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""C. Combustion Heated Light Gases""""D. Compressively Heated Light Gases (Free-Piston Driver)""; ""E. Summary of Comparison of Driver Techniques""; ""F. The Shock-Induced Detonation Driver for HYPULSE""; ""IV. Operation and Performance of HYPULSE""; ""A. Facility Configuration and Sizing""; ""B. HYPULSE Operation""; ""C. Test Conditions Verification""; ""D. Test Time Determination""; ""V. Driver Gas Contamination in Detonation-Driven RST Mode""; ""A. Nozzle Flow""; ""B. Transient Development of Driver-Gas Leakage""; ""VI. Nozzle Design for Expansion Tunnel Mode Operation""  
""A. Skimmer Nozzles""""B. Full Capture Contoured Inlet Asymptoting to a Conical Profile""; ""C. Verification with Experiments""; ""VII. Concluding Remarks""; ""Acknowledgments""; ""References""; ""Chapter 4 LENS Hypervelocity Tunnels and Application to Vehicle Testing at Duplicated Flight Conditions""; ""I. Introduction""; ""II. Ground Test Simulation of Hypersonic Flight Performance""; ""III. Design, Operation, and Performance of the LENS I and LENS II Hypervelocity Ground Test Facilities""; ""A. Introduction""; ""B. Design and Operation of the LENS I and II Shock Tunnels""  
""C. Aerothermal, Aero-Optic, and Radiation Instrumentation Suites"""" IV. Facility Validation""; ""V. Application of Test Facility and Instrumentation to Hypersonic Vehicle Testing""; ""A. Evaluation of the Aerothermal and Aero-optical Characteristics of High-Speed Interceptors""; ""B. Examples of Aerothermal Measurements to Evaluate Seekerhead Performance""; ""C. Example of Aero-Optic Measurements on Interceptor Seekerhead Configurations""; ""VI. Measurements of Jet Interaction Resulting from Divert Thruster Operation""; ""A. Introduction""; ""B. Flowfield and Aerothermal Characteristics""  
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## Sommario/riassunto

With the technical challenges that simulations of Mach 5-plus speeds pose for wind tunnel ground testing facilities, such testing has been characterized as "the art of partial simulation." Lu (mechanical and aerospace engineering, U. of Texas at Arlington) and Marren (Arnold Engineering Development Center, White Oak, MD) introduce 22 contributed chapters expanding the knowledge base on developments in hypersonic facilities in the past decade by focusing on testing principles; specific types of facilities (e.g., NASA's HYPULSE, LENS hypervelocity tunnels, and the U-12 large shock tube); and innovations including new instrumentation capabilities, advances in material sciences, and increasing international cooperation. Readers are referred elsewhere for treatment of perfect gas wind tunnels. Annotation copyrighted by Book News, Inc., Portland, OR

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