

A. Sonic Boom Generation:

1. Analysis of exotic configurations designed to reduce the sonic boom (Dr. Ferri of N.Y.U.). Status: To be funded. NASA.
2. Study of non-linear effects in sonic boom analysis plus experimental program (Dr. Landahl of FFA Sweden). Status: To be funded. NASA.
3. Study of multipole effects (Dr. Buseman of U. of Colorado). Status: To be funded. NASA.
4. Study of boom characteristics of hypersonic cruise vehicles (General Dynamics). Status: Part of contract already in effect. NASA.
5. General study of sonic boom generation and propagation (Drs. Seebass and George of Cornell). Status: To be funded. NASA.
6. Analysis of inlet-exit stream tube areas on sonic boom generation. Status: Contract in effect. (Dr. Ferri—N.Y.U.). NASA.

B. Wave Propagation and Reflection:

1. Analysis of focusing of supersonic disturbances (Dr. Friedman of Columbia). Status: To be funded. NASA.
2. Analysis of signature distortion through non-uniform atmosphere (Dr. Hayes of Princeton). Status: Consultation contract with ERC. NASA.
3. Experimental study in ballistic range of topography effects as well as propagation through non-uniform atmosphere (Naval Ord. Lab.) Status: Proposal under review. NASA.
4. A study of improved prediction of sonic boom propagation. (Lockheed-California). Status: Recommended for contract by Langley. NASA.
5. Analysis of approach to far field and effects of high M. (Drs. Moore and Resler of Cornell). Status: To be funded. NASA.
6. Experimental studies of atmospheric disturbances on sonic boom propagation via ballistic range (SRI of Stanford). Status: Proposal under review. NASA.
7. Study of topographical effects on shock reflections by means of shock tube simulator. (GASEL). Status: Informal proposal stage. (NASA), (FAA).

C. Sonic Boom Minimization:

1. Analysis and experimental study of an air-breathing configuration concept for reducing boom intensity (Vehicle Research Corp. Dr. Rethorst. Status: Contract in effect. Tunnel tests scheduled in Sept. at AEDC, USAF (Flt Dyn. Lab.)
2. Analysis of a proposed low-boom configuration (Dr. Fejer of Illinois Inst. of Tech.) Status: Contract scheduled for initiation in July. NASA (Aeronautics).
3. A feasibility study for a new design approach for a low-boom SST. (Lockheed-California). Status: Proposal under review at Langley. NASA.

Mr. ADAMS. Thank you, Mr. Springer.

I have a question on your statement. You state that at the present time there is a changed procedure on leaving Washington National. What is the procedure that you are operating on now that is different than what you were operating on whenever you made this comparison in your statement?

Mr. BRUNELLE. Well, the evolution of leaving Washington National has just about run the gamut. At first they wanted flaps to remain extended for 1,500 feet or so, a fairly high altitude. We argued that all we were doing literally was dragging this airplane through the air, that we would rather have the flaps up for many reasons notwithstanding the airplane is stronger with the flaps up, it can stand more gust load, is easier to maneuver, we climb better; and we have gone from there to a procedure now that is somewhat closer to what we would like to have, and we, of course, are still debating as to what