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CASE STUDY NOTES

Stacker / Reclaimer DC Drive Upgrade

Obsolete MG Set replaced with Modern Mentor MP DC Drives

Drives and Automation were approached by a customer who were experiencing reliability issues with an existing MG Set controlling a couple of Mawdsley DC Motors.

The two Stacker / Reclaimers form part of a key piece of infrastructure for the customer, with down time affecting production across the site.

After an in depth consultation with the customer, a plan was drawn up to replace the problematic hardware.

Ageing Motor Generator (MG) Sets become increasingly difficult to maintain, with rising downtime, unstable performance, and limited availability of replacement parts. Upgrading to a modern DC drive system eliminates these issues and delivers long-term reliability, improved efficiency, and precise digital control.

Our solution replaced the existing MG Set with a Mentor MP DC Drive, engineered to operate two Mawdsley 150 V DC, 750 rpm, 15 HP motors in series, rated at 75 A. This upgrade provides a compact, solid-state alternative that removes mechanical wear points and significantly enhances operational stability.

As part of the works we also supplied a replacement panel housing a PLC, relays and HMI, along with a replacement encoder for the No. 2 Stacker.

The panel included a 24V power supply, Siemens S7-1200 PLC, replacement relays, along with a 4” touchscreen to allow positional set up. In addition we also provided an absolute encoder to replace the current obsolete Allen Bradley encoder.

What the Upgrade Included:

We supplied a complete, ready-to-install system designed for seamless integration into the customers existing setup. The upgrade package included:

- A custom-built backplate assembly housing the Mentor MP DC Drive and all associated control gear
- Flexible speed control options via local keypad or external analogue signal
- Full electrical documentation, including schematics and connection diagrams
- Comprehensive commissioning support and ongoing technical assistance

This approach ensured a smooth transition from legacy equipment to a modern, efficient, and fully supported control solution.

DnA

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Improved Performance & Reliability

The Mentor MP DC Drive provides precise digital regulation, delivering smoother acceleration, stable speed control, and enhanced protection for the customers motors. Maintenance requirements drop dramatically, and the risk of unexpected breakdowns is greatly reduced.

Technical Highlights:

The Mentor MP DC Drive is a high-performance controller designed for industrial DC motor applications. Key features include:

- Continuous operation at 75 A, with overload capacity
- Compatibility with 150 V DC motor systems
- Armature voltage and field current regulation
- Integrated keypad for local operation and diagnostics
- Analogue and digital communication options
- Built-in protection against overcurrent, earth faults, and thermal overload

Configured for two series-connected Mawdsley motors, the drive ensures balanced current sharing and consistent performance across the full operating range.

Installation & Commissioning:

Our engineering team managed the full upgrade process:

Preparation – Coordination with the customer team to plan the safe removal of the existing MG Set (by others).

Installation – Mounting and wiring of the new backplate assembly.

Configuration – Parameter setup for optimal speed control and motor protection.

Testing – Functional checks, load testing, and performance verification.

Handover – Delivery of documentation, and operator guidance.

Benefits at a Glance:

- Increased reliability with solid-state electronics
- Reduced maintenance and downtime
- Improved energy efficiency
- Compact, modern design
- Enhanced safety and diagnostics
- Long-term manufacturer support

Complete Support Package:

From initial consultation to post-installation assistance, we provide full technical support throughout the entire upgrade process.

Our engineers are available for configuration help, troubleshooting, and future system expansion, ensuring your equipment continues to perform at its best.

With over 25 years of delivering Automation Excellence, we have links with major Drive and Motor manufacturers enabling us to offer you the best solution for your needs.

With extensive experience in a wide range of applications and industries, we understand the importance of getting it right and reducing your down time and maintenance.

Technical Details

- Installation of modern Control Techniques Mentor MP Drives
- Up to date drawings and documentation
- Simplified diagnostics
- Minimised downtime

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