

HIPPO QUARRIES NATAL
COEDMORE QUARRY

REPORT: P.T.F.E. PRODUCT USED AS AN ENGINE TREATMENT.

DATE : 08.08.90

1. INTRODUCTION

Coedmore Quarry has been using a P.T.F.E. (Polytetrafluoroethylene) engine treatment since August 1988, in the 769 load haul dump trucks, and has recently extended the treatment to all production machines. One of the 769's ran without water which leaked out due to a hose failure while in operation.

2. ENGINE ANALYSIS OF TREATED 769 AFTER FAILURE.

2.1 Background

The 769B, No. 6, had completed 6020 hours, since the last engine overhaul, while the machine had completed 25594. The P.T.F.E. treatment was first applied at 24057 hours, therefore the treated engine had completed 1537 hours and was due for re-treating after 2000 hours at 26057.

The operator did not notice the rise in temperature, only when steam and grey smoke was belching from the engine, and the machine started to become sluggish, did he stop and report to the mechanics. Since the mechanics were busy on another breakdown, they did not get to the machine until approximately 40 minutes later, by which time the engine had cooled considerably. On initial investigation, no defects could be detected, the engine coolant temperature registered normal, so the mechanic had the machine sent up to the workshop, approximately 700 m away. The engine coolant temperature now registered above normal. On investigation, it was found that the hose between the compressor and engine had cracked, causing the loss of coolant. The worst was feared.

2.2 Engine Condition

- The Head had cracked in eight different places. Replaced with a new part from Barlows.
- The Rings were in good condition showing slight wear on the leading edge, on the up stroke, and were considered re-usable. Replaced.
- The Sleeves were in good condition and were only honed.

- Mains and Big Ends were also in good condition, but were replaced along with the rings as a matter of course.
- The Crank was sent away for polishing only.
- The Pistons were in near perfect condition with no cracks or damage, as confirmed by Barlows who inspected and tested them for cracks

The Engine was therefore re-assembled with new head, rings, bearings and gasket set.

CONCLUSION

We are of the opinion that the P.T.F.E. engine treatment prevented far greater damage taking place. This has been the first unfortunate test that has confirmed our belief that this particular type of P.T.F.E. benefits the engine and protects it against wear.

Unfortunately, we cannot state categorically that P.T.F.E. definitely prolongs the engine life as it will be several years before we have an engine which runs the full term of approximately 10 000 hrs, while treated with P.T.F.E.

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