



The P-51B placed in the NACA full-size wind tunnel.

chairman of the National Advisory Committee for Aeronautics (NACA), wrote the US Director of the Budget explaining the need for a full-scale wind tunnel. Smith J. DeFrance, who had previously worked with Langley's variable density tunnel (VDT), was chosen to lead the planning for such a full-scale tunnel. After convincing Congress that the 30-ft by 60-ft tunnel would be worth its cost of almost a million dollars, the NACA asked for a two-year appropriation of \$900,000 to construct the tunnel. The request was granted on 29 February 1929.

Because this tunnel was designed and built during the Depression, DeFrance's team was able to take advantage of cheap materials and a large pool of unemployed engineers. Before constructing the tunnel, DeFrance's team first built a 20% scale model to study the airflow, as the tunnel was to be the first with an elliptic throat (the throat is the smallest cross section of a wind tunnel — in this case, the throat is elliptically-shaped and at the entrance to the test section) and with two propellers mounted side-by-side.

In February 1930, a contract was signed with J.A. Jones Construction Company and construction of the actual tunnel began. The completed 30-ft by 60-ft tunnel was dedicated on 27 May 1931, during the Sixth Annual Aircraft Engineering Conference. DeFrance's team had not even spent all appropriated funds and returned the excess money to the Treasury.

The structure was a subsonic wind tunnel originally designed for the static testing of full-scale models and actual aircraft at operational flight speeds. Such ground-based testing eliminated scale effect and provided basic information



Considerable use of tape was made to cover various openings on the airframe.

NACA UNDERTOOK EXTENSIVE WIND TUNNEL AND FLIGHT-TESTING OF A P-51B TO STUDY PERFORMANCE IMPROVEMENTS. THE FINAL RESULTS WERE A BIT SURPRISING

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The 30-ft by 60-ft wind tunnel located at the Langley Research Center in Hampton, Virginia, was NASA's oldest operating wind tunnel until its closing in October 1995. Originally known as the Full-Scale Tunnel (FST), it was in operation for over 64-years. It was the largest wind tunnel in the world until 1945 and in 1985 it was named a National Historic Landmark. Throughout the tunnel's history it had been used to test everything from WWII fighters, to submarines, to the Mercury capsule, to concepts for a supersonic transport.

During early 1928, Dr. Joseph S. Ames,