Power station generator rotor

How does a rotor work in a generator?

The copper conductor is stationary called the ' stator' or the 'armature'. This consists of high current carrying copper coils wound on the stationary part of the generator. The rotor's rotating magnetic field cuts the stationary stator copper conductors to produce the electric current.

What causes a generator rotor to degrade?

One component of the generator that is typically refurbished,upgraded or uprated is the generator rotor (field). Degradation of the generator field can be caused by a number of factors,including a breakdown in insulation due to time and tem-perature and mechanical wear.

What factors affect a generator rotor?

There are a number of other concerns that also affect generator rotors. Thermal sensitivityis the term used to describe an excessive vibration of the generator rotor,induced by the heating effect of the field cur-rent. As field current flows in the winding,the copper heats up. Two things happen as a con-sequence:

Can a GE generator rotor be replaced?

With the average age of the GE generator fleet rapidly approaching the limit of the original intended life, utilities and industrial users are seeking alternatives to replace this aging equip-ment with new generators. One component of the generator that is typically refurbished, upgraded or uprated is the generator rotor (field).

Which energy source is used to rotate a rotor?

The energy for rotation of the rotor is from a rotating turbineor an Internal Combustion engine. All generators use this basic principle. Only the primary energy source and prime mover is different. The prime mover can be a steam turbine,a gas turbine,a wind turbine,or a hydro turbine.

What contaminates a generator rotor?

An OV (open ventilated) generator is most likely to see large amounts of contamination introduced into the field. Contamination of generator rotors can come from many sources. Carbon,which represents one of the more common contaminates,can come from collector brush wear or gas turbine exhaust. Other particulates likely to be found in

The generators at large hydroelectric power stations operate at much lower revs. I toured the Glen Canyon dam in Arizona, U.S.A. one time, and for some reason, the number ...

Generator Parts - Electric Utility Electric utility generators require high-quality replacement components and generator parts if they are to run reliably between extended outage intervals. ...

Fatigue cracking of the rotor field pole attachment can lead to catastrophic failure. One such failure occurred

in Austria in 2009 at the Rodund Power Station. In this case, a field pole ...

Mechanical energy moves the coil converting it to electrical energy. In real life, the electric generator is slightly different. The magnet is an electromagnet and it rotates. This is the "rotor" ...

This article examines the causes of generator stator and rotor failures, explores preventive strategies, and highlights the latest technological solutions to ensure optimal performance and ...

These eddy currents, which are at twice the system frequency (50Hz or 60 Hz), will produce local overheating at the periphery of the rotor that may cause weakness in the rotor retaining ...

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