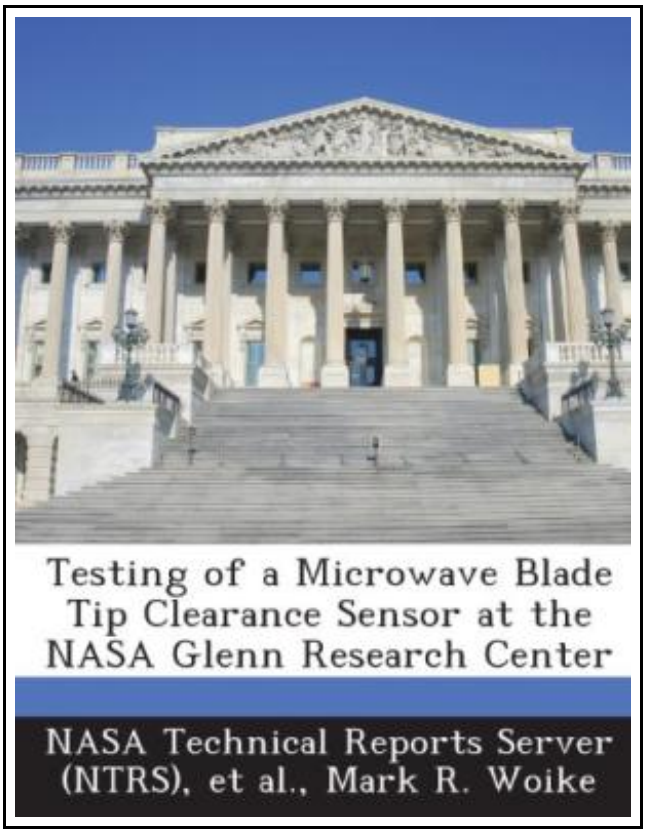
Testing of a Microwave Blade Tip Clearance Sensor at the NASA Glenn Research Center



Filesize: 5.26 MB

Reviews

This book is great. I have go through and so i am confident that i will going to read through once again again in the future. I am just easily can get a satisfaction of looking at a written book.
(Miss Vernie Schimmel)

TESTING OF A MICROWAVE BLADE TIP CLEARANCE SENSOR AT THE NASA GLENN RESEARCH CENTER

To get **Testing of a Microwave Blade Tip Clearance Sensor at the NASA Glenn Research Center** PDF, remember to refer to the button below and save the document or get access to other information which might be in conjuction with TESTING OF A MICROWAVE BLADE TIP CLEARANCE SENSOR AT THE NASA GLENN RESEARCH CENTER book.

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 24 pages. Dimensions: 9.7in. x 7.4in. x 0.1in.The development of new active tip clearance control and structural health monitoring schemes in turbine engines and other types of rotating machinery requires sensors that are highly accurate and can operate in a high-temperature environment. The use of a microwave sensor to acquire blade tip clearance and tip timing measurements is being explored at the NASA Glenn Research Center. The microwave blade tip clearance sensor works on principles that are very similar to a short-range radar system. The sensor sends a continuous microwave signal towards a target and measures the reflected signal. The phase difference of the reflected signal is directly proportional to the distance between the sensor and the target being measured. This type of sensor is beneficial in that it has the ability to operate at extremely high temperatures and is unaffected by contaminants that may be present in turbine engines. The use of microwave sensors for this application is a new concept. Techniques on calibrating the sensors along with installation effects are not well quantified as they are for other sensor technologies. Developing calibration techniques and evaluating installation effects are essential in using these sensors to make tip clearance and tip timing measurements. As a means of better understanding these issues, the microwave sensors were used on a benchtop calibration rig, a large axial vane fan, and a turbofan. Background on the microwave tip clearance sensor, an overview of their calibration, and the results from their use on the axial vane fan and the turbofan will be presented in this paper. This item ships from La Vergne,TN. Paperback.

See Also