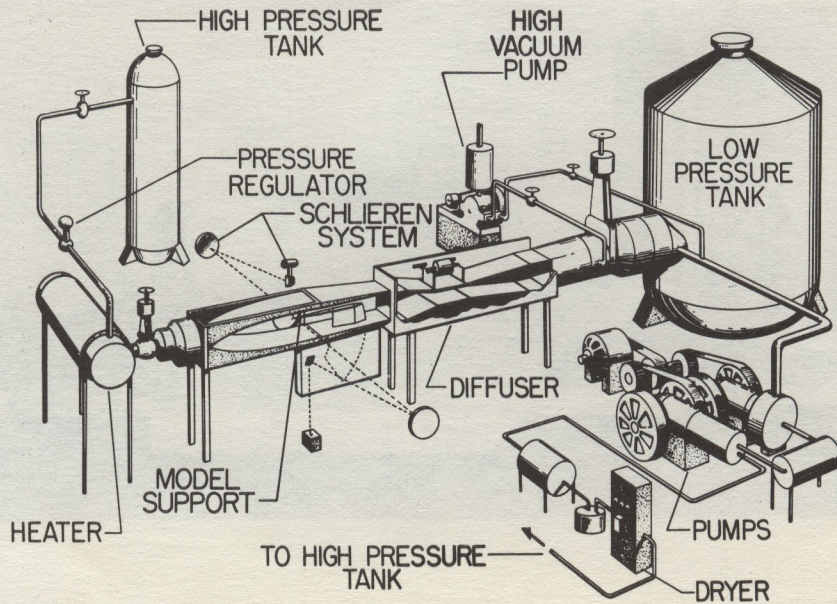


LANGLEY 11-INCH HYPERSONIC TUNNEL



The Langley 11-inch hypersonic tunnel is located in Building 1229 and is under the direction of the Aero-Physics Division. It is used for pressure investigation, heat-transfer studies, and force testing with air and helium as the test media. Air runs are heated by an electrical resistance heater. Model mounting consists of sting and wall mount. There are four interchangeable nozzles: two air and two helium. Mach number 6.8 nozzle is two dimensional, and Mach number 9.6, Mach number 10.5, and Mach number 18.0 nozzles are three dimensional. Operating conditions are given in the following table for each of the nozzles:

Nominal Mach number	6.8	9.6	10.5	18.0
Throat size, in.	0.0915 by 11	0.373 sq.	0.913 (diam.)	0.368 (diam.)
Test medium	Air	Air	Helium	Helium
Stagnation pressure, psia	70	220	200	400
	to	to	to	to
	540	690	800	1600
Reynolds number per foot	0.5×10^6	0.3×10^6	2.7×10^6	1.2×10^6
	to	to	to	to
	4.0×10^6	1.0×10^6	9.8×10^6	10.0×10^6
Running time, sec	70 to 100	100	14	10
Core of uniform flow (average), in.	5 by 5	4 by 4	6 (diam.)	4 (diam.)