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Antique bus engine gets new lease of life courtesy of an ABB drive

A variable speed drive's soft-start function is used to convert a static cutaway diesel engine into an interactive exhibit at a UK museum

Visitors to Nottingham Industrial Museum can now see firsthand how a diesel engine, used on a historic bus, operates following the donation of an ABB variable speed drive by Inverter Drive Systems (IDS).

The 100-year-old diesel engine features cutaway sections that show visitors its internal components. To demonstrate the engine in operation, an electric motor is used to provide power. Previously, this motor was connected direct on-line (DOL) to the mains. However, this led to high starting torque and high speed, stressing the engine and leading to frequent breakdowns.

To overcome this, IDS installed an ABB machinery drive. The drive's soft start feature ensures that the motor gradually increases the speed of the diesel engine, protecting its components and ensuring that visitors can witness its operation in detail.

Nottingham Industrial Museum is a volunteer-run collection of artefacts, items and installations reflecting centuries' worth of industrial heritage in the local area. Exhibits include steam and diesel engines, textile and transport technologies, mining equipment and early telecommunications devices.

Blaise Ford, Managing Director, IDS, was visiting the museum recreationally when he encountered the engine, which at the time was not running at all. He knew that a variable speed drive would provide a solution. As well as the motor's high running speed and noisy operation, subsequent observations and testing also revealed that the motor was rotating in the wrong direction. An ABB machinery drive was donated free of charge and installed by IDS to control the motor's speed. This also meant that the motor's direction of rotation could be corrected.

The diesel engine now runs on a one-minute cycle, activated by visitors using a push button. The drive ensures that the motor ramps up slowly, and then runs smoothly while maintaining a low speed. The drive's switching frequency allows the drive to be run at 16 kHz, making any noise generated inaudible. As a result, the drive effectively runs silently.

Peter Griffin, Nottingham Industrial Museum's Technical Director, is pleased with visitors' reaction to the enhanced exhibit: "We're enormously grateful to Blaise and his team at IDS for donating both their equipment and time. People really enjoy seeing the pistons and valves working, and slowing the motor down also has the added benefit of reducing wear on the mechanical parts, which should prolong the life of the engine. We're very happy with how it's gone."

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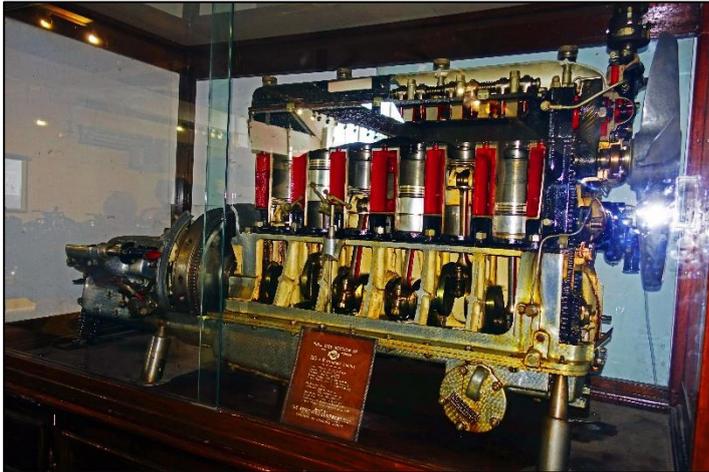
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Caption: An ABB machinery drive was donated and installed by IDS to allow the smooth operation of the antique diesel engine