

METALLOCK REJUVENATES 26 YEAR OLD DUAL FUEL ENGINES FOR THAMES WATER

Upper liner landings of two Ruston 8AT engines used for power generation at Thames Water's Long Reach works were refurbished by Metallock Engineering UK recently to remove the effects of fretting corrosion sustained over the years.

The in-line eight cylinder machines were dual fuel engine operating on diesel or sewage gas, with their exhaust heat used to generate hot water for the site via a waste heat boiler. During the stripdown for a major overhaul there was evidence of severe fretting corrosion around the upper liner landings and bores. Clarke Energy, who had been commissioned by Engenica, the maintenance arm of Thames Water, asked specialists Metallock, who they had successfully used on many previous occasions, to carry out an initial survey and recommend the best solution. This was to machine away the damaged areas on the sixteen cylinders and restore to original dimensions using mild steel ring inserts.

To achieve this Metallock used one of its purpose designed, hydraulically driven in-situ facing and boring machines set true to the existing bore axis with a support at the lower liner landing. To accept mild steel ring inserts each bore was machined out to 413mm (16.625 inches) diameter for a depth of 60mm (2.375 inches). Subsequently, each top face was counter-bored to 432mm (17 inches) diameter 12.5mm (0.5 inches) deep. Sixteen make-up rings had been manufactured to provide a precise interference fit, so that once cylinder block machining had been completed, checked and inspected, each one could be shrunk into position.

To achieve this, a ring was immersed in a container of crushed dry ice and constantly measured until it reached a diameter that was at least 0.25mm smaller than the bore it had to enter. It was then fitted and rotated to ensure a square fit. No further machining was necessary. The final operation was to secure the rings in position by dowelling through the top face into the cylinder block.



After machining away the damaged area at the top of each bore, mild steel ring inserts were shrink fitted into place thus restoring original dimensions.

Metallock Engineering UK

Unit H 5
Pilgrims Walk
Prologis Park
Coventry
CV6 4QG
England
Phone: +44 (0) 24 7636 0084
Fax: +44 (0) 24 7636 0190
E-mail: sales@metallock.co.uk
www.metallock.co.uk

