segment of aviation. It discusses the quality management underpinnings of SMS, the four components, risk management, reliability engineering, SMS implementation, and the scientific rigor that must be designed into proactive safety. The authors introduce a hypothetical airline-oriented safety scenario at the beginning of the book and conclude it at the end, engaging the reader and adding interest to the text. To enhance the practical application of the material, the book also features numerous SMS in Practice commentaries by some of the most respected names in aviation safety. In this second edition of Safety Management Systems in Aviation, the authors have extensively updated relevant sections to reflect developments since the original book of 2008. New sections include: a
brief history of FAA initiatives to establish SMS, data-driven safety studies, developing a system description, SMS in a flight school, and measuring SMS effectiveness.


Aircraft Support Equipment This Army Field Manual is designed to serve as a doctrinal guide focusing on the primary aspects of airfield procedures in full spectrum operations. While it contains guidelines for aviation unit commanders and aviators, the manual is intended primarily for use by airfield operations battalions (AOBs) and installation flight operations personnel. It is applicable to division, corps, Theater Aviation Command (TAC), Theater and Area Sustainment Commands, and the Army aviation community, including members of allied, coalition, and civil support forces. This manual outlines the organization and services of the theater airfield operations groups (TAOGs), AOBs, aviation unit plans and operations staff, and installation airfield management operations. It explains personnel qualifications, duties, and responsibilities; it provides information on airfield design and security and support requirements when planning and operating an airfield within a theater of operations (TO) or during homeland security operations. Installation airfield management structure, responsibilities, services, safety, and National Airspace System (NAS) requirements are presented in part III of this manual. Appendix A details the numerous checklists necessary for adequate airfield assessment and the duties required for airfield opening. Appendix B discusses the characteristics of military aircraft. Appendix C addresses Army and Air Force airfield planning. Appendix D discusses letters and facility memorandums. Appendix E discusses emergency plans and procedures.

Contents


Manual Concerning Safety Measures Relating to Military Activities Potentially Hazardous to Civil Aircraft Operations Decades of continuous efforts to address known hazards in the national airspace system (NAS) and to respond to issues illuminated by
analysis of incidents and accidents have made commercial airlines the safest mode of transportation. The task of maintaining a high level of safety for commercial airlines is complicated by the dynamic nature of the NAS. The number of flights by commercial transports is increasing; air traffic control systems and procedures are being modernized to increase the capacity and efficiency of the NAS; increasingly autonomous systems are being developed for aircraft and ground systems, and small aircraft—most notably unmanned aircraft systems—are becoming much more prevalent. As the NAS evolves to accommodate these changes, aviation safety programs will also need to evolve to ensure that changes to the NAS do not inadvertently introduce new risks. Real-time system-wide safety assurance (RSSA) is one of six focus areas for the National Aeronautics and Space Administration (NASA) aeronautics program. NASA envisions that an RSSA system would provide a continuum of information, analysis, and assessment that supports awareness and action to mitigate risks to safety. Maintaining the safety of the NAS as it evolves will require a wide range of safety systems and practices, some of which are already in place and many of which need to be developed. This report identifies challenges to establishing an RSSA system and the high-priority research that should be implemented by NASA and other interested parties in government, industry, and academia to expedite development of such a system.

FAR/AIM 2021: Up-to-Date FAA Regulations / Aeronautical Information Manual A Complete, Fully Updated Guide to COMMERCIAL AVIATION SAFETY Presenting the latest procedures and standards from U.S. and international air traffic and regulatory agencies, this extensively revised resource covers the entire commercial aviation safety system—from human factors to accident investigation. The introduction of Safety Management Systems (SMS) principles by the International Civil Aviation Organization (ICAO) is discussed in detail. Commercial Aviation Safety, Fifth Edition delivers authoritative information on today's security concerns on the ground and in the air, changes in systems and regulations, new maintenance and flight technologies, and recent accident statistics. This is the most comprehensive, current, and systematic reference on the principles and practices of commercial aviation safety and security. COVERAGE INCLUDES: Regulatory information on ICAO, FAA, EPA, TSA, and OSHA 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) Aircraft and air traffic control technologies and safety systems Airport safety, including runway incursions Aviation security, including the 9-11 Commission recommendations International and U.S. Airline Safety Management Systems Aviation Safety Management Systems

Flight Operations

Airline Operations

Safety Oversight Manual A Safety Management System (SMS) is essentially a quality management approach to controlling risk. It provides the organizational framework to construct and support a sound safety culture that actively controls its risk exposure. With increased aviation activity and decreased resources, the SMS pushes the limits of current safety strategies and practices by developing and implementing a structured management system to control risk and meet legal responsibilities in aviation operations. Our goal is to develop a safety culture that achieves and maintains a zero accident rate. A highly successful safety culture understands that every person in the organization accepts that safety is a conscious and ongoing mindset as opposed to simply a box to be checked. We understand that safety is a dynamic non-event. Consequently, we need to maintain the capability to continuously seek out and eliminate latent defects within our systems and culture. By being
proactive in this area we eliminate potential causal factors that could lead to future accidents. The purpose of this guide is to assist in fulfilling the requirements of FSM 5700 and the National Aviation Safety and Management Plan, with respect to the implementation of Safety Management Systems (SMS). This guide provides best practices for the application of SMS in the Forest Service and for its service providers. The SMS shall comprehensively examine the functions of the Forest Service and the operational environment to identify hazards and to analyze associated risks. The specific functional components include: Safety management; Organization and personnel; Training and proficiency; Flight operations; International operations (when applicable); Aircraft equipment requirements; Aircraft maintenance; Operations policies and procedures; Emergency accident/incident response; Environmental management; Occupational health and safety; and Security. This document provides guidance for SMS development applicable to all Forest Service aviation operations. Statements containing the words must, shall, and will are directive in nature and the corresponding policy can be found in the FSM 5700. This Guide contains best practices for Safety Management Systems in the aviation program, thus the terms "may" and "should" indicate the best practice or an industry standard that allows some discretion in its execution.

Small Aircraft Operations Manual The Safety Management System (SMS) is a formalized and proactive approach to system safety. It directly supports the mission of the Federal Aviation Administration (FAA), which is "to provide the safest, most efficient aerospace system in the world." The Air Traffic Organization (ATO) SMS is an integrated collection of principles, policies, processes, procedures, and programs used to identify, analyze, assess, manage, and monitor safety risk in the provision of air traffic management and communication, navigation, and surveillance services. This SMS Manual informs ATO employees and contractors about the goal of the ATO SMS, describes the interrelationship among the four components of the SMS, and instructs readers on the process of identifying safety hazards and mitigating risk in the National Airspace System (NAS). Use this document and its complements, such as the Safety Risk Management Guidance for System Acquisitions, ATO Safety Guidance documents, and other FAA safety documents, to carry out the safety mission of the FAA and requirements of the SMS.

Safety Management Systems in Aviation

Aircraft Accident Analysis: Final Reports

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