

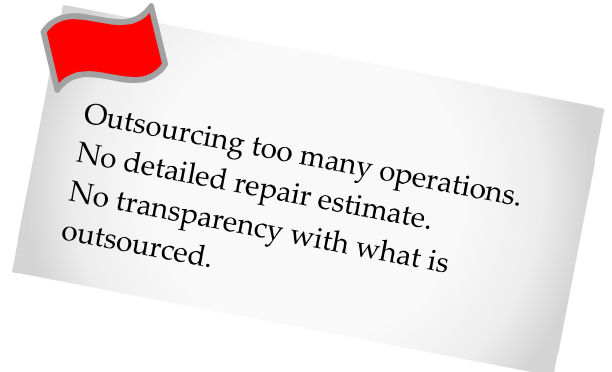
10 Questions to Ask an Electric Motor Repair Shop

Why it Matters and Possible Red Flags

1

What steps of your repair operation do you outsource?

Shops that outsource rewinding, machining, grinding, and other ancillary functions may be ill equipped to maintain QC over these operations. A lack of expertise in these areas can result in the deterioration of mechanical and even electrical components being overlooked.



2

How do you test vibration levels, and to what standard?

Excess vibration produced by the motor will result in premature failure. Dynamic balancing is important, but not enough! Vibration measuring equipment, an understanding of the relevant IEC, DIN ISO, or JIS standard, plus ability to interpret vibration spectrums is fundamental to ensuring that the motor meets or exceeds the manufacturer's vibration limits in operation.

Balances rotating elements but doesn't measure vibration levels during testing?



3

How do you verify and test proper brake operation?

Holding brakes are responsible for safeguarding personnel as well as machines and in-process parts. Knowing how much static torque a brake is required to hold, and having an accurate way to measure it are essential components of the repair process. Pull-in voltage, backlash, and current draw are other useful metrics in determining the brake functions correctly.

If your repair shop can't tell you how much torque the brake holds *and* how much it's required to hold.



4



Can't verify that they used bearings with limiting speed ratings equal or greater than the maximum motor speed.

How do you identify bearings with special specifications, and ensure replacements are equivalent and just as reliable?

Spindle motors typically operate at higher speeds than standard radial bearings are designed to handle.

Manufacturers compensate by using special greases, synthetic cage materials, higher precision classes, etc. - features that aren't always evident by simply examining the bearing. Replacement bearings without these features are prone to produce excessive thermal losses and premature failure.

5

How do you measure assembly accuracy, and to what standard?

Assembly accuracy, i.e. shaft runout, concentricity, and squareness to the mounting flange, directly impacts motor running life and machine operation. Many manufacturers adopt the IEC 60034 or DIN 42955 standard, but some Japanese manufacturers have their own, tighter, requirements. Measurements that are out of tolerance are often indicators of internal mechanical problems.

If your repair shop can't provide assembly accuracy measurements and tolerances for your particular motor.

6

What percentage of the time do you run motors to full speed during final testing?

No documentation of a stable bearing temperature during final testing of motors with maximum speeds above 3500 rpm, or any motor turning a spindle.

As motor and bearing manufacturers push running speeds higher and higher, it becomes increasingly important to be able to proof test at full speed. Thermal losses can increase dramatically with a relatively small increase in motor rpm, so a full speed run-in is critical to determine that bearing life will not be jeopardized by thermal growth or lubrication issues that are not evident at less than full speed.



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What kind of equipment is used to drive or control motors during final testing?

Speed/position feedback devices are becoming increasingly sophisticated, with proprietary communication protocols and on-board programming being used by many manufacturers. The most reliable test of proper operation is to use the manufacturer's dedicated controller to drive the motor during testing.

No test equipment using dedicated OEM test stands or simulators.



8

How do you ensure that motors with an IP67 rating maintain their integrity after repair?

Motors rated IP67 are waterproof under certain circumstances to allow them to operate in wet conditions. Even a small amount of damage or degradation to a seal or sealing surface can compromise the IP67 rating. Proof testing is required to avoid the risk of premature failure due to contamination.

No pressurized submersion protocol for testing IP67 motors?
Doesn't even know what the IP67 rating means?



9

Do you have any authorized service partnerships with motor manufacturers?

If your repair shop has been around for many years but has never developed any authorized service partnerships with motor manufacturers...



Authorized service partnerships should be an endorsement of the integrity of the service partner and their ability to perform high level service. An authorized partner is likely to have specialized training, and access to technical data and spare parts that can be critical to returning a motor to like-new condition.



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How much inventory of new or rebuilt motors do you carry?

Having an extensive inventory of new, rebuilt, or even used motors means flexibility when a quick solution is required. Even if the needed motor isn't in stock, the right motor may be built quickly by tapping a large inventory of similar motors or spare parts.



Got spindle motor or servomotor questions?

Email info@endtec.com and we'd be happy to answer them in our newsletters.

