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By Ger J.J. Ruijgrok



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This book contains sixteen chapters and four appendices which form a comprehensive teaching text on the subject of airplane performance. The first seven chapters are designed to provide necessary background material in mechanics, aerodynamics, atmospheric science, air data instruments, and propulsion. In addition, the appendices furnish basic data and information on the theory pertinent to a clear understanding of the different problems. Chapters 8-13, in particular, treat the point performance of the airplane, i.e., the performance that pertain to given point on the flight path. Finally, chapters 14-16 deal with what is known as the integral performance, indicating the performance items which are related to the course of the flight. The text is extensively illustrated and includes numerous worked examples. The book is primarily intended to serve as a textbook in undergraduate engineering courses and as an instrument for selfstudy. Contents Preface * 1. Basic concepts * 2. The atmosphere * 3. Equations of motion * 4. Aerodynamic basis * 5. Air data instruments * 6. Propulsion * 7. Propeller performance * 8. The airplane in symmetric flight * 9. Performance in steady symmetric flight * 10. Effect of altitude * 11. Flight and airplane condition effects * 12. Turning performance * 13. Gliding flight * 14. Symmetric climb and descent * 15. Cruise performance * 16. Airfield performance * References * Appendix A. Newtonian mechanics * Appendix B. Conversion factors * Appendix C. International standard atmosphere * Appendix D. One-dimensional steady flow equations * Index



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Editorial Review

About the Author

The author, Gerrit J.J. Ruijgrok, is a Professor of Aerospace Engineering at the Brussels Free University (VUB), Belgium, and at the Delft University of Technology, The Netherlands. He is also the author of the book Elements of Aviation Acoustics. His educational and research tasks are concentrated on performance, propulsion and noise of aircraft. He was graduated from Delft University with a degree in aeronautical engineering.

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