



Calculated Condenser Performance for a Mercury-Turbine Power Plant for Aircraft

By Ronald B. Doyle

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 26 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. As part of an investigation of the application of nuclear energy to various types of power plants for aircraft, calculations have been made to determine the effect of several operating conditions on the performance of condensers for mercury-turbine power plants. The analysis covered 8 range of turbine-outlet pressures from 1 to 200 pounds per square inch absolute, turbine-inlet pressures from 300 to 700 pounds per square inch absolute, and a range of condenser cooling-air pressure drops, airplane flight speeds, and altitudes. The maximum load-carrying capacity (available for the nuclear reactor, working fluid, and cargo) of a mercury-turbine powered aircraft would be about half the gross weight of the airplane at a flight speed of 509 miles per hour and an altitude of 30,000 feet. This maximum is obtained with specific condenser frontal areas of 0.0063 square foot per net thrust horsepower with the condenser in a nacelle and 0.0060 square foot per net thrust horsepower with the condenser submerged in the wings (no external condenser drag) for a turbine-inlet pressure of 500 pounds per square inch absolute, a...



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