

## Success Story

Industry: Railway

Application: Underground Train

**Cost Savings: € 140 000**

### Introduction

An overhaul and maintenance company for underground trains in the UK had a requirement to reduce service costs of traction motor bearings by increasing the time between overhauls whilst maintaining reliability. A review of greasing procedures at initial build and maintenance was undertaken by NSK Engineers, with improvements proposed, accepted and documented. Additionally, NSK performed a Condition Analysis of bearings that had completed 6 years in Service. Using this information combined with NSK bearing lifetime analysis techniques, the overhaul period was increased from 4.5 years to 5.5 years, aligning with other components on the train.

### Key Facts

- Railway industry
- Traction Motor bearings
- 140 machines
- Customer required to reduce service costs by increasing the overhaul time period to align with other train components
- NSK solution: Performing a Bearing Condition Analysis after 6 years of service and reviewing the customer's greasing procedures at initial build and maintenance
- This Engineering Support allowed the bearing overhaul period to be increased from 4.5 to 5.5 years
- Reduced service and maintenance resulted in a significant cost saving



↑ Underground Train

### Value Proposals

- The customer had a requirement to extend major overhaul intervals of Traction motor bearings, which had historically been based on vehicle periodicities rather than machine dependant
- NSK engineers performed on-site examination of the Traction Motor bearings that had been in service for 6 years for condition, followed by detailed testing at NSK European Technology Centre, to determine remaining bearing life
- Metallurgical examination was performed which included a Bearing Condition Analysis, microstructure check, wear analysis, hardness testing and grease analysis for contamination and water content
- Results concluded that the bearing life could safely be extended to allow major overhaul intervals to be increased
- NSK additionally reviewed customer greasing methods at initial build and at routine maintenance periods, advising changes to the current procedure to help prolong bearing life

## Product Features

- NSK analysis uses failed bearings to identify the root cause of problems and makes recommendations for improving both the machine condition and the correct selection of bearings
- Visual and tactile test results
- Early wear indication
- Non destructive tests
- Fully documented report



↑ AIP - Added Value Programme

## Cost Saving Breakdown

Before	Cost p.a.	NSK Solution	Cost p.a.
 4,5 years overhaul cycle;140 machines	€ 756.000	5,5 years overhaul cycle;110 machines New procedures extended service life by 1 year and reduced 30 machines per year overhaul	€ 616.000
<b>Total Costs</b>	<b>€ 756 000</b>		<b>€ 616 000</b>