



Principles of Aerostatics: The Theory of Lighter-Than-Air Flight

By John A Taylor

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Principles of Aerostatics presents the complete theory of static lift for airships, aerostats and balloons. Concepts are laid out, and building on the derivation of temperature, pressure, density and humidity in the atmosphere and the gas laws, formulas for static lift are derived. The variation of lift with atmospheric and airship parameters, climb and descent, and flight above pressure height are then explored. Both SI and United States Customary Units are employed throughout, and worked examples and calculator programs are provided. The mathematical processes can be followed by a reader with an understanding of high school algebra.

"This is an excellent and unique work bringing the strands of basic theory together and rendering them into a workable series of mathematical expressions which can be used by any individual with a hand held scientific calculator. It is a most significant contribution to the LTA industry."

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Editorial Review

About the Author

John Taylor is experienced as a lighter-than-air flight test engineer and consultant, and has flown blimps produced by four different manufacturers. He holds a Bachelor of Science in Aeronautics and Astronautics from the University of Southampton, UK, and a Master of Science in Systems Management from Florida Institute of Technology, USA. He is a Chartered Engineer (UK). He has served as chair of the American Institute of Aeronautics and Astronautics (AIAA) Lighter-Than-Air Technical Committee, member of the Airship Association Council, and member of the Society of Flight Test Engineers (SFTE) Technical Council. He organized and chaired two international technical workshops on lighter-than-air issues, chaired an AIAA international conference, and presented four technical papers at other international conferences. He was awarded the 1992 SFTE Directors' Award for Outstanding Service.

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