

46ESS-23: Gas Turbines Acoustic Monitoring

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The gas turbine is the critical component to aircraft and industrial. Since the cost of maintenance is very high, how the damages are monitored is very important. There are several methods to monitor damages, such as X-ray monitoring, electrostatic monitoring, and acoustic monitoring. Acoustic monitoring is a method that using the reflection features of the sound to examine the component structure or other parameters. It is a Non-destructive Detection Technology (NDT) which means that it will not harm to the components during the examination. Acoustic monitoring is widely using in testing the structure of gas turbine. By the application of acoustic emission phenomena, the flaw of material can be detected. Another application of acoustic monitoring is to test the temperature distribution of gas turbine combustor outlet. By comparing the velocity of sound and air flow, the temperature distribution can be calculated. The technology of acoustic monitoring plays an important role in gas turbine monitoring. The improvement of the technology is useful to the development of gas turbine.