Sheet classification : Restricted

National Aeronautical Laboratory	**Documentation Sheet**	*Document Classification* Restricted
Title : Aerodynamic Force Measurement on a 1/10th Scale Model of AGNI Missile: Payload plus IInd Stage.		*Document No.* PD EA 9011 *Date of issue*: August 1990
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Division : Experimental Aerodynamics		*No. of copies*: 20
External participation :		*NAL Project No.* NT-O-139B
Sponsor : DRDL, Hyderabad		*Sponsor's Project No.*
Approval : Head, Experimental Aerodynamics Division		
Remarks :		
Keywords : AGNI, missile, payload plus IInd stage, aerodynamic characteristics, ullage motor, protrusions, wind tunnel test.		

Abstract :

Wind tunnel tests were carried out to determine the aerodynamic characteristics of a 1/10th scale Payload plus IInd Stage configuration of AGNI missile model. The tests were conducted in the NAL 1.2M Trisonic Wind Tunnel at nominal Mach number of 2.5, 3.0, 3.5 and 4.0 through an angle of attack range of -5° to 15° and at 0° and 22.5° model orientations. The Reynolds number (based on model diameter) varied from 2.24 millions to 3.67 millions as the Mach number varied. Some tests were repeated after removing the ullage motors to study the effects on longitudinal characteristics. The results are presented in the form of tables and plots.

The limited analysis of the test results indicate that for the test Mach number range, the normal force and pitching moment display linear behaviour as expected. The orientation of protrusions and the removal of ullage motors reduces the lift curve slope, to an appreciable amount. The error estimated in the measurements are of lower magnitude.