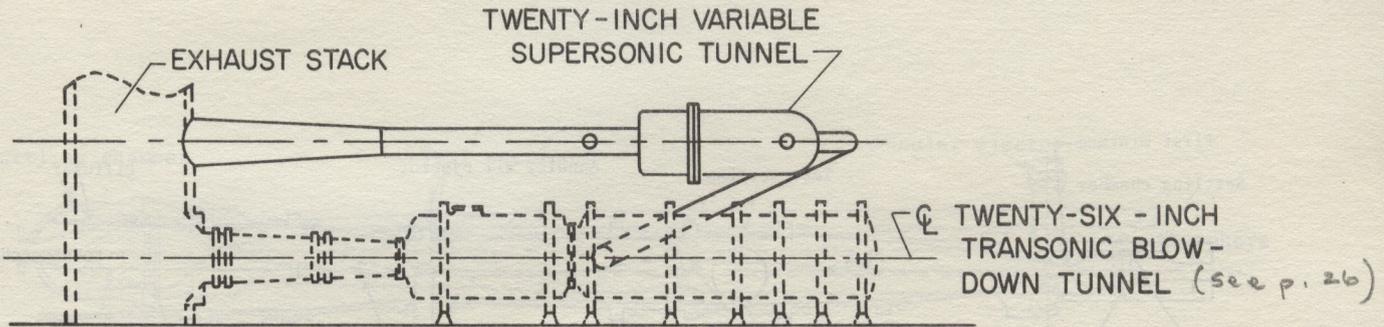


LANGLEY 20-INCH VARIABLE SUPERSONIC TUNNEL



The Langley 20-inch variable supersonic tunnel is located in Building 583 and is under the direction of the Full-Scale Research Division. This tunnel is used for force and pressure tests on configurations, air inlets, jet exits, and boundary layers, and for flutter tests. The test medium is air and is heated by electrical resistance heat exchangers. Model mounting consists of sting and straight through strut, with offset stings for limited extended maximum valves. In addition, side-wall support mounts are available. It has a two-dimensional contoured, variable nozzle with automatic trimming control. The nozzle throat size is 20 inches wide with variable height, the test section is 20 by 20 inches, and test-section core is from 16.06 inches to 17.3 inches wide by 15.46 inches to 16.28 inches high depending on Mach number. It exhausts into the atmosphere. Examples of operating conditions are as follows:

Stagnation pressure, psia . . . . .	25 to 130
Stagnation temperature, °R . . . . .	520 to 660
Enthalpy, Btu/lb . . . . .	124 to 157
Mach number . . . . .	2.0 to 4.5
Reynolds number per foot . . . . .	$8.5 \times 10^6$ to $20.5 \times 10^6$
Running time, sec . . . . .	40 to 300

See TN D-2427 by McRee & Peterson, fig. 1, for schematic drawing of 20" VST.