Analysis of the cause of the fan blade generator accident

What is the failure analysis of a generator rotor fan blade?
The failure analysis of a generator rotor fan blade was investigated by mechanical analysis and metallurgical examination of fracture surface. Fracture took place at the airfoil root,surface examination showed that the blade had cracked by a high cycle fatigue mechanism. However,there was no evidence of material defect.

Do rotor fan blades fail?
In general rotor fan blades are designed to run for a long time and premature failure of these blades are unusual,therefore its necessary to do an exact failure analysis. It this paper,a mechanical analysis was performed with the metallurgical examinations for competent analysis of blade failure.

Can a cooling fan blade be fractured?
Since fracture in cooling fan blades has been occurred five timesin our case study,in this research,the emphasis has been placed on failure analysis and preventing methods from the fracture in this generator's fan blades.

Are gas turbine fan blades broken?
Failure report for gas turbine fan blades,1997]. Metallurgical and structural analyses on the failed blades have not shown any microstructure degradation. Studies on the ruptured surfaces using scanning electron microscope (SEM) have shown that fracture has been happenedas a results of high cycle fatigue (hcf).

When do gas turbine blades fail?
All of these failures have been happened after the first operation of gas turbine or at the early after operation 100 h after gas turbine repairs [Alsthom Company. Failure report for gas turbine fan blades, 1997]. Metallurgical and structural analyses on the failed blades have not shown any microstructure degradation.

What causes blade fracture?
The failure analysis showed that the blade fracture was due to high cycle fatigueresulting from a bending mode of resonant vibration which probably caused by aero dynamical disturbances. The simulation of the blade with final crack showed the crack propagation mechanism and ductile fracture could be occurred under these stresses.

[Show full abstract] rotor and stator and consequently generator explosion and huge financial loss.Since fracture in cooling fan blades has been occurred five times in our ...

Kushwaha studied failure analysis and technique of averting fracture in the generator"s fan blade. e authors concluded that the blade crack was due to fatigue situations in resonance state and the ...

The fracture of cooling fan blades has been occurred five times at the turbine side of the generator in our case

of study, just 100 hr after resuming operation after overhaul. ...

In some cases, fracture of blades causes short circuit between rotor and stator and consequently generator explosion and huge financial loss.Since fracture in cooling fan blades has been occurred ...

In some cases, fracture of blades causes short circuit between rotor and stator and consequently generator explosion and huge financial loss.Since fracture in cooling fan blades has been ...

Catastrophic failure of generator rotor axial blower or radial fan components can cause extensive, costly damage to a generator rotor or stator. The function of blowers/fans in the generator ...

In gas turbine power plants, a fan is used as a cooling system to dissipate generated heat in coils (copper conductors) and generator electric circuits at the end sides of ...

Despite the first fatigue tests being implemented in the 19th century by Wöhler [1], fatigue failure in machines still occurs, e.g. a railway accident [2], a bicycle frame [3], a fan ...

To do this, Computational methods were employed to analyze fluid flow, stresses and vibration. Separation phenomena and turbulent flow (vortex formation) might be the cause of vibration in fan"s blades [4]. Vibration due to oscillatory ...

Web: https://www.gennergyps.co.za