



Investigation of Performance of Axial-Flow Compressor of XT-46 Turbine-Propeller Engine: I Preliminary Investigation at 50-, 70-, and 100-Percent Design Equivalent Speed (Paperback)

By -

Bibliogov, United States, 2013. Paperback. Condition: New. Language: English . Brand New Book ***** Print on Demand *****.An investigation is being conducted to determine the performance of the 12-stage axial-flow compressor of the XT-46 turbine-propeller engine. This compressor was designed to produce a pressure ratio of 9 at an adiabatic efficiency of 0.86. The design pressure ratios per stage were considerably greater than any employed in current aircraft gas-turbine engines using this type of compressor. The compressor performance was evaluated at two stations. The station near the entrance section of the combustors indicated a peak pressure ratio of 6.3 at an adiabatic efficiency of 0.63 for a corrected weight flow of 23.1 pounds per second. The other, located one blade-chord downstream of the last stator row, indicated a peak pressure ratio of 6.97 at an adiabatic efficiency of 0.81 for a corrected weight flow of 30.4 pounds per second. The difference in performance obtained at the two stations is attributed to shock waves in the vicinity of the last stator row. These shock waves and the accompanying flow choking, together with interstage circulatory flows, shift the compressor operating curves into the region where surge would normally occur. The inability of...

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