EASA
The Electro•Mechanical Authority

Electromechanical Resource Center

How To Use Motor/System Baselines

Maintenance practices have evolved from reactive to predictive, making it possible to operate with fewer spare motors, smaller staffs, less downtime and lower operating costs.

To maximize equipment life, compare baseline installation data from your motor data sheet with future test results as part of a preventive or (preferably) predictive maintenance program.

Trending the data helps operators recognize changing conditions and prevent catastrophic failures. Should a failure occur, trending could also help identify the cause (See EASA's article on "Preventive, predictive and reliability-based maintenance."). Local service center professionals can be invaluable resources for this.

The maintenance performed during normal motor operation and planned outages ranges from random to regularly scheduled monitoring, although its frequency may depend on the size, location and critical nature of the application. To draw useful comparisons, baseline variables must correlate with those recorded during the initial startup or after repairs were made.

Examples:

Trending the baselines of a centrifugal pump motor could alert the operator to a significant change in line current that is indicative of degraded pump efficiency. Repairing or replacing the pump would restore the efficiency of the motor/pump system while boosting production.

System efficiency =
Motor efficiency x Pump efficiency

0.94 (motor eff.) x 0.60
(degraded pump eff.) = 0.56

0.94 (motor eff.) x 0.80
(repaired pump eff.) = 0.75

Trending a motor's baseline current for uncoupled operation or the insulation resistance of its winding could prevent a winding failure through early detection of a deteriorating insulation system or a worn-out bearing. In such cases, motors can often be cleaned and rebuilt rather than rewound.

Learn More

For more considerations regarding the installation process, see EASA's materials on:

- Methods for determining motor/system baselines
- Preventive, predictive and reliability-based maintenance
- Methods for determining motor baselines
- Total motor management

Content adapted from EASA's "Getting The Most From Your Electric Motors."
Access the full publication at **go.easa.com/electricmotors**.

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