

# ABB DCS800 drives and Programmable Logic Controller

Our lifecycle product management and service capability.

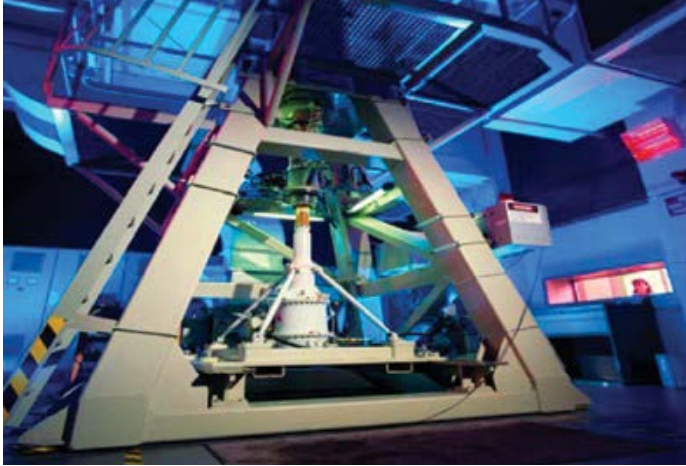


ABB DCS800 DC drives and AC500 PLC helps defence scientists to develop algorithms to detect possible faults; alerting maintenance crews before catastrophic failure occurs.

## The testing facility accommodates gearboxes from the Bell 206 (Kiowa) and AS 350 (Squirrel) helicopters.

The Defence Science Technology Organisation (DSTO) operates a unique Helicopter Transmission Test Facility (HTTF) based at Fishermans Bend, Melbourne. It is used to conduct research into helicopter gearbox and drive train failures.

The test facility simulates actual helicopter flight conditions with vibration and other sensors monitoring the gearbox. The gearboxes with gear and bearing faults (seeded or naturally occurring) are loaded, or overloaded, utilizing DC motors in a motor and generator configuration. The purpose of the facility is to develop algorithms to detect possible faults early; alerting air and maintenance crew before disastrous system failure occurs. Some of these algorithms developed here are now installed in helicopters world-wide.

DSTO's helicopter test rig was fast becoming obsolete, with ageing equipment not supported by advancing technologies DSTO needed to explore avenues to upgrade the facility. DSTO sought out technical expertise from ABB engineers and the original overseas manufacturer to provide an economical and practical solution to upgrade the facility.

## Challenge

- Helicopter test rig equipment was becoming obsolete, not supported by advancing technologies
- Control system needed to be upgraded to achieve higher availability and performance
- Interface a non ABB system and replace outdated components against ABB technical specifications

## Solution

- Replace the old analog system and obsolete controlling PC's with digital drives (DCS800 DC drives) and PLC controllers together with new HMI (AC500 PLC)
- ABB's Drives Engineering Services, provided local engineering support, design and installation

## Benefits

- The installation of the ABB AC500 PLC and DCS800 DC drives has increased performance and reliability
- Greater access to spare parts availability from a local supplier
- Ongoing local and global service support
- Economic savings
- More accurate control capabilities through modernisation of test rig facility



Helicopter and Test Cell Imagery courtesy Department of Defence



ABB's engagement in the upgrade included two DCS800 drives and AC500 PLC (as pictured below) in the gearbox application. ABB also provided engineering support during design, installation and commissioning of the application.

**Comment from DSTO:**

"This collaborative approach has aided both ABB and DSTO in that we have developed good linkages within each organisation and have a more detailed understanding of the upgraded facility resulting in an easier maintenance and fault rectification path."

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DCS800



PLC

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