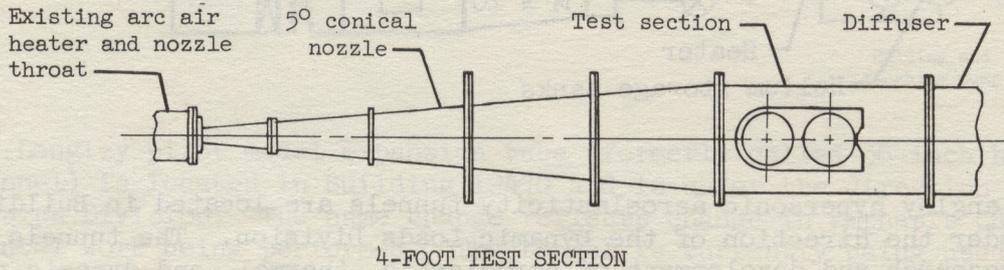
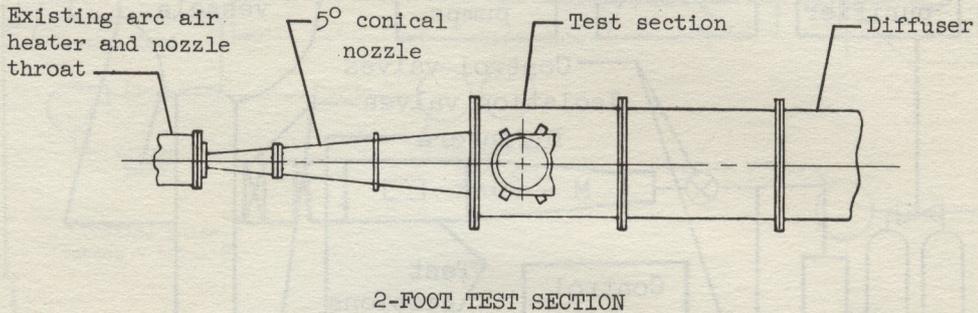


LANGLEY HYPERSONIC AEROTHERMAL DYNAMICS FACILITY

(4-FOOT HYPERSONIC ARC TUNNEL)



The Langley hypersonic aerothermal dynamics facility (4-foot hypersonic arc tunnel) is located in Building 1247B and is under the direction of the Aero-Physics Division. The tunnel is used for high-enthalpy hypersonic fluid mechanics research. The test medium is air and is heated by a 10- to 20-megawatt dc arc. Model mounting consists of model plunging apparatus with angle-of-attack capabilities. The nozzle is conical. The test-section diameters are 24 and 48 inches with maximum test core sizes of 12 and 24 inches, respectively. The tunnel exhausts into a 100-foot-diameter vacuum sphere. Examples of operating conditions are as follows:

Mach number	8 to 18
Stagnation pressure, psia	250 to 1500
Enthalpy, Btu/lb	1500 to 6000
Reynolds number per foot	1000 to 100 000
Diameter hemisphere, Btu/ft ²	120
Heating rate to 1 inch	
Maximum model size:	
Blunt model diameter, in.	3 to 6
Slender model diameter, in.	5 to 9
Length (maximum), ft	2 to 4