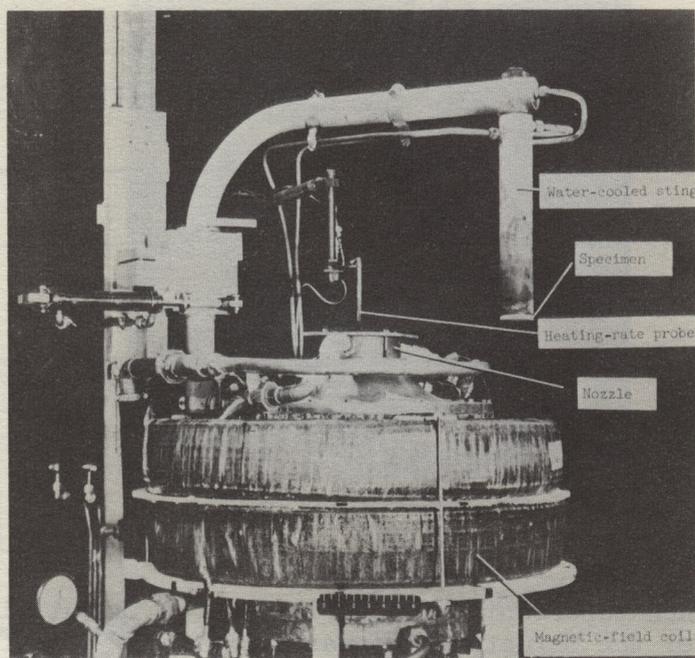


LANGLEY 2500-KILOWATT ARC JET (1148)



L-61-3423.1

The Langley 2500-kilowatt arc jet is located in Building 1148 and is under the direction of the Structures Research Division. It is used for materials tests. The test medium is air, nitrogen, or mixtures and is heated by ac arc-cooled metallic electrodes. Model mounting consists of a water-cooled retractable sting. Subsonic nozzles exhaust into the atmosphere. Maximum temperature operating conditions for two nozzles available are given in the following table and were obtained using air as the test medium:

Stagnation pressure, psia	15.2	14.8
Stagnation temperature, °R	7560	7560
Enthalpy, Btu/lb	3550	3550
Nozzle throat diameter, in.	4.0	6.0
Test-section diameter, in.	4.0	6.0
Maximum model diameter, in.	3.0	3.0
Mach number	0.21	0.09
Velocity, fps	890	395
Static pressure, psia	14.7	14.7
Static temperature, °R	7450	7450
Static density, slug/cu ft	1.4×10^{-4}	1.4×10^{-4}
Dynamic pressure, lb/sq ft	55.7	10.9
Reynolds number per foot	0.066×10^6	0.029×10^6
Weight flow, lb/sec	0.35	0.35
Running time, sec	600	600