



**National
Aeronautical
Laboratory**

Documentation Sheet

Document Classification

RESTRICTED

Title : WIND TUNNEL TESTS ON 1/20 SCALE
6.45V35 CONFIGURATION
PART I: LONGITUDINAL CHARACTERISTICS

Document No.

PD EA 9123

Date of issue: DEC.91

Author(s) : N GOPINATH, S N SESHADRI, H N V DUTT
B SAMPATH RAO

Contents 210 Pages

Text 13

Tables 88

Figs 109

Division : EXPERIMENTAL AERODYNAMICS

No. of copies: 20

**External
participation** :

NAL Project No.

NT-0-127

Sponsor : AERONAUTICAL DEVELOPMENT AGENCY
BANGALORE

Sponsor's Project No.

Approval : HEAD, EXPERIMENTAL AERODYNAMICS DIVISION

Remarks :

Keywords : WIND TUNNEL TESTING, LCA

Abstract : Tests were conducted in the NAL 1.2m Trisonic Wind Tunnel on a 1/20th-Scale model of LCA stage 6.45V35 configuration. These tests were carried out in the Mach number range of 0.3 to 1.8 and over an angle of attack ranges of -2 to 24 deg (subsonic and transonic speeds) and -2 to 12 deg (supersonic speeds). The Reynolds number (based on wing mean aerodynamic chord) varied between 3 to 7.4 million depending on the Mach number. The results show that this configuration gives on increase in trimmed lift to drag ratio of 11.5% at a lift coefficient of 0.5 and Mach No. of 0.7 when the L.E. slats are deflected from zero to full angle. The L.E. slats also alleviate pitch-up for Mach number below 0.95. The addition of medium range missile increases both drag and pitching moment coefficient.