

Optigear 1100 Improves Gear Condition in the Presence of Heavy Water Contamination

MINING (USA)

DRAGLINE SWING GEARBOX

Castrol Optigear® 1100/460*



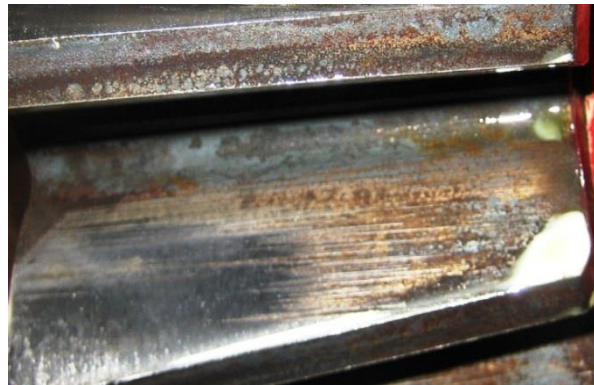
THE SITUATION

A major mining company in Florida was experiencing constant problems with their Manitowoc 4600 dragline swing gearbox. This gearbox is subject to continuous water intrusion. Water drips into the gearbox from the drag cable which is submerged in the pit water during dragline operation.

According to the maintenance group, these gears were replaced 2-3 times during the last 6 years. Average gearbox service life is only 2.5 years.

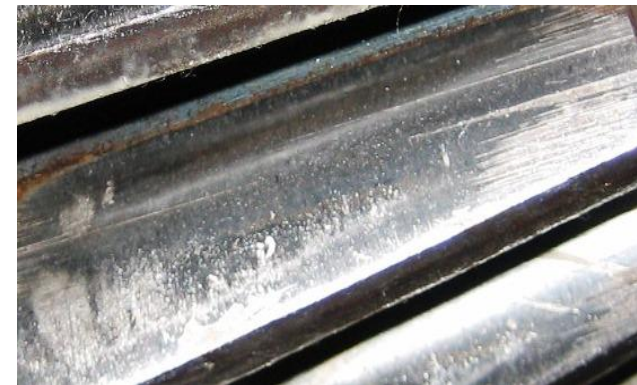
The customer was looking for ways to significantly increase the service life of their swing gearboxes.

BEFORE



Swing gearbox input pinion.
Very heavy staining and rust. Extensive macropitting and initial spalling is present.

AFTER



Swing gearbox input pinion.
No staining or rust present. Teeth surface much smoother, no macropitting or spalling.

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RECOMMENDATIONS

Castrol engineers conducted a swing gearbox inspection. It was evident that the previously used lubricant (SAE 85W-140 oil) was not capable of protecting the gears from wear and corrosion due to the low wear protection and poor water resistance properties. Visually, the gear oil was completely disintegrated and emulsified with water.

After a thorough investigation of the problem, Castrol engineers recommended Optigear 1100/460 gear oil based on the following properties:

- Higher viscosity and significantly better wear protection properties to prolong gear life
- Excellent demulsibility of Optigear 1100. We developed a "Water Draining Task" which was included in the existing 30 minute morning maintenance routine.
- Capability of TGOA proprietary additives to not only prevent wear but also to improve gear condition.

CONCLUSION

Castrol Optigear 1100/460 gear oil has been used in this gearbox for approximately 6 months. The last routine inspection indicated significant gear condition improvement due to the Optigear 1100 unique properties. Gearbox life is expected to greatly exceed the previous average of 2.5 years.

**"Tribol (Optigear) 1100/460
was used in the swing
gearbox with great results".
– (Customer Maintenance
Engineer)**



OTHER POTENTIAL APPLICATIONS

Optigear 1100 Gear Oils with TGOA are formulated with a unique patented blend of oil soluble additives which provide very low friction, excellent anti-wear/EP properties, and advanced surface protection. They can smooth out damage to the gear teeth, reducing the chance of further wear.

The service life of Optigear 1100 gear oil is at least 2 to 4 times longer than major competitors' gear oils.

Optigear 1100 high performance gear oil is the right lubricant for heavily loaded and critical gearboxes.

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