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Cover: This infrared photograph was taken in an exceedingly hostile environment. The J85 jet engine, which is being used in the design of a thrust measuring system for jet engines, was operating at full throttle in its sealed, partially sound-proof test cell. The temperature of the gas stream was approximately 3,000 degrees Fahrenheit and the velocity of the stream was more than 1,000 feet a second. There was extreme vibration and turbulence. The noise level was about 165 decibels, compared with 70 for a loud radio. The motor-driven camera and lights were mounted on rubber pads and anchored and weighted to reduce movement to a minimum. The shutter of the camera was operated remotely from the cell's control room. Photo by Bruce Kane, NRC.



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The National Aeronautical Establishment of the National Research Council of Canada has completed a report assessing the radiation hazard which will be experienced by passengers and crew on supersonic transport aircraft (SST).

A comparison of supersonic operation at altitudes of 70,000 to 80,000 feet with present subsonic operation at an altitude level of 35,000 to 40,000 feet shows that the SST would be exposed to a higher level of radiation, but for a shorter period of time. The dose received per mile over the same route at either altitude level is approximately the same for both types of aircraft.

The risk of radiation effects in SST

operations could, in all likelihood, be maintained at a level comparable with that involved in current high-performance, subsonic jet operation, at least with respect to passengers. The crew of the SST under normal scheduling might accumulate a yearly dose in excess of the recommended general public rating, but well within the limits set for radiation workers. With appropriate scheduling to restrict duty time on polar routes, where the exposure is more severe due to less shielding by the earth's magnetic field, to 200 to 300 hours a year, the exposure dose could probably be controlled sufficiently to conform to the recommended general public rating.