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PROGRESS - REPORT

October 1, 1952 to November 30, 1952

Contract No: N7 onr - 35805

Division of Engineering
Brown - University
Providence, Rhode Island

Sponsored jointly by:

OFFICE OF NAVAL RESEARCH

OFFICE OF AIR RESEARCH

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1. Upper Transonic Regime

The flow instability mentioned in our last Progress Report has been eliminated by placing a center body downstream of the test section in the diffuser. The center body is adjustable in width and thus serves to choke the flow. It prevents disturbances created in the diffuser from reaching the flow in the test section. Simultaneously with the installation of the center body a flexible wall nozzle has been installed upstream of the test section. This permits obtaining much higher mach numbers than the previous test arrangements. Currently equipment is being prepared to study the uniformity of the test section flow and to investigate the reflection properties of the walls as pertaining to essentially two-dimensional shock waves.

2. Three Component Balance

The construction of the three component balance is nearing completion, and it is expected that it will be installed by the end of January. Upon installation of this balance a test series will be prepared which should shed some light on the influence of certain geometrical parameters on the behavior of wings in the transonic regime.

3. Perforated Walls

Both experimental and theoretical investigation of perforated walls was continued at a somewhat reduced rate during the past two months. Some further insight into the mechanism of such walls has been obtained from these investigations. However, these results are mostly qualitative, and it is planned to carry out the quantitative analysis in the near future.

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