



Too busy to save energy? The maintenance alternative.

**Hugh Falkner
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Motor Summit Zurich**

Maintenance matters

How can we reach companies who are not motivated by energy savings?

Offer them something that will make their life easier – and for little or no investment.

Why Maintenance?

**When plant fails, there is always the money to fix it, and quickly.
Maintenance is essential – energy efficiency is optional.**

Site personnel are interested – talking maintenance gets their interest and so makes them more open to energy efficiency suggestions.

Integrating maintenance and energy efficiency activities makes both more cost effective.

By monitoring equipment you learn more about how it performs – such information can form the basis of energy saving measures.

Better maintained plant uses less energy, and avoids the indirect energy costs of unplanned outages.

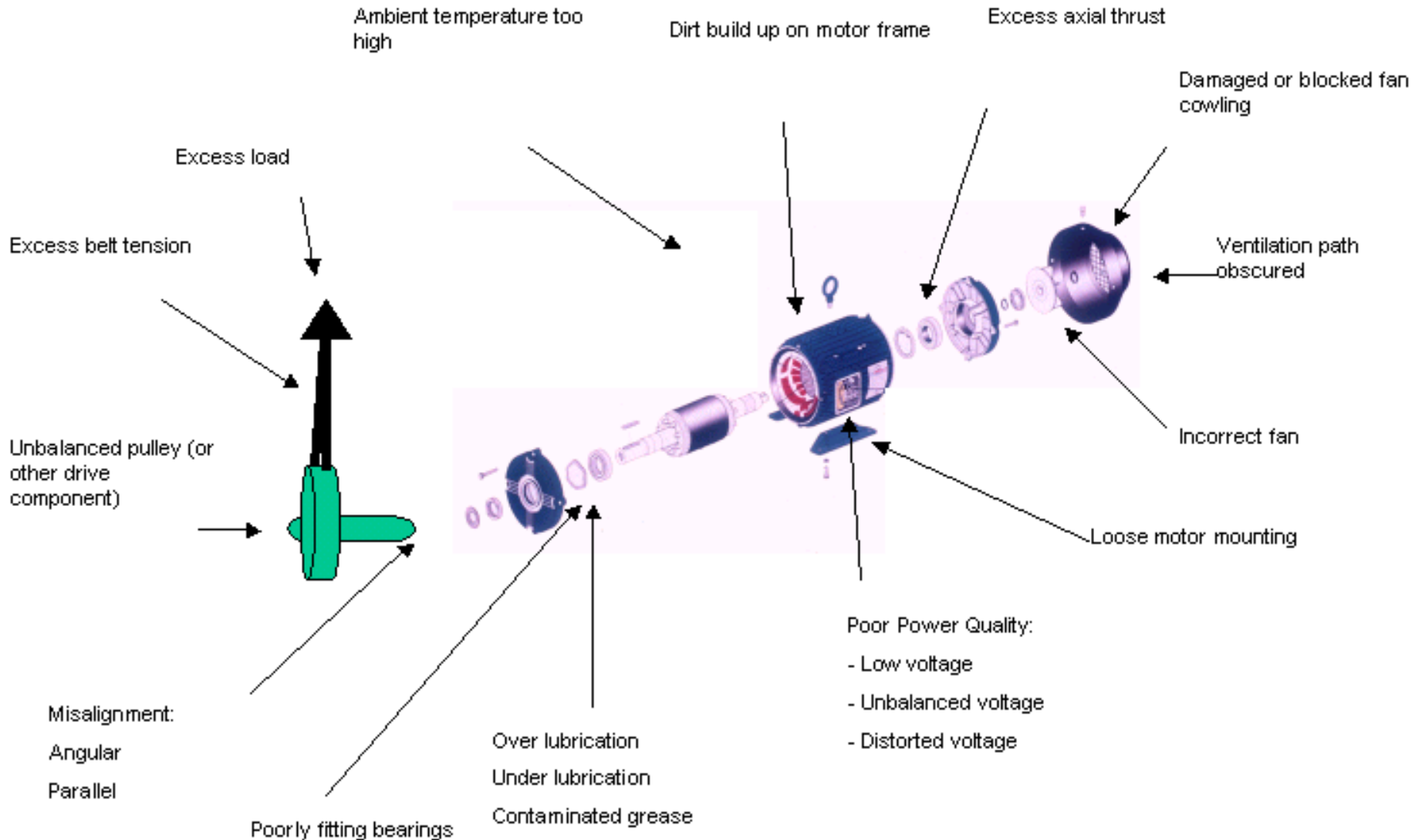
Key messages from the Maintenance Best Practice Roadshow

**Most companies have sub-optimal maintenance procedures -
*Reactive maintenance is all too common***

**Decide what maintenance approach is best for your company –
probably not an expensive computer based system!**

**Savings on unplanned repair work will more than pay for a
condition monitoring programme**

Why motors go wrong



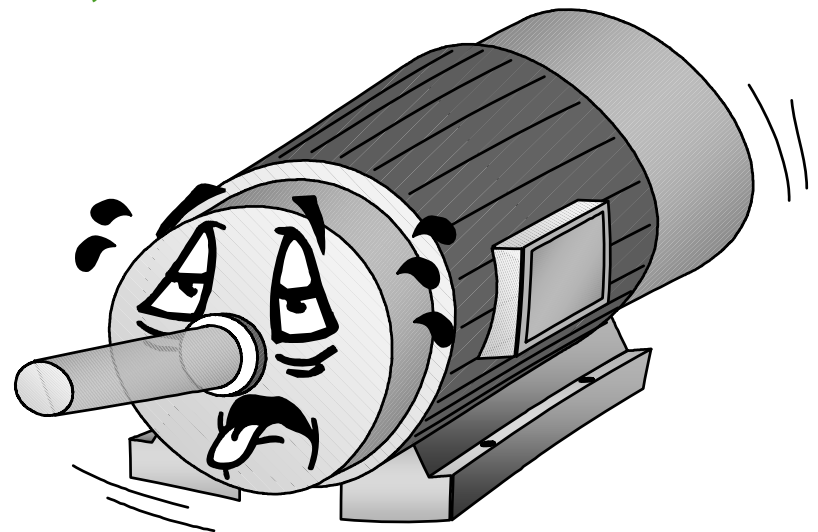
Why Condition Monitoring?

All these problems lead to gradual bearing or winding degradation.

Its unusual for a motor to fail without any warning signs – although you may need special equipment to see them.

Condition Monitoring allows us to identify and track developing conditions, identifying the best time for undertaking repairs or replacement.

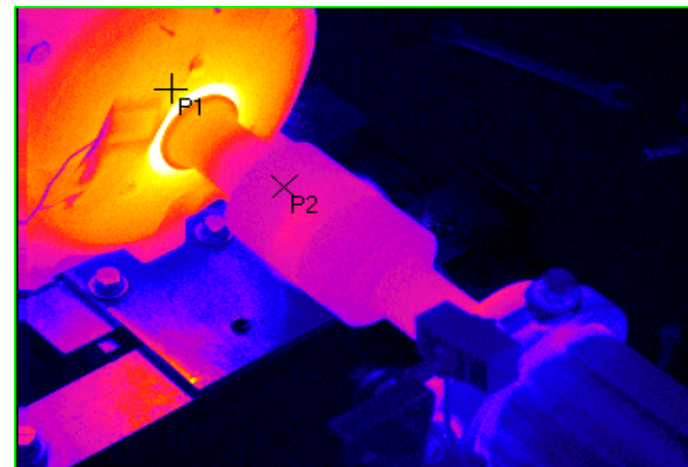
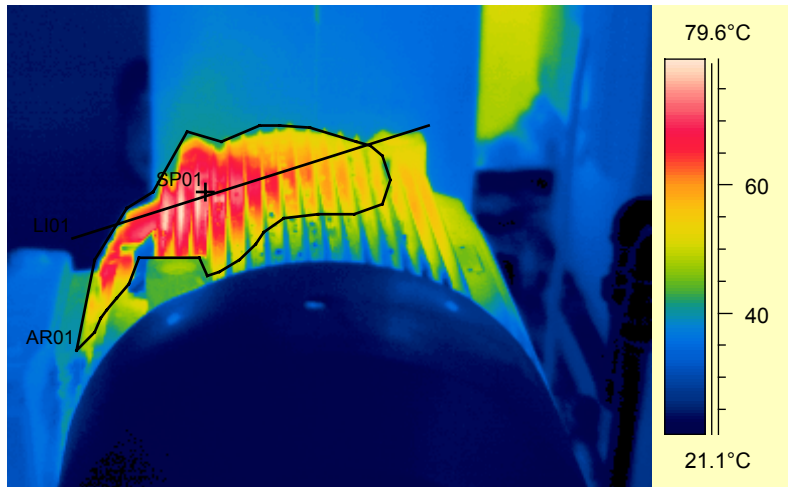
Take care in deciding what to monitor, with what, and when.



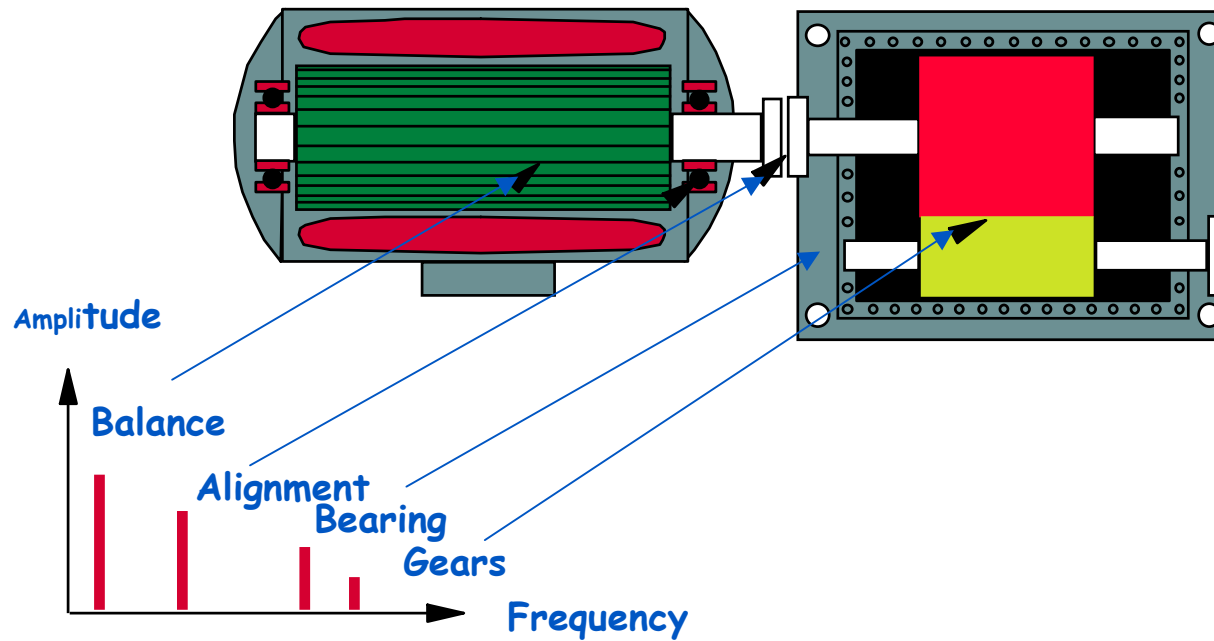
Power Quality Checks



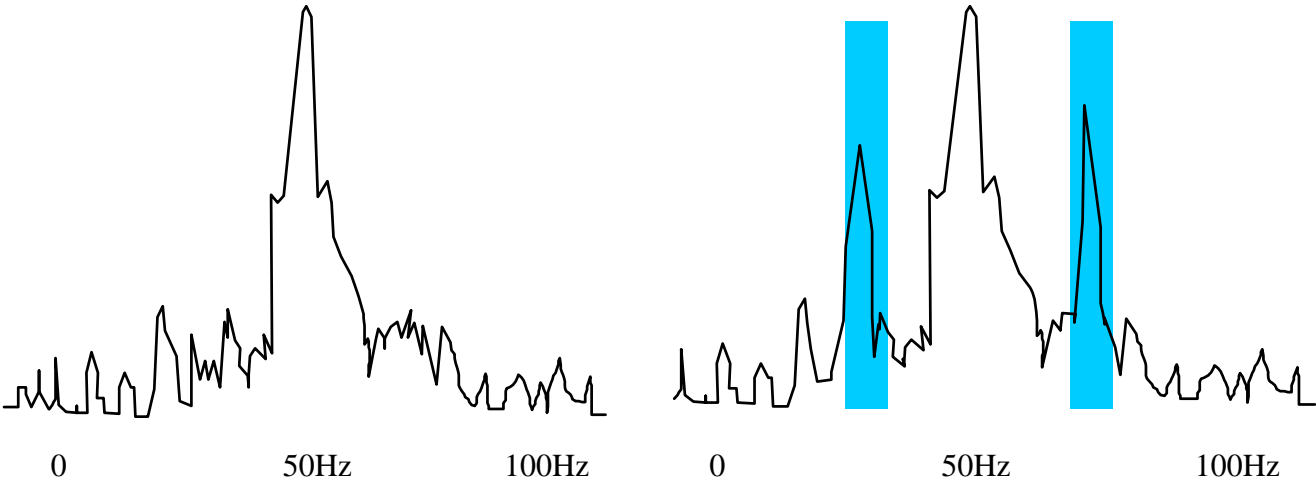
Thermography



Vibration Analysis



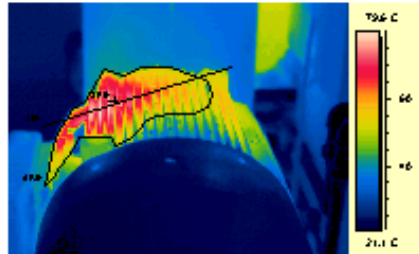
Motor Current Sensing Analysis



OK

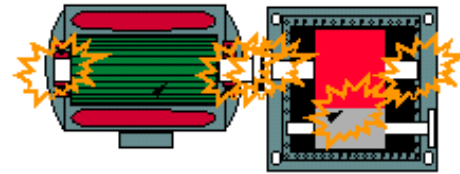
Broken Rotor

Summary – options for Condition Monitoring of Motors



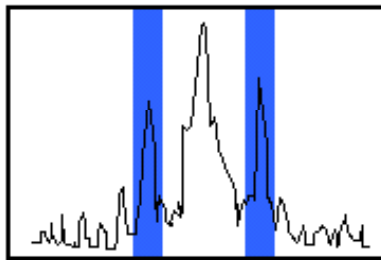
THERMAL IMAGING

Rapid identification of general over-heating or local hot spots



VIBRATION ANALYSIS

Identification of the source of a vibration problem



MOTOR CURRENT SENSING

Early indication of vibrational problems, especially good at stator/rotor problems



ELECTRICAL MEASUREMENTS

Check the motor loading and the quality of the supply voltage

Where next?

Funding sadly withdrawn in 2005 – new sponsors very welcome!

Several guides in draft form that could be used by negotiation with original funding body.

