

NASA TECH BRIEF



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High-Temperature Electric Stator

A high-temperature stator (1300°F hot spot) can withstand severe environmental conditions, including temperature extremes, imposed by space missions. Designed and constructed to operate at temperatures considerably above those of conventional electrical equipment, the unit is an example of a growing technology which is producing a variety of electrical machinery capable of operation in severe environments, both in space and in industry.

The stator was tested, without a rotor, at temperatures of 1300°F for 10,000 hours in a vacuum of 3×10^{-9} Torr. During the test procedure, the unit was energized at 500 V phase-to-phase with 400 Hz power. Its electrical characteristics remained satisfactory throughout the tests; the insulation improved slightly, and the conductor resistance remained constant.

The assembly included a bore seal for hermetically sealing the stator from the rotor cavity. In actual use, the bore seal will serve to prevent the stator materials from being attacked by vapors from the alkali-metal-lubricated rotor bearings.

Notes:

1. The following documentation is available from:
National Technical Information Service
Springfield, Virginia 22151
Single document price \$3.00
(or microfiche \$0.65)

Reference:

NASA CR-1592 (N70-35822), Thermal-Vacuum Testing of High-Temperature Electrical Components

2. Technical questions may be directed to:
Technology Utilization Officer
Lewis Research Center
21000 Brookpark Road
Cleveland, Ohio 44135
Reference: B70-10459

Patent status:

Title to this invention has been waived under the provisions of the National Aeronautics and Space Act [42 U.S.C. 2457(f)] to Westinghouse Electric Corp., Beulah Road, Pittsburgh, Pennsylvania 15235.

Source: P. Kueser of Westinghouse Electric Corp. under contract to Lewis Research Center, and R. Lindberg Lewis Research Center (LEW-10889)

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