Case Study

Supporting Equipment Reliability and Engineering Improvements

Motion Repair & Services

Background: Addressing Gearbox Oil Leaks

A critical pump gearbox was leaking approximately 30 liters of oil per day following a rebuild at the OEM facility. The leak originated from the output shaft shortly after startup, creating several risks:

Potential Gearbox Failure:
- If the oil level dropped to critical levels, the gearbox could fail, leading to costly downtime.

Increased Operating Costs:
- The cost of replenishing oil daily added unnecessary expenses.

LOPC (Loss of Primary Containment) Risk:
- The oil leak posed a potential environmental and safety concern.

The Challenge: Improving Seal Design

The existing seal design on the gearbox output shaft was not sufficient to prevent oil leakage, even after a rebuild. The customer needed a solution to resolve the immediate issue and improve the gearbox's reliability for future rebuilds.

Figure 1: Gearbox as received at the Motion Repair and Services facility.

Figure 2: Gearbox after modifications and refurbishment.

Our Solution: Collaboration and Engineering Expertise

Our team worked closely with the customer's site engineers to identify and implement a solution.

Improved Seal Design:
- Our team collaborated with site engineers to select an improved seal design that would better withstand the gearbox's operating conditions.

Inspection and Consultation:
- Engineers were consulted during the inspection and repair process to ensure alignment on the solution.

Installation and Testing:
- We installed the new seal design, conducted thorough testing after installation, and provided the results to the customer's site engineers for review.

Results: Enhanced Reliability and Cost Savings

The improved seal design resolved the oil leakage issue, delivering significant value to the customer. The gearbox now operates without oil leakage, reducing the risk of failure and greatly improving overall reliability. Additionally, the simplified seal design resulted in cost savings of approximately $8,500 per gearbox rebuild. While not included in the savings calculation, eliminating the daily oil consumption further reduced operating costs. This solution has proven to be scalable, with two gearboxes already converted to the new seal design and nine more scheduled for conversion during upcoming rebuilds. The potential total value of this initiative is estimated at $93,500, excluding the additional savings from reduced oil consumption.

Value Add: Partnership and Expertise

Our team worked closely with the customer's site engineers to develop and implement the improved seal design, ensuring a collaborative and tailored solution. Throughout the process, the customer had full access to our repair shops and technical team's ongoing support and expertise. This coordinated effort significantly enhanced the reliability of the customer's equipment, while every repair was executed to the highest quality standards. The partnership between our team and the customer demonstrates the value of collaboration in achieving long-term reliability improvements and cost savings.

Partner With Us for Reliable Solutions

Our collaborative approach and technical expertise help customers improve equipment reliability, reduce costs, and achieve long-term operational success. For more information, visit MiRepairandServices.com or call 1-800-526-9328.