

# One-way AC generator fan blade maintenance

How many fan blades are in a cooling tower?

The analyst visited the cooling tower. He communicated with the staff and collected information regarding the use and maintenance of the fan blades. The cooling tower is comprising of twenty centrifugal fans. Seven large blades (of 10 m in length) are concentrically attached to the center of the rotor hub.

Why are fan blades important during cooling operation?

During cooling operation, fan blades undergo complex stresses, due to the interaction of different loads; centrifugal fluid dynamics, environments, etc. Their proper operation is of major importance, as abrupt in-service failures decrease productivity and increase cost of replacement and maintenance at the same time.

How many axial flow fans does a generator rotor have?

The generator rotor is equipped with two axial flow fans- one at the turbine end and one at the collector end. Each fan has 24 aluminum blades held in place by two 3/4" Grade 8 mounting bolts, secured with locking plates (see Figure 1 for typical design).

What is failure analysis of gas turbine generator cooling fan?

Failure analysis (Experimental and numerical approach) of gas turbine generator cooling fan in comparison between using 2 types (14°; and 19°; angle of attack) of blades. Numerical simulation of the pneumatic elasticity for the blade of a big axial-flow fan ISO 6892-1:2016.

How should a generator rotor fan/blower be examined?

Generator rotor fans/blowers should be visually and non-destructively examined on a periodic basis for evidence of cracking and pending failure. Standard non-destructive examination (NDE) techniques include dye penetrant (PT), eddy current (EC), magnetic particle (MT), and ultrasonic (UT) tests.

What are the different types of generator cooling blowers/fans?

The two main categories of generator cooling blowers/fans are axial flow blowers and radial flow fans. There is generally one blower or fan installed at each end of the generator rotor, although there are also single-blower/fan designs.

**6.0 COOLING FAN** Most cooling fans are the fixed blade variety with one air-flow direction - with either "pull" or "push" direction. These fans provide maximum airflow at all times without regard for the actual ambient temperature or how hard the engine is working. In recent years, new designs of fans have become available to the market.

The easiest way to ensure your AC fan spins in the right direction at all times is by taking great care of your HVAC unit. Everything from changing out the air filter regularly to scheduling annual HVAC inspections and

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maintenance can extend the lifetime of the most important components in your air conditioner.

The document discusses maintenance and operation of AC generators. Key points include: 1) Routine maintenance like checking for dust, abnormalities, insulation resistance, and tightening bolts is important to prevent faults and failures in generators. 2) Periodic inspections should check various generator parts and conditions. Bearings, winding insulation resistance, and other ...

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 ...

A fan has blades on it which is connected to a drive shaft and is driven by an AC or DC electric motor. As blade design and motors have developed fans are generally much smaller today. Typically fans are ...

The paper describes the analysis findings of the fan blade supporting system. There is lack of scientific or literature references reporting the similar failure. Practical ...

Failure of fan blade leads to low productivity, high cost of replacement and maintenance of cooling tower fan blade in service. This paper presents a review on failure mode and material ...

**Damaged AC Fan Blades.** A blocked or damaged fan blade can also prevent fan spinning. Debris, such as leaves or dirt, can build up around the air conditioner's fan blades, causing the outdoor AC fan to become stuck. In other cases, the fan blades themselves may be damaged, bent, or broken, making it impossible for them to spin.

However, proper ceiling fan care and maintenance are crucial in order to maximize the efficiency and extend the lifespan of your fan. Consider the following tips to keep your fan in good shape: **Proper Cleaning.** Ceiling fan blades are a common place for dust accumulation, which can affect the operation and efficiency of the fan. A significant ...

When coolant loses its inherent properties, it can cause the engine to decrease the power output, wear down the system, and possibly result in engine failure. In addition to regular maintenance performed by your generator service provider, ...

Individual generator manufacturers publish inspection and maintenance procedures for the cooling systems. Below are general industry standards (always refer to manufacturer specifications): **WARNING** To prevent the possibility of personal injury or death, always tag and lock out all sources engine/generator power prior to cooling system maintenance.

This chapter talks about inspection of the rotor, mostly while removed from the stator. It aims to serve as a guide to learning the specific problems and failure mechanisms, and their identification that will make it

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possible to correctly assess intrinsic risks for a given design, and to notice explicit signs of deterioration, damage, and/or impending failure. In large machines, balance ...

Which way should the fan blades on the pulley be oriented when looking at the generator from the front. I recently replaced my generator due to it being old and worn. The newly rebuilt one I purchased has run extremely hot to the touch (I mean real hot) and finally started smoking last week after having less than 100 miles on it.

The figure below is a photograph of a generator fan that has its blades welded to an inner hub. The hub is shrunk on to a generator's rotor shaft end. The highest stress location for this design is at the weld attachment areas. After several years in service, one of the fan blades liberated from the hub caused extensive generator damage.

The easiest way to figure out the rotation direction of an AC condenser fan is to look at the fan blades. The fan blades should scoop air up and out of the top of the condenser. Motor rotation directions are usually denoted as clockwise (CW) or counter-clockwise (CCW).

**Reduce AC Costs:** By raising the thermostat by just one degree and using your ceiling fan, you can save 3-5% on air conditioning costs, as suggested by Energy Star. **Enhance Comfort :** Hunter Fans estimate that using ceiling fans properly can save you up to \$110 on summer power bills by enhancing comfort and reducing the need for constant AC usage.

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