3 March 1958

SUBJECT: Proposal 20-3-2(58), Research on "Diffuser of Supersonic Wind Tunnels for High Mach Numbers".

TO: Commander
HQ, Office of Scientific Research (OSR)
AEDC 758
Washingtton 25, D.C.

1. Attached are four (4) copies of a proposal submitted to this office by Professor Alfred Grunetich, Deutsche Versuchsanstalt fuer Luftfahrt, Munich, Germany.

2. Professor Grunetich proposes to investigate shock diffusers for improving the efficiency of high supersonic and hypersonic wind tunnels. Although it is only planned to conduct investigations in the area of Mach 2.5 to Mach 3, it is believed that the results of these investigations will be applicable to the higher Mach numbers, resulting in a significant saving of power for higher Mach number tunnels.

3. The proposed research has been discussed with Dr. Richard T. Smith and Mr. A.T. Vattson during recent visits to Munich upon invitations by the DNL, after having presented lectures at the Training Center for Experimental Aerodynamics at Cocoa St., Cocoa, Florida. Interest was shown in this research primarily for the application to higher Mach numbers.

4. For your information, the DNL is now planning both a transonic tunnel and a high speed tunnel (up to Mach 5) which will be additions to the current facility. These will both be blow down tunnels using the same basic source of compressed air as the present facility. The hypersonic addition is expected to be fully operational by the end of the current year. Therefore the proposed work by Professor Grunetich could be extended into the hypersonic region after the lower Mach number diffusers have been investigated.

5. It is proposed that this research would be completed in 1.5 years with a total estimated cost of approximately $15,000. Although these costs have not been negotiated with the DNL, they appear reasonable and compatible with the amount of work to be accomplished.

6. Request the attached proposal be evaluated and results of the evaluation forwarded to this office.

FOR THE COMMANDER:

Incl:
Research Proposal.
EO-3-2(58) in four (4) ovs

RAYMOND R. NELSON
Lt. Colonel USAF
Director of Technical Operations