

Appendix F. Configuration Aerodynamics Reading List

We read and have class discussions of a few key papers in configuration aerodynamics. We don't have time to read and discuss all the classic papers in class, so these are a few papers that fit the primary themes of the course. I wish we could discuss more. References in the various chapters provide citations to many of the other classic configuration aerodynamics papers.

To get oriented to the attitude of a successful configuration aerodynamicist:

Irving T. Waaland, "Technology in the Lives of an Aircraft Designer," AIAA Wright Brothers Lecture, Sept., 1991

Discussed together to compare and contrast different solutions for similar missions:

Richard S. Shevell and Roger D. Schaufele, "Aerodynamic Design Features of the DC-9," *Journal of Aircraft*, Vol. 3, No. 6, Nov-Dec 1966, pp. 515-523.

M.L. Olason and D.A. Norton, "Aerodynamic Design Philosophy of the Boeing 737," *Journal of Aircraft*, Vol. 3, No. 6, Nov-Dec 1966, pp. 524-528. (also AIAA Paper 65-739)

Read together to consider the role of CFD:

R.S. Shevell, "Aerodynamic Bugs, Can CFD Spray Them Way?" AIAA Paper 85-4067, October 1985, published in the *Journal of Aircraft*, Vol. 23, No. 8, August 1986, as "Aerodynamic Anomalies: Can CFD Prevent or Correct Them?" pp. 641-649. Although some of the "CFD" methods discussed are slightly dated, the aerodynamic thinking, insight and approach to understanding aerodynamic flowfields is unsurpassed.

Edward N. Tinoco, "The Impact of Computational Fluid Dynamics in Aircraft Design," *Canadian Aeronautics and Space Journal*, Vol. 44, No. 3, Sept. 1998, pp. 132-144.

See also:

Paul E. Rubbert, "CFD and the Changing World of Airplane Design," AIAA Wright Brothers Lecture, Sept., 1994.

Edward N. Tinoco, "The Changing Role of Computational Fluid Dynamics in Aircraft Development," AIAA Paper 98-2512, June 1998.

Antony Jameson, "Re-Engineering the Design Process through Computation," AIAA Paper 97-0641, Jan. 1997.

A paper describing transonic transport aerodynamic design

Frank T. Lynch, "Commercial Transports—Aerodynamic Design for Cruise Performance Efficiency," Douglas Paper 7026, Feb., 1981. Also, Chapter 2, *Transonic Aerodynamics*, ed. David Nixon, AIAA Progress in Astro & Aero series, Vol. 81, 1982, pp.-81-147.

The key paper on the physics of high-lift:

A.M.O. Smith, "High-Lift Aerodynamics," AIAA Wright Brothers Lecture, AIAA Paper 74-939, Aug. 1974, also *Journal of Aircraft*, Vol. 12, No. 6, June 1975, pp. 501-530.

We have to have a case study of the SR-71, one of the most remarkable airplanes ever:

Ben R. Rich, "F-12 Series Aircraft Aerodynamic and Thermodynamic Design in Retrospect," *Journal of Aircraft*, Vol.11, No. 7, July 1974, pp. 401-406.

Peter Garrison, "Desert Blackbirds," *Flying*, October 1994, pp. 96-99.