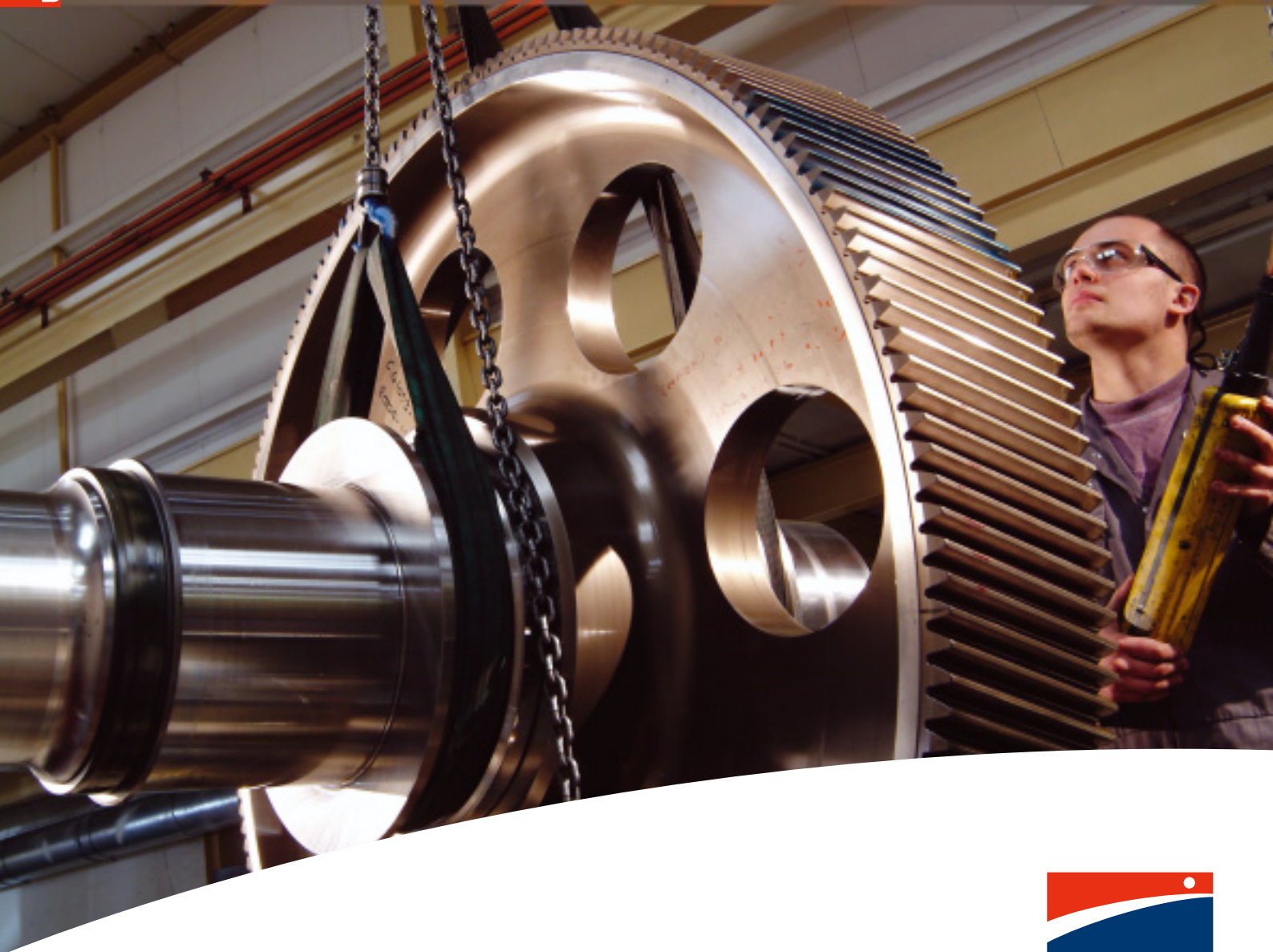


GEARBOX OVERHAUL

At a point in the life of any rotating equipment it will require some degree of repair or overhaul. Allen Gears Services is committed to return any gearbox to full working condition as quickly and cost-effectively as possible.

Wherever possible we will carry out repairs and overhaul on site. Parts that cannot be repaired in-situ will be returned to our state-of-the-art refurbishment facility in Pershore, UK. There our highly experienced technical and engineering experts guarantee the swift manufacture and turnaround of replacement parts.

unrivalled benefits



recent experience case study

GEARBOX OVERHAUL

Indian Off-shore Waters

The Oil & Natural Gas Corporation Ltd (ONGC) operates a number of platforms offshore India. On the NQO, SHQ and BPA platforms, TB5000 generator sets are in operation providing critical power for the platform, including the power for the compressor sets which are electric motor driven.

Allen Gears have recently carried out 10 overhauls of TB5000 units on these platforms as follows:

¥ NQO Platforms x 4 units

¥ SHQ Platforms x 3 units

¥ BPA Platforms x 3 units.

All the platforms run the turbines full time with one turbine kept as emergency back up (ie NQO Platform run three

generator sets full time, with 1 kept as emergency standby unit in case of failure on one of the other three)

Each is fitted with an Allen Gears epicyclic speed reducing unit. These were installed in 1984 and have not had gearbox overhauls for many years.

6 days per unit was allowed for each overhaul

Scope of work carried out: Full Inspection

A full inspection was carried out as follows:

- Remove coupling guards, coupling spacers, and disconnect instrumentation as necessary.
- Remove gearbox top cover and lift out the gear rotors and bearings, according to the dismantling procedure given in the working instruction book for this unit.
- Clean and inspect all components in detail, paying particular attention to all teeth, shaft journals and whitemetal bearing surfaces. (Note separate instructions regarding tooth inspections).
- Check that all oil holes, oil ways and spray nozzles are clear. Remove any sludge or debris deposits and clean thoroughly.
- Where a high speed gear coupling is fitted, remove any sludge centrifuged out in the bore of the coupling sleeve and coupling flanges and clean thoroughly.
- Check and record bearing clearances. Allen Gears' factory check is made using micrometers, and empty bearing shells are assembled in their respective housing for this purpose. Clearance checks may also be taken using lead-wire or "Plastigauge™", but the resulting clearance may be slightly larger because the half-shells tend to separate, taking up the small clearance which exists in the bearing seating.
- Remove and dismantle the oil pump, if supplied and fitted by Allen Gears. Visually check for wear and deterioration of pump rotors, body and seals. Replacement of rolling element bearings is specified by the manufacturers of some screw pumps.
- Remove and dismantle the oil pump drive and idler gears and the starter/barring drive and idler gears, as necessary, to check condition of rolling element bearings and the clutch. If there is any hint of roughness or any other doubt as to their fitness for further use, they must be replaced. Pay particular attention to the clutch operating surfaces and the condition of springs and pawls. If there is any evidence of wear or surface deterioration refer the matter to Allen Gears at Pershore for further advice.
- On re-assembly ensure that all helicoil thread inserts are in good condition and renew all locking plates and tab washers, if fitted.
- Check alignments and correct as necessary.
- Report any abnormalities to Allen Gears at Pershore and provide recommendations to the customer.

The challenge and outcome

Allen Gears service engineers had a very limited timescale to undertake the work due to the pumping and compression capabilities of the rigs. The generator sets had to be overhauled within 6 working days per gearbox to avoid the delays and loss of revenue created by the compressor sets having no power.

ONGC insisted that Allen Gears undertake this work, as the OEM, because of our experience within field service and because we can provide full technical support to our engineers on site should the need arise.

The success of the above contract, and the outstanding ability of our field service engineers, has convinced ONGC to use Allen Gears to overhaul 8 epicyclic gearboxes at their onshore refinery at Assam.

Technical Data

Requirement:	Full on-site refurbishment of 10 x gearbox units
Plant:	NQO, SHQ and BPA platforms, Offshore India
Operator:	ONGC India
Application	Critical on-board power including power to drive compressors
Application Type:	Gas turbine driven generator
Gearbox Type:	Allen Gears epicyclic gearboxes
Power:	5,400 BHP
Speeds:	10,500 rpm, output: 1,500 rpm



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