

Technical Paper

An Alternative to the OEM for a Frame 3 J Major Overhaul

Earlier this year, Sulzer Hickham was contacted by a major natural gas transmission joint venture company about a problem they were having with a US manufactured twin shaft gas turbine at a compression facility in the northern US. The customer was looking for an alternative service provider to the OEM in order to perform an inspection on the gas turbine unit. Sulzer Hickham was called in on the project because of successful inspections and services previously provided to one of the joint owners.

The client was unsure of the condition of the machine due to poor record keeping at the site. An initial recommendation was made to perform a borescope inspection to see what could be determined before opening the machine in the hope that the extent of work and the length of the down time could be better estimated. However, the operating partner of the joint venture was not convinced. The operators believed there was nothing required other than a basic hot gas

path inspection outage as they had originally scheduled. Further discussions ensued and eventually it was agreed that the prudent decision was to initiate Sulzer Hickham USA's recommended course of action. It was agreed that a visit would be made before the overhaul to review parts the customer had on hand, as well as to review the schedule.

Shortly after the overhaul had commenced it became obvious that a simple hot gas path inspection would not be sufficient. It became evident that a major overhaul would be necessary. This presented a timing problem as a major overhaul had not been in the original planning. In addition to the

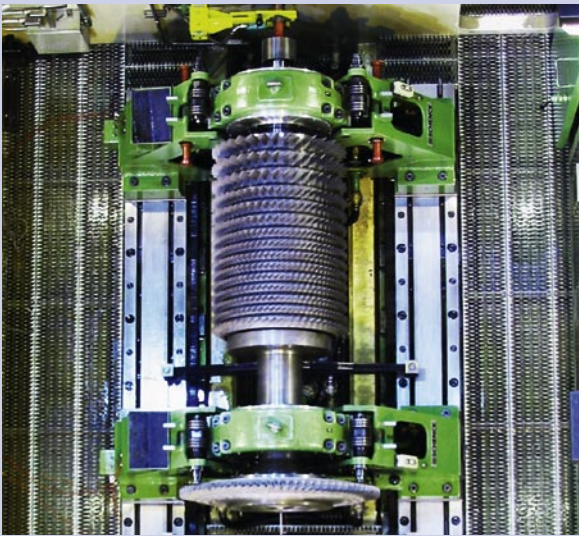


HP rotor of the Frame 3 repaired in our shop

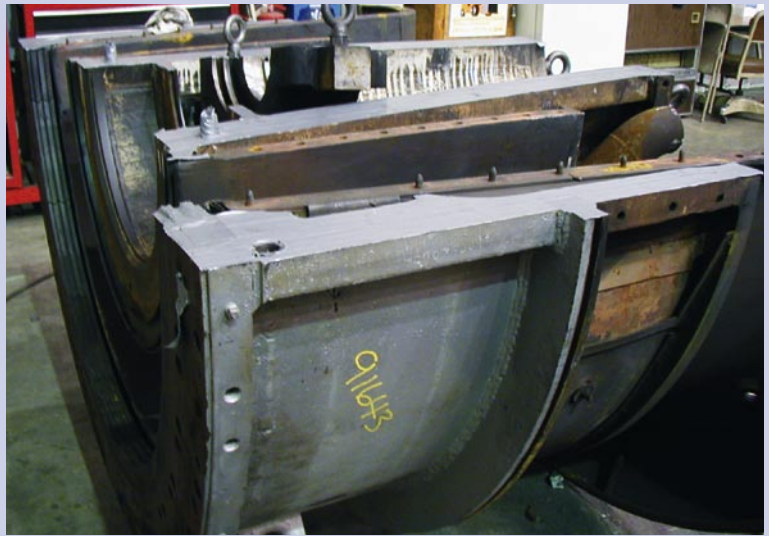
usual work performed in a major overhaul, it was revealed that the exhaust plenum needed replacement, regenerator work was required, and replacement combustion elbows would have to be sourced.

Many of the parts were sent to the Sulzer Hickham USA facility in Texas. This included: both the HP and LP rotors, all combustion components, 1st stage nozzle, 2nd stage nozzle assembly, including all the hatchet blades in the casing, the exhaust frame, starter turbine, gearbox, all bearings, various motors and smaller pumps and the IGV's. All the parts were repaired and coated with Sulzer Hickham USA Hi-Coat materials where necessary. Additionally, an operating speed balance of the HP rotor was performed.

The customer had serious concerns about the project costs and how quickly they were rising (factor of 10 compared to initial estimates). The client accepted the offer of a visit to the Sulzer Hickham USA facility. Detailed reports were provided. These details



At speed balance of a Frame 3 J HP compressor rotor

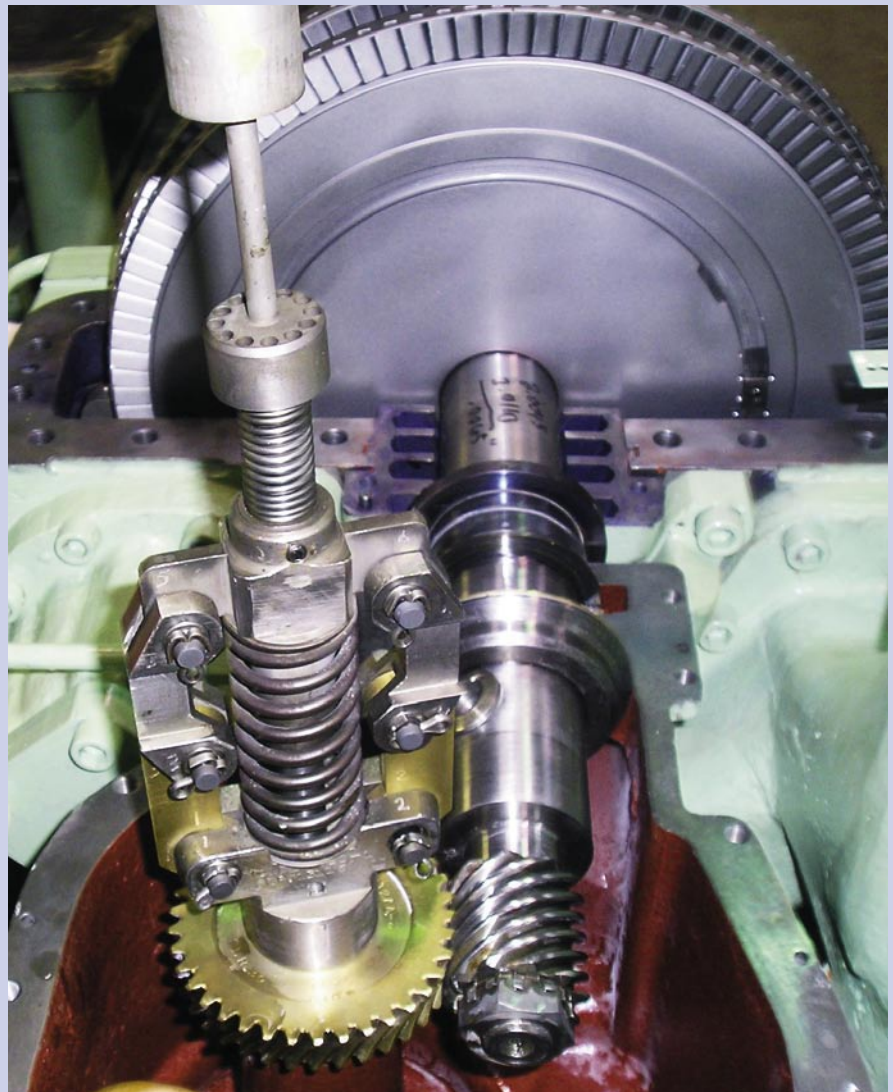


Inspection shows an exhaust frame in a worse shape than expected by the customer

of cost and the repairs required completely satisfied the customer and they were convinced that all the work was necessary. Sulzer Hickham USA's various divisions (Big Bay, Component, Core and At-Speed) worked speedily and efficiently together.

The reassembly at the compression facility in Michigan went very smoothly. Sulzer Hickham USA's field service personnel did an excellent job and received accolades from many different levels within both joint venture partners organizations. The client has recommended us and will be returning with future orders.

Scott McKenzie
Sulzer Hickham USA



Overhauled starter turbine



New combustion elbows provided during the course of the job