

National Advisory Committee for Aeronautics
Lewis Flight Propulsion Laboratory
Cleveland 11, Ohio
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I. IRVING PINKEL AWARDED NACA DISTINGUISHED SERVICE MEDAL

The National Advisory Committee for Aeronautics has conferred its highest award, the Distinguished Service Medal, upon I. Irving Pinkel, aeronautical research scientist of the NACA Lewis Flight Propulsion Laboratory. His scientific research on causes of fire and impact hazards in aircraft crashes led to successful demonstrations of fire prevention equipment and to principles of seat design which enhance passenger safety.

The honor was presented yesterday by Dr. James H. Doolittle, NACA Chairman, in Washington, D. C., at a regular meeting of the Committee, the Government's top aeronautical research organization.

The citation said:

"The scientific investigations of I. Irving Pinkel identified the sources of fire ensuing after aircraft crashes. He demonstrated practical equipment to prevent such fires. Through crash research he determined the time history of the forces developed in airplane crashes and demonstrated the use of the data in the design of passenger seats to alleviate crash impact hazards. These scientific contributions enhance the safety of air transportation."

Prior to the commencement of Mr. Pinkel's crash fire and impact research at Lewis in 1949, years of investigation of aircraft crashes in which fires occurred produced insufficient evidence to determine with any certainty

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the manner in which the fire started and spread. Detailed data on the origin and transmittal of fires after crashes was essential before airplanes could be built which incorporated design features and equipment to prevent fires... following crashes.

During Mr. Pinkel's experimental work in crash fire research, a number of surplus aircraft were crashed under carefully controlled conditions. The runway, barrier, and impact area were designed to provide maximum crash severity and fire hazard. Extensive instrumentation and photographic coverage of the crashes obtained the previously lacking data on the origin and spread of fire.

Initial crashes were conducted to determine potential ignition sources and the manner in which these sources were contacted by flammable material. Resulting data enabled the design and building of experimental equipment to suppress ignition sources during the crash. Several following experimental crashes of a severity which had previously produced fires were made with this equipment. No fires ensued.

Investigation has been continued to include turbojet and turboprop engines. The U. S. Air Force has entered into contracts for development of prototype equipment based specifically on the results of Mr. Pinkel's research.

When Mr. Pinkel demonstrated that crash fires could be prevented, he turned his attention to the hazard of crash impact. This required a determination of how people are injured during aircraft crashes, and by what means these injuries could be prevented.

series of airplanes was crashed under conditions simulating impact without crushing the aircraft's cabin or cockpit. Seats, restraining harnesses, and dummy occupants determine loads transmitted during crashes to the crashes produced data on forces and stresses exerted on aircraft structures and occupants. A flexible seat to determine impact hazard to occupants was conceived and tested using this data.

Chief of the Fluid Systems Division at Lewis. He was Chief of NACA's Langley Aeronautical Laboratory in 1942, he was transferred to Lewis to work on the aircraft engine lubricating systems operating at high

theory for the design of supersonic nozzles which were used in the nozzles was developed under Mr. Pinkel's supervision. He contributed materially to the development and testing of the "condensation shock" in supersonic flow. Methods for obtaining the supersonic flow field around a body when heat is added to the flow.

Mr. Pinkel received the Laura Taber Barbour Award for "development of a fire extinguishing system for suppressing crash fires" in 1956. He also received the Flight Safety Foundation Award "for his contribution to the safety of aircraft."

New York on April 22, 1913. He received a B.S. degree from Pennsylvania State University in 1934. As a member of the Phi Kappa Phi Honor Society, Sigma Xi, honorary mathematics fraternity. He is married to Mrs. Mary E. Pinkel, 1200 Westview Park, Ohio, with three children: Robert, John, and Mary.