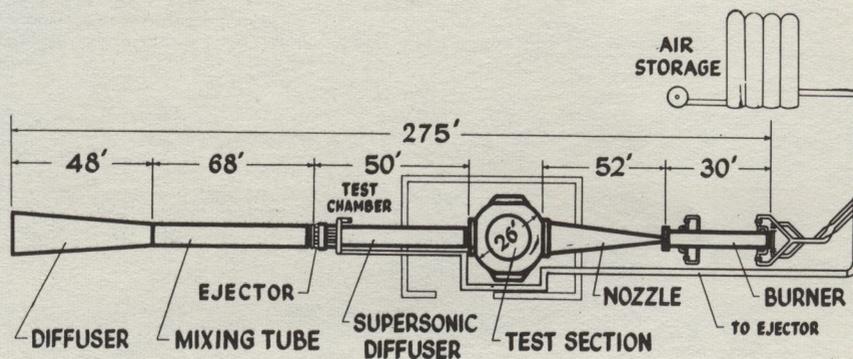


LANGLEY 8-FOOT HIGH-TEMPERATURE STRUCTURES TUNNEL



The Langley 8-foot high-temperature structures tunnel is located in Building 1265 and is under the direction of the Structures Research Division. This tunnel is used for structures studies and the study of thermal protection for hypersonic flight. The test medium is hydrocarbon fuel-air combustion gases. Heat is provided by hydrocarbon air combustion and oxygen enrichment is required for 4500° R. Model mounting is semispan or sting. The tunnel has an axisymmetric, fixed-geometry nozzle with a throat diameter of 5.62 inches, and the test-section diameter is 96 inches. It exhausts through a diffuser into the atmosphere. Examples of operating conditions are as follows:

Stagnation pressure, psia	200	200	4000	4000
Stagnation temperature, °R	2500	4500	2500	4500
Enthalpy, Btu/lb	730	1400	730	1400
Mach number	7.7	6.8	7.7	6.8
Velocity, fps	5360	7930	5360	7930
Static pressure, psia	0.018	0.022	0.36	0.44
Static temperature, °R	215	585	215	585
Static density, slug/cu ft	0.061×10^{-4}	0.034×10^{-4}	1.2×10^{-4}	0.68×10^{-4}
Dynamic pressure, lb/sq ft	103.5	103.5	2075	2075
Reynolds number per foot	0.2×10^6	0.06×10^6	3.7×10^6	1.5×10^6
Weight flow, lb/sec	47	36	932	715
Running time, sec	210	220	30	42
Maximum model diameter for -				
Blunt body, in.	24	24	24	24
Streamlined body, in.	40	40	40	40