TITLE
LANGLEY RESEARCH CENTER

FACILITY LOCATION
Hampton, Virginia 23665

FACILITY NUMBER
1146

FACILITY NAME
16-Foot Transonic Tunnel

FUNCTIONAL NAME
Wind Tunnel, Transonic, 16-Ft

TECHNOLOGICAL AREAS
Force, moment, pressure, and propulsion studies

INITIAL COST
$ 1,422 K

YR. BUILT
1941

STATUS CODE
Active

ACCUM. COST
$ 14,357 K

OWNER CODE
NASA

LIFE EXPECT.
Indef.

OPER. CODE
NASA

CONTRACTOR NAME
(if contr. oper.)

POTENTIAL

PLANS

OTHER INFO SOURCES
Air-Flow and Power Characteristics of the Langley 16-Foot Transonic Tunnel with Slotted Test Section, NACA RM L52E01, July, 1952

COGNIZANT ORG.
High-Speed Aircraft Division

COMPONENT

LOCAL CONTACT FOR
Chief, Research Facilities Engineering Division, Code 56.000; (804) 827-3171

FURTHER INFO

DESCRIPTION
This facility is a closed-circuit, single-return, continuous-flow atmospheric tunnel. The test medium is air. Speeds up to Mach 1.05 are obtained with the tunnel main drive fans; speeds above Mach 1.05 are obtained with a combination of the main drive fans and test-section plenum suction. The slotted octagonal test section nominally measures 15.5 ft across the flats. The test section length is 22 ft for speeds up to Mach 1.0 and 8 ft for speeds above Mach 1.0. The tunnel is equipped with an air exchanger with adjustable intake and exit vanes to provide some temperature control.

Model mounting consists of sting, sting-strut, and fixed-strut arrangements. Propulsion simulation studies can be made for hot jet exhausts utilizing decomposition of hydrogen peroxide or dry, cold, high-pressure air (15 lb/sec at 1000 psi). A shadowgraph system is available for flow visualization. Data are recorded with 99 channels on a Beckman 210 and reduced off-site with a CDC 6600 computer system.

CHARACTERISTICS

Stagnation Pressure: Atmospheric
Stagnation Temperature, °R: 510 to 650
Reynolds Number, per ft: 1.2 x 10^6 to 4.2 x 10^6
Mach Number: 0.2 to 1.3
Dynamic Pressure, lb/ft^2: 58 to 905

January 1974