

SCHEDULED INSPECTION

Oil & Natural Gas Corporation (ONGC) India

The Oil and Natural Gas Corporation of India, operate three oilfields – RDS, LAKWA & GELEKI in the Assam region of India.

The crude oil drilled from these oilfields is brought through pipe lines into Group Gathering Stations (GGS's). In these stations the oil is processed, separated and sent to the CTF(Central Tank Farm).The oil processing requires uninterrupted power supply, and ONGC can not depend on the external power generation company, so they have built a Captive Power Plant (CPP) for each GGS.These supply all the power requirements to the Group Gathering Station.

Each CPP utilises Rolls-Royce Allison 501 gas turbine generating sets, providing the sole power for the station. It is critical that these units remain in reliable, constant operation as they provide the power for the Oil processing activities.

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recent experience case study

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Site Power (CPP) for – RDS, LAWKA, GELEKI Oil Group Gathering Stations, Assam, India

The challenge

The 6 x Allison KB5 501 epicyclic gearboxes have been installed since 1987 and have received no maintenance other than basic visual inspections. The gearboxes have been in constant operation since installation and all have a working service life of 160,000 hours.

The units are situated in a remote part of India.

Allen Gears Services has been allocated a field service contract to overhaul all of the units.



The solution

A full inspection was carried out as follows:

- Remove the Gear Internals from Gearcase.
- Remove Spindle End Covers and inspect Spindle bores for rust, dirt, and sludge. Remove deposits and clean thoroughly.
- Dismantle Gear completely and inspect all components in detail, paying particular attention to all running teeth, coupling teeth, and all whitmetal Bearing surfaces.
- Remove and dismantle the Oil Pump. Visually check for wear and deterioration of Pump Rotors, Body and Mechanical Seal.
- Remove and dismantle the Oil Pump Drive and Idler and the Starter Drive Assembly and Idler to check condition of the Rolling Element Bearings and the Spragg Clutch.
- Check that all oil holes and oil ways are clear. Remove any sludge centrifuged out in the bores of the Inner and Outer Annulus Coupling Rings and the High Speed Coupling Sleeve between the Sunwheel and Sunwheel Coupling Flange.
- Partially re-assemble the Gear in order to check alignment.
- Re-assemble the Gear using new Locking Plates and Tab Washers, and ensure that all Helicoil Inserts are in good condition.

It is anticipated that each gearbox will be overhauled in 5 working days, which, due to the critical nature of the application, was a key factor in Allen Gears being awarded the contract.

As well as field service support, Allen Gears Services will provide full spare parts coverage from white metal load bearings and spindles (manufactured at Allen Gears facility in Pershore) through to full sets of rotating toothed elements (Sunwheel, Starwheels and Internal Gear Rings). This will give the customer full satisfaction that all aspects of the gearbox will be in prime condition and will be more than ready to give a further twenty years uninterrupted service.

Technical Data

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| Application: | Gas Turbine driven generator |
| Installation: | Site Power (CPP) for – RDS, LAWKA, GELEKI Oil Group Gathering Stations, Assam, India |
| End User: | Oil & Natural Gas Corporation (ONGC) India |
| Gear Type: | Allen Epicyclic Star Gear-Decreasing |
| Design: | Generator Mounted |
| Speeds: | Input: 14,250 rpm Output: 1,500 rpm |
| Ratio: | 9.50:1 |
| Rated Power: | 5819KW |
| Annulus Size: | 30" (762mm) |



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