



Proof of Performance

PETRO PLATE M5/800

A Multi Purpose Grease offering maximum protection for Hoist Gear Bearings



Background Information

- **M5/800 Multi Purpose Grease is used to lubricate the bearings and bushings serviced by the auto-lubrication system on CAT shovels.**
- **Hoist Bearings are highly loaded components lubricated by the Multi Purpose Grease system. As the Hoist operates it gives vertical movement to the handle and bucket. One can say that the hoist is the most used component experiencing heavy loads during the digging process.**
- **As the shovel's working procedure is bidirectional the bearings have to contend with continuous stops and starts and low speed operating conditions.**

Multi Purpose Grease Systems

System C1

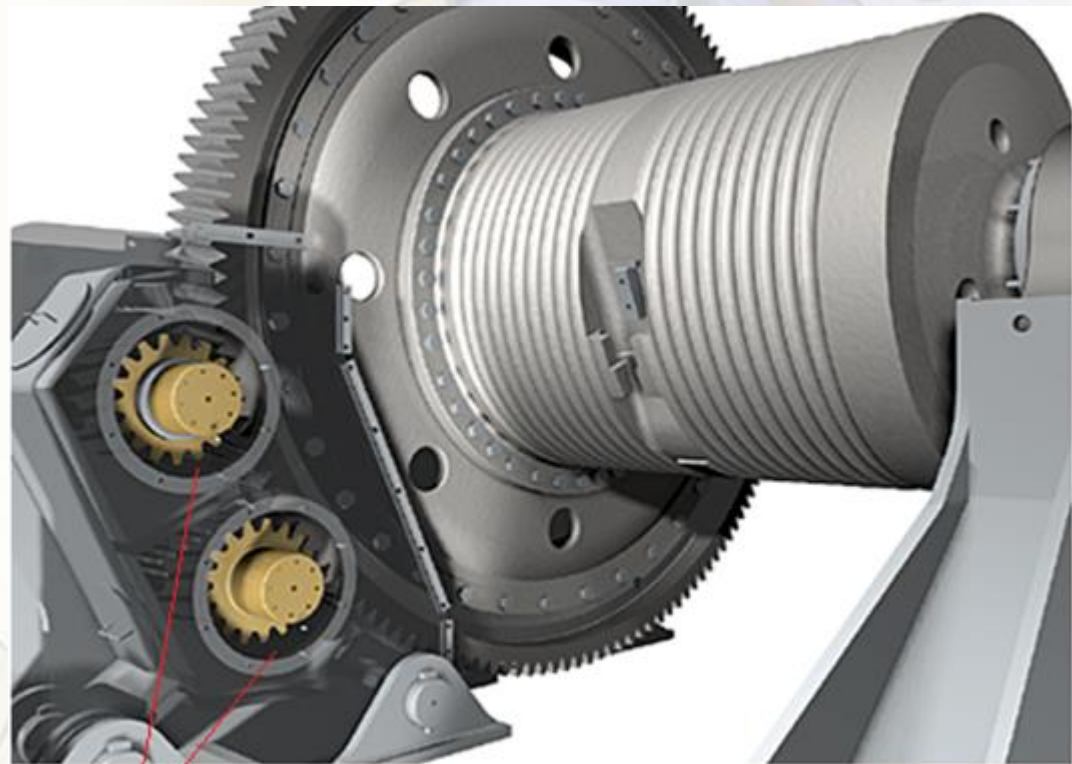
- **Hoist Roller Bearings: upper, lower, left and right**
- **Swing Bearings: front and rear**
- **Hoist Drum bearings: upper, lower, left and right**
- **Crowd Drum, 1st and 2nd inter shaft bearings**
- **Suspension Strand pins**
- **Dipper trip bearings and gear**
- **Boom point sheaves: left and right**

System C2

- **Propel Drive Tumbler Shaft bearings: inner, outer, left and right**

Background Information

Typical set-up of a Hoist Gear system showing where the Hoist Pinion bearings are located.



Hoist Pinion Bearing Locations

O.E.M Average Hoist Bearing Life

Each mine's condition is different, ore body, ore hardness, climate, maintenance procedures etc. vary considerably. There is no exact life expectancy for these bearings given by the O.E.M.

However the most common average life expectancy of hoist bearings operating on shovels working in similar environments according to the O.E.M fall into the following range: 5,000 to 10,000 operating hours

STUDY CASE

A mine in Peru is using our Petro Plate M5/800 NLGI 1 on their 3 CAT 7495 shovels from commissioning. The excellent protection on the different components supplied by the Multi Purpose Grease systems is confirmed by the Hoist Bearing life obtained shown in the picture below and the following chart



45 cm Inner Diameter Bearing from the Upper Pinion during inspection at 8,000 hours

CASE RESULTS

HOIST BEARING LIFE

	Operating Hours at change	Average OEM Life expectancy
Shovel #1		
Upper Pinion Bearings	18,664	5,000 to 10,000
Lower Pinion Bearings	18,487	5,000 to 10,000
Shovel #2		
Upper Pinion Bearings	14,887	5,000 to 10,000
Lower Pinion Bearings	12,849	5,000 to 10,000

NOTES

- Shovel #2 suffered a lubrication system failure that caused the reduced life
- Shovel #3 had only 7,000 hours during this evaluation, but was running without any issue

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CASE RESULTS

From the previous chart the bearings achieved a significant increase in life expectancy through increased protection of the components.

Equipment down time was reduced resulting in increased up time and production.

Resulting savings were well received by the customer

The Increase in the life expectancy average will forge a new trend for CAT shovel bearings.