

## The Basics of AC Motor Repair

Make sure you understand all your options for AC motor repair

### AC Motor Repair

One of your AC motors is down, and it critical to productivity. All eyes are on you, and you know it needs to be repaired. How you can get the best repair money can buy and still remain within budget? Is a fast repair best for overall productivity? Do you need to go to an EASA accredited shop? What does a repair for an AC motor look like in terms of process? If those are your questions, then we've got the answers.

### AC Motor Repair Costs

AC motor repairs aren't cheap, and you've probably discovered that already. **Prices can vary widely** when it comes to AC motor repair, but those prices depend heavily on what is wrong with the motor. For example, maybe the first time you had your motor repaired it was a bad bearing but the next time it fails there has been damage to the coils and it required a rewind. The rewind is going to cost significantly more than the bearing replacement. It also depends on things like repair time, method of repair, and whether the shop is EASA accredited.

### Repair Time for AC Motors

A big factor involved with the cost of an AC motor repair is the time involved. **A quick repair isn't always a good repair** -- the attention to detail that leads to reliability takes time! However, the **actual repair time** is really dependent on the problems that your motor is having. Some repairs naturally take a little longer (rewinding a motor versus replacing **a standard ball bearing** on a motor). It may take a technician some time to really track down the root cause of a problem so that it doesn't happen again. Let's look at an example. Suppose a **bearing fails** in your AC motor -- why did it fail? Is there an

imbalance or a misalignment issue? A technician that can track down and address that misalignment issue as the source of the bearing failure will actually save you time and money in the long run. If they can find the originating source of problems the repair shop can keep it from happening again.

## **Inspection Fees**

The purpose of an inspection fee is to cover the labor costs involved in the transport, testing, disassembly, diagnosis, and documentation that is all part of finding the source of your motor problems. Some electric motor repair shops may charge an inspection fee when you send your motor in for diagnosis but don't have them repair it. This is often considered the cost of doing business with a repair shop that uses experienced technicians, skilled engineers, and modern equipment.

## **EASA Accredited Repair Services**

One of the best indications of quality work at an electric motor repair shop is **EASA accreditation**. EASA, which stands for Electrical Apparatus Service Association, is a highly sought after accreditation for a motor repair shop. It means that repair shop has undergone rigorous third-party evaluations in 23 different categories with over 70 elements -- all related to the repair (both electrical and mechanical) of large electric motors. EASA accreditation indicates that the shop technicians and engineers are following industry best practices, which in turn increases their productivity and reduces your repair costs.

## **AC Motor Repair Process**

There are several steps involved in the repair of an AC motor. While these steps may vary according to what the motor's problem is, there are certain steps that all repairs have in common. And the first step always involves thoroughly cleaning the motor.

## **Electric Motor Inspection**

Inspection is an critical step in evaluating the condition of a motor and establishing an accurate diagnosis of any problems it may be having. A well-performed inspection involves too many tests to list here, but it uncovers both

the source of the problem at hand and detects where future issues could be (which often include the **most common causes of failure**).

## **Cleaning and Baking Out Electric Motors**

After a motor is inspected (and sometimes during the inspection process), it is carefully cleaned and the windings are baked to remove all moisture. The cleaning process includes stators, rotors, and all other parts of a motor and will remove all contaminants and debris. Sometimes this needs to be done during the inspection process to fully evaluate the motor properly. This can add a significant amount of time to the inspection process when it is required.

## **Electric Motor Repair Processes**

The repair process itself depends on the AC motor diagnosis, what the overall motor evaluation reveals, the type of motor, and what type of equipment the motor repair shop has access to.

## **Testing AC Motor Repairs**

An AC motor repair isn't complete until it has been tested, the results of those test have been compared to appropriate benchmarks, and everything has been carefully documented. When possible those tests should reproduce actual working conditions as closely as possible. For example, many shops will test a motor up to full speed, but not full voltage. Now, **full voltage is needed** to get accurate vibration readings that include magnetic vibration. This simply cannot be done at anything but full voltage. However, not all electric motor repairs shops have test panels that can handle the necessary KVA required to power the motor at full voltage and unloaded current.

## **Repair or Replace Your Electric Motor?**

Sometimes you have to make a decision as to whether an AC motor needs to be **repaired or replaced**. A good rule of thumb for this is as follows: if the repair costs for the motor exceed 60 - 70% of its replacement cost, then replacement may be your best decision. However, there are always exceptions to the rule and sometimes it may make sense to go in the direction of a **surplus motor**.

## **Conclusion**

Are you in the market for AC motor repair services? HECO provides high quality, state-of-the-art repair solutions that you won't find anywhere else. At HECO, we are EASA accredited and follow strict procedures for repair and reconditioning that allow us to provide you with the highest quality repairs that will reduce the M&O costs for your electric motor powertrain.