High Performance Coatings, Inc. Since 1982 — There is a difference...™

PERFORMANCE TECHNICAL REPORT

Subject: Caterpillar Engine Performance Gains from HPC Coatings
Date: August 1995
Author: Jeff Holm

Summary

L.E.Tech, Inc. of Lafayette, conducted a test LA on two Caterpillar 399 TAA engines (running on natural gas) for Kerr McGee to determine if the use of specialty coatings would result in increased performance. The use of these coatings resulted in an 11% gain in horsepower.

Test Description

Both engines were damaged in a fire and consequently required overhaul. Both engines were overhauled identically by the same person with the exception of the specialty coatings. The same person tested both engines on the same dynamometer.

The components that were coated are as follows:

Extreme High Temperature Thermal Barrier Coating (E-Series)
- Turbocharger components (external)
- Exhaust Elbows (external)
- Exhaust Bellow (external)

Internal Thermal Barrier Coating (H-Series)
- Power Piston Crowns
- Power Valve Heads

Solid Dry Film Lubricant Coating (S-Series)
- Power Piston Skirts
- Power Valve Stems
- Power Valve Springs
- Camshaft Bearings
- Camshaft Followers (lifters)
- Connecting Rod Bearings
- Main Bearings

HPC WEST
Corporate Headquarters
14788 S. Heritagecrest Way
Bluffdale, UT 84065
801-501-8303
Fax 801-501-8315

HPC SOUTHWEST
6313 W. Commonwealth Place
Chandler, AZ 85226
480-753-1320
Fax 480-753-1329

HPC CENTRAL
400 N. Glade Ave.
Oklahoma City, OK 73127
405-789-2888
Fax 405-789-2885

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Results

	Standard Engine	Coated Engine	OEM Spec
Speed attained	1200 RPM	1175 RPM	1200 RPM
Inlet Air Temp	94°F	103°F	90°F
Max. Horsepower attained	933 BHP	1030 BHP*	930 BHP MAX

* Maximum capability of test cell.

The personnel conducting the test made the following observations:

1. The coated engine ran smoother.

2. The coated engine maintained lower exhaust gas, oil, and coolant-water-jacket temperatures.

For more information please visit our website at www.hpcoatings.com or call our technical support department toll free at 1(800)456-4721.

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