Abnormal noise from energy storage motor

When you notice unusual or loud noises coming from your electric motor, it"s important to understand the underlying causes to diagnose and fix the problem. Several factors can contribute to noisy electric motors, including loose stator cores, bearing issues, rubbing of ...

Windage noise is the cause of the majority of unexplained sounds that come from electric motors. It is particularly prevalent in high-speed motors such as the two and four-pole variety. The cause of this noise is obstructions located close to the rotating part of the motor. Magnetic Noise. Mechanical forces within a motor can cause magnetic noise.

A novel sound quality evaluation method of the diagnosis of abnormal noise in interior permanent-magnet synchronous motors for electric vehicles C Ma, Q Li, L Deng, C Chen, Q Liu, H Gao IEEE Transactions on Industrial Electronics 64 (5), 3883-3891, 2017

Optimizing electromagnetic performance and vibration noise performance simultaneously is important when designing the drive motor for electric vehicles (EVs). This has not been fully explored, and there are only a few relevant studies. To achieve simultaneous optimization, this paper proposes an equivalent structural network (ESN) of stator assembly to ...

When you notice unusual or loud noises coming from your electric motor, it"s important to understand the underlying causes to diagnose and fix the problem. Several factors can contribute to noisy electric motors, including loose stator cores, bearing issues, rubbing of internal components, and windage noise.

1 Introduction. Brushless DC (BLDC) motors are found in commercial compressors used in electric vehicles, refrigerators, turbines, fans and pumps [1-5].The absence of brushes means a maintenance-free operation is possible and therefore a BLDC motor is a suitable candidate for continuous operation applications [4, 6].They play a major role in the ...

Mechanical issues are the most likely cause of abnormal noise, but if nothing obvious stands out in diagnostics, checking the electrical and control systems could reveal the source. Voltage fluctuations can affect motor performance and generate noise, as can malfunctioning motor drives and control systems. Spindle Noise Troubleshooting Tips

In the R& D and testing of vehicle door products, the assembly level abnormal noise OTS approval test is easier to ignore, so in the vehicle certification stage or after mass production and marketing, NVH quality problems such as door glass lifting abnormal noise occasionally occur, at this time, tracing quality problems forward often results in a large cost loss.

The motor speed is obtained in real-time using automatic speed recognition algorithm. The Sigma system

utilizes a smart denoising technology to extract pertinent abnormal features and to learn from them, thereby effectively identifying and intercepting faulty motors (Figure 2 and Figure 3).; Real-time detection is achieved through optimized edge computing.

Therefore, abnormal noise in motor bearings can be used as a determining factor in the diagnosis and analysis of motor bearing faults. The abnormal noise of a motor varies depending on the type of fault, but the normal noise pattern of motor bearings is relatively consistent. The normal noise of motor bearings is easier to remember.

The sources of motor noise can be categorized into three types: electromagnetic noise, aerodynamic noise, and mechanical noise [91]. Electromagnetic noise is either caused ...

If the noise is due to something in the motor design (e.g., a manufacturing defect or anomaly), a solution may be impossible or impractical. With that in mind, let"s review the primary sources of ...

A similar noise can be created if there is a minor fault in the transmission equipment attached to the motor shaft. The latter can be confirmed by disconnecting the motor shaft from the load and turning it on. If the noise disappears, the fault is not in the motor. If the noise is still present, there is a second test to do.

ABSTRACT This paper investigates the abnormal noise and vibration of a hybrid electric vehicle during the electric-only driving mode. The sources of the noise and v ibration are firstly identified ...

This article explores solar inverter noise, examining its sources, implications in residential settings, regulatory compliance, and system health, with strategies for managing and reducing noise for an optimal solar energy experience.

To overcome those problems, this paper proposed an online engine abnormal noise detection method based on wavelet transform(WT) and bispectrum analysis(BA), which improves the accuracy and ...

Abnormal noise is the most prominent problem for motorcycles and affects the consumers" purchasing desire and driving experience and the enterprise"s competitiveness. ... A new method of accurate broken rotor bar diagnosis based on modulation signal bispectrum analysis of motor current signals. ... Y, et al. A fault diagnosis method for ...

Windage noise is a common problem in electric motors, especially those operating at high speeds. It occurs due to turbulent airflow at obstructions near the rotating part of the motor. Identifying and addressing windage noise issues can significantly reduce the overall noise produced by the motor.

During the third stage, sources of the identified abnormal noises are determined using black box testing experiment. The introduced method considers the existing abnormal noise source and determines whether the

source of this noise is eccentricity fault or not and is implemented passively. 4.1.4 Fluctuation of HF d-axis inductance (fourth index)

The EV"s power train and energy storage, namely the electric motor drive and battery system, are critical components that are susceptible to different types of faults. Failure ...

Other sources of abnormal noise: analysis and solutions Even after addressing abnormal fan noise, the inverter may still exhibit running noise. This could be attributed to the following issues: 1) Inductance whistling: The main cause of inductance whistling is poor quality power from the local grid. This results in the inverter"s internal ...

Mechanical noise and vibration in electric motors are caused by manufacturing or mechanical conditions such as friction, misalignment, lubrication faults, and loss of contact between bearings, gears, and other interfaces. These conditions depend on the motor"s rotational speed, load, and temperature.

Taking the previous components into consideration, three main types of noise sources can be distinguished in electric motors: Of electromagnetic origin. The electromagnetic noise in electric motors, sometimes called electrical noise, is primarily caused by the magnetic field in the air gap.

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4 ENERGY STORAGE DEVICES. The onboard energy storage system (ESS) is highly subject to the fuel economy and all-electric range (AER) of EVs. The energy storage devices are continuously charging and discharging based on the power demands of a vehicle and also act as catalysts to provide an energy boost. 44. Classification of ESS:

It is widely used in remote areas and offers an important research direction for energy storage [7, 8]. Besides that, renewable energy also plays an important role in clean energy. The government of India is promoting renewable energy sector with a target of 175 GW capacity for promoting cleaner forms of energy and enhancing energy security [9].

Abnormal electromagnetic noise of traction motor in hybrid electric vehicle (HEV) occurred after the endurance test is experimentally investigated. Theoretical model explains ...

Fault detection and diagnosis (FDD) is of utmost importance in ensuring the safety and reliability of electric vehicles (EVs). The EV"s power train and energy storage, namely the electric motor drive and battery system, are critical components that are susceptible to different types of faults. Failure to detect and address these faults in a timely manner can lead ...

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The abnormal noise phenomenon inside the passenger cabin when the high-speed trains run at a speed of 250 km/h significantly affects ride comfort. To investigate the source of this abnormal noise [35], microphones and vibration accelerometers were installed on the high-speed trains, and an on-site tracking vibrational tests were conducted.

Tom Bishop, P.E. EASA Senior Technical Support Specialist Determining the source of noise in an electric motor is often more challenging than correcting it. A methodical investigative approach, however, can narrow the possibilities and make it easier to resolve the issue--with one caveat. If the noise is due to something in the motor design (e.g., a manufacturing defect or anomaly), a ...