Diesel Engine
Using Catalyst

Results of Dyno Test of Cat 3408

Courtesy of Andy Page and David Marchiori Holt Caterpillar Dyno demonstration

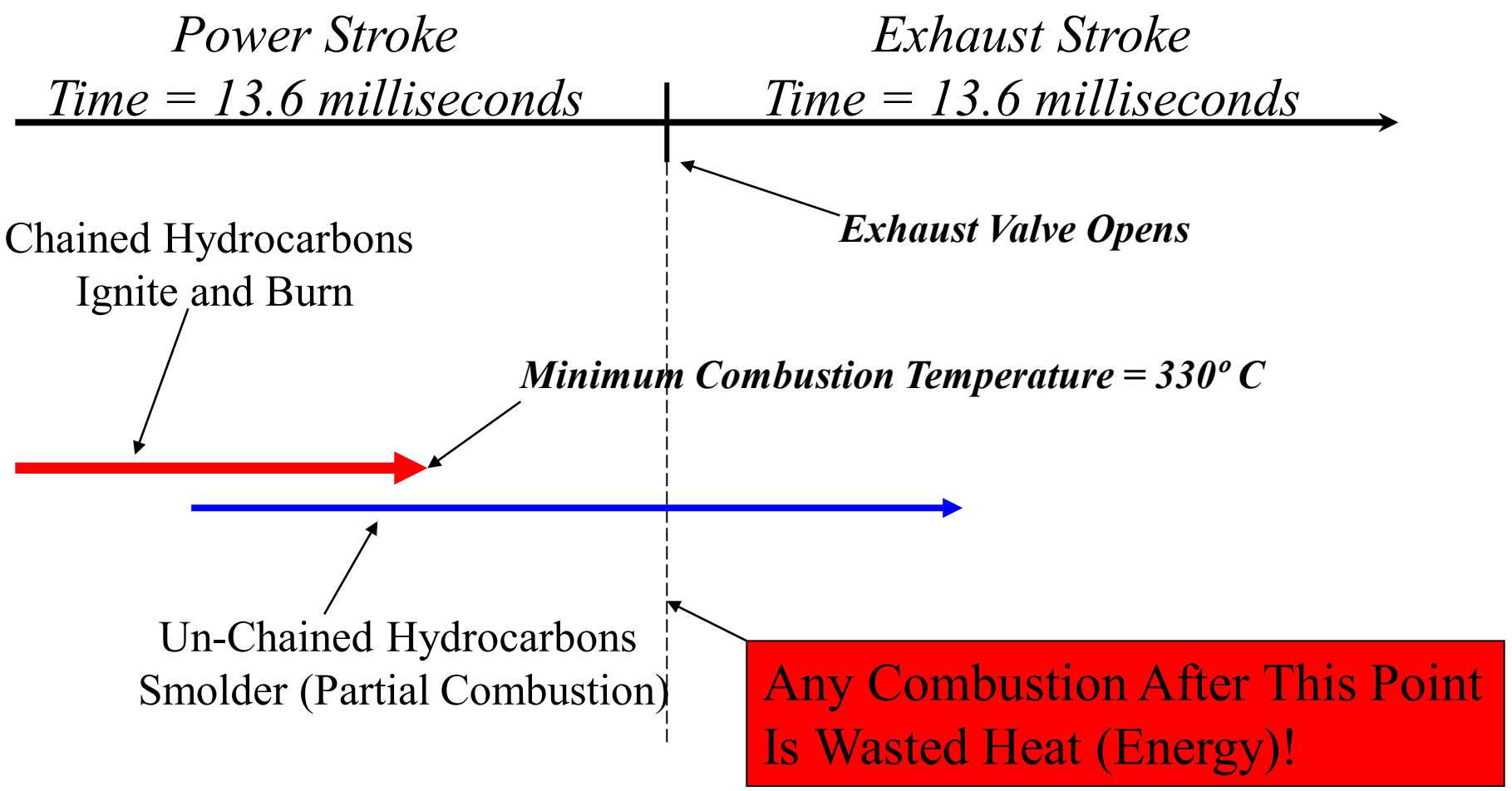
What Is It?

- Tiny amounts (~70 parts per billion hydrocarbons) of platinum, proprietary catalyst blend and accelerators are injected to the intake air stream of an internal combustion engine. Burners and boilers injection into combustion air.

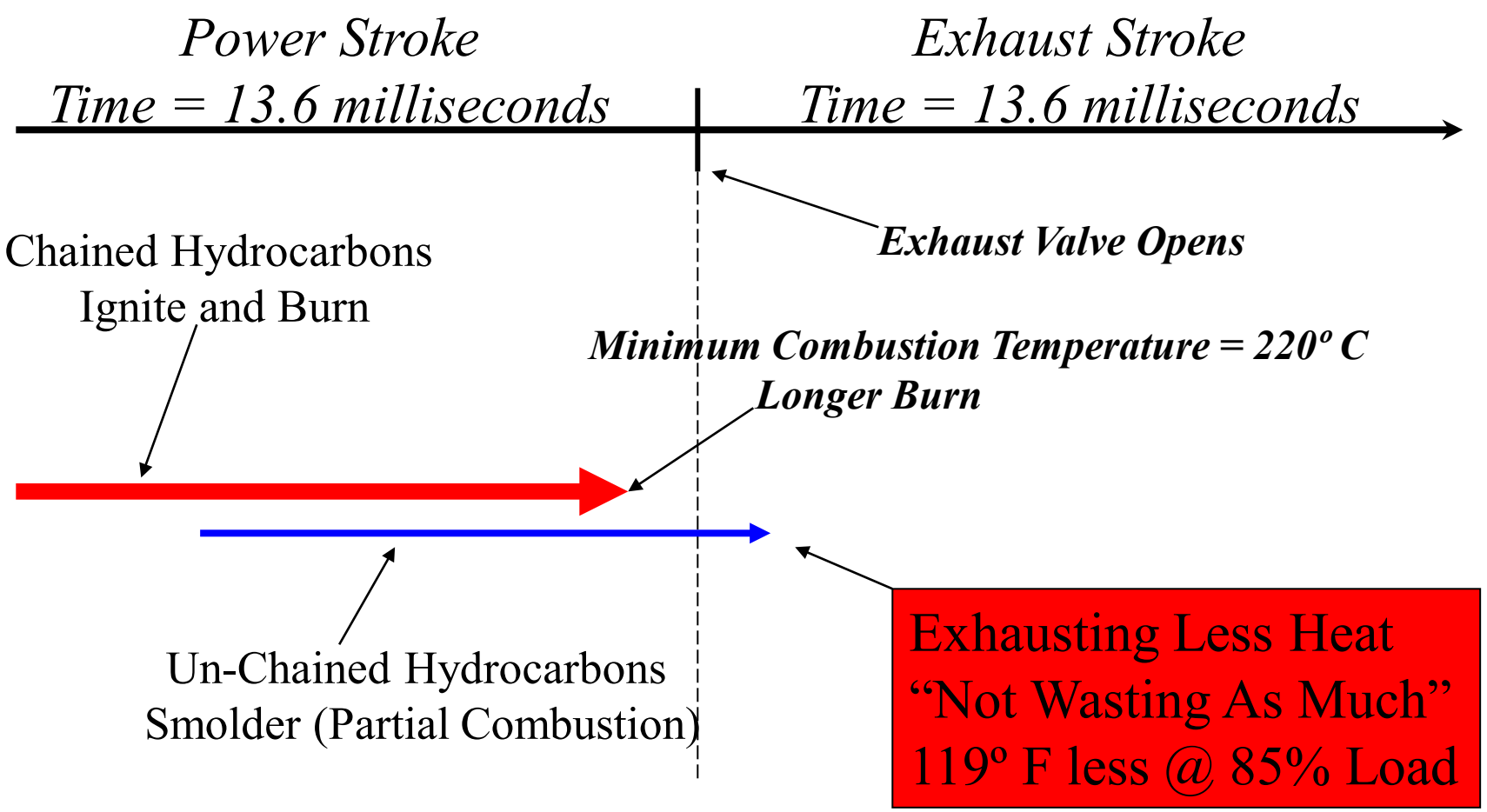
Effects of Platinum

- Lowers the minimum required temperature for hydrocarbon combustion.
- Splits Oxygen molecules into radical Oxygen atoms which provides more usable Oxygen for combustion.

Before Catalyst



After Catalyst



Fuel Reduction?

If the engine is exhausting less heat…

then the engine must be using the heat on the power stroke…

therefore the engine must require less fuel to perform the same job!

Yes – ~10% less @ 50% load

~6.7% less @ 85% load

Increased Horsepower?

If the engine is using more of the heat from combustion for the power stroke…
There must be an increase in available static torque or horsepower!

Correct!

Cat 3408 tested on a water brake dyno showed an increase in maximum horsepower (Hp) from 447 Hp to 520 Hp or 16.3%.

Cleaner Emissions?

If the engine uses less fuel…

and burns the rest of the fuel more efficiently…

then the gaseous emissions from the engine must be less!

Correct!

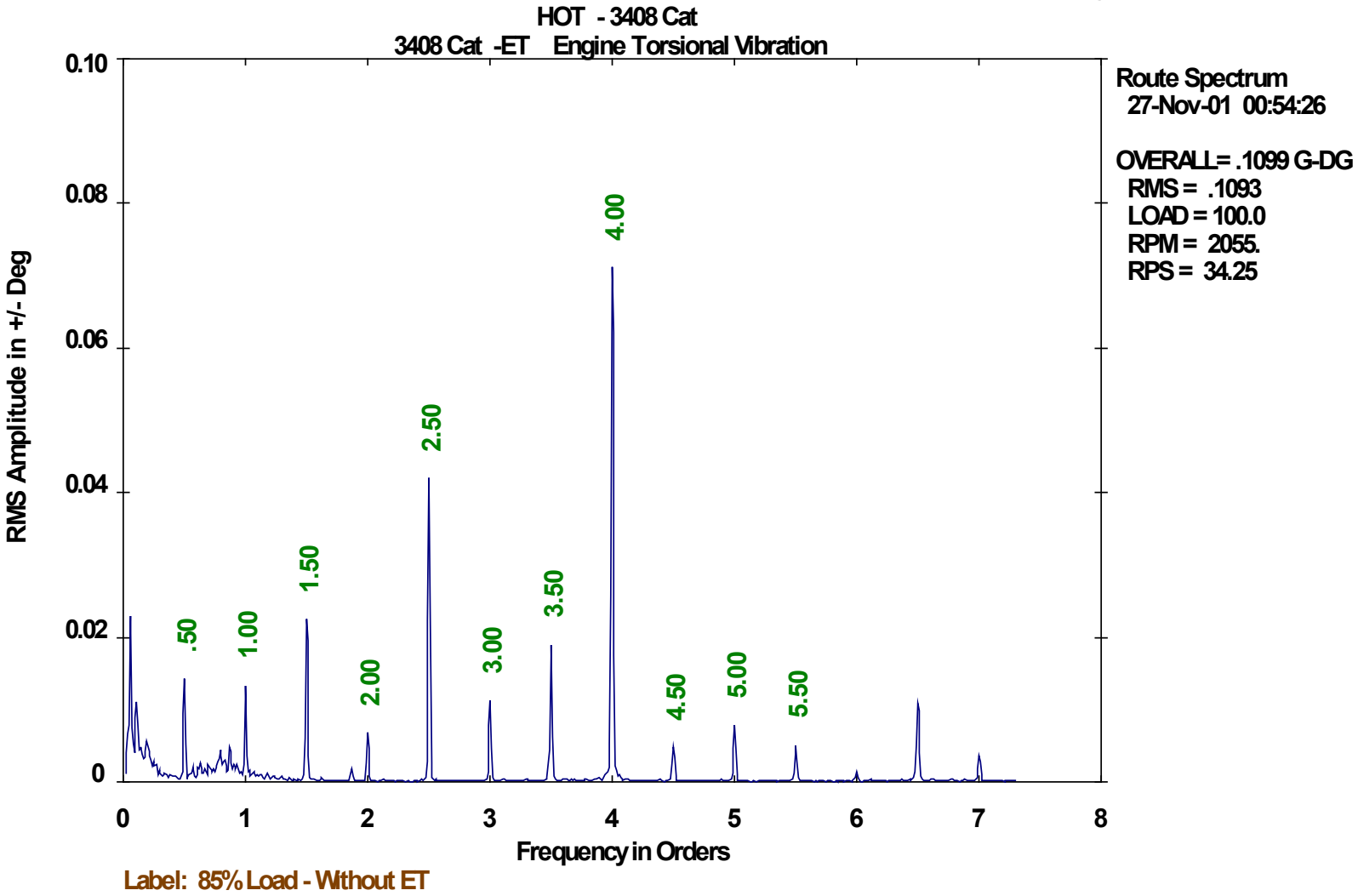
Opacity	-79%
Carbon Monoxide	-60%
Hydrocarbons	-66%

Smoother Running?

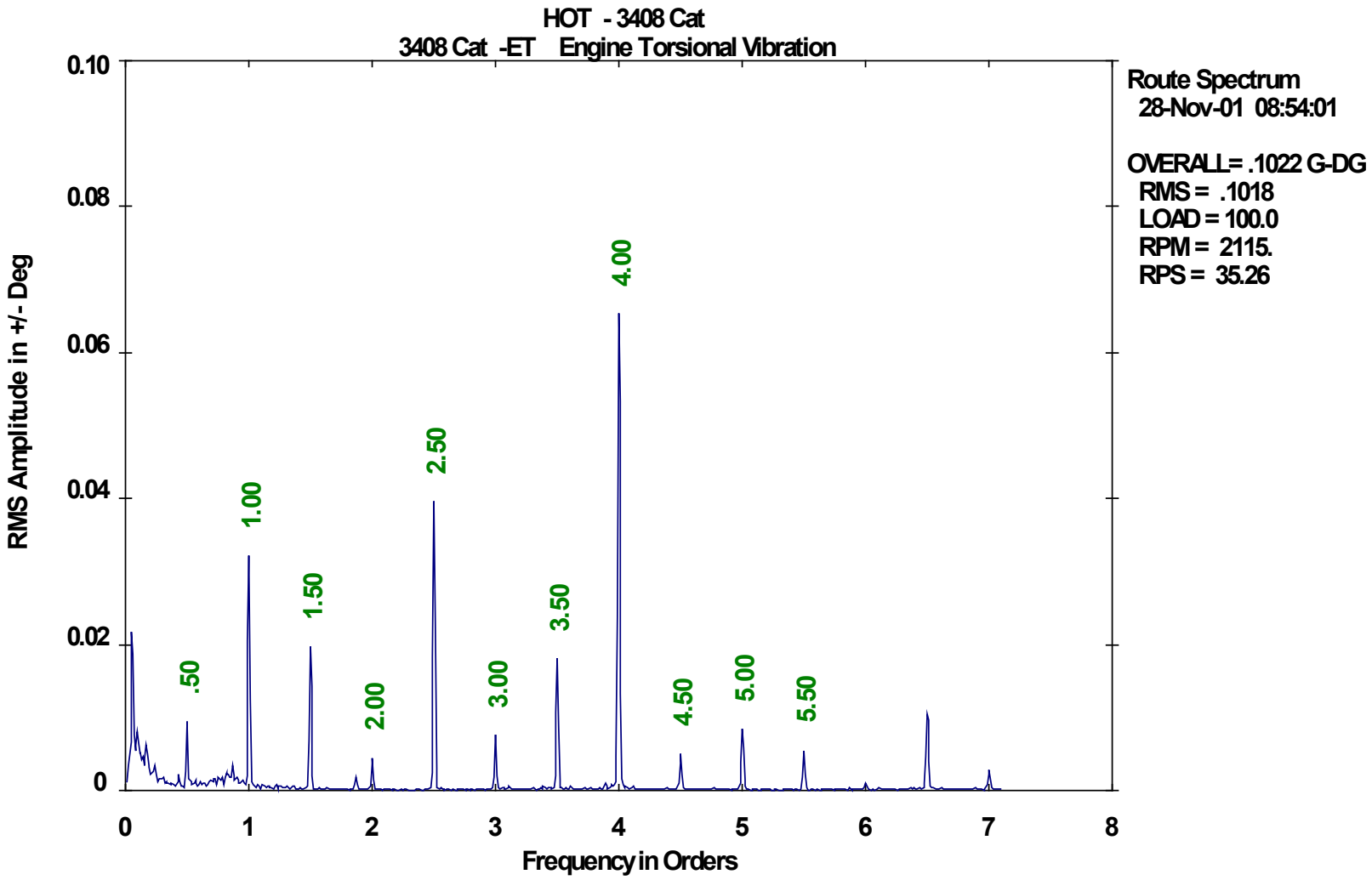
If combustion is more powerful and more even…
then the vibration and torsional measurements from the engine should go down…
and the ultrasonic energy from combustion should go up!

Correct!

Torsion – Before Catalyst



Torsion – After Catalyst

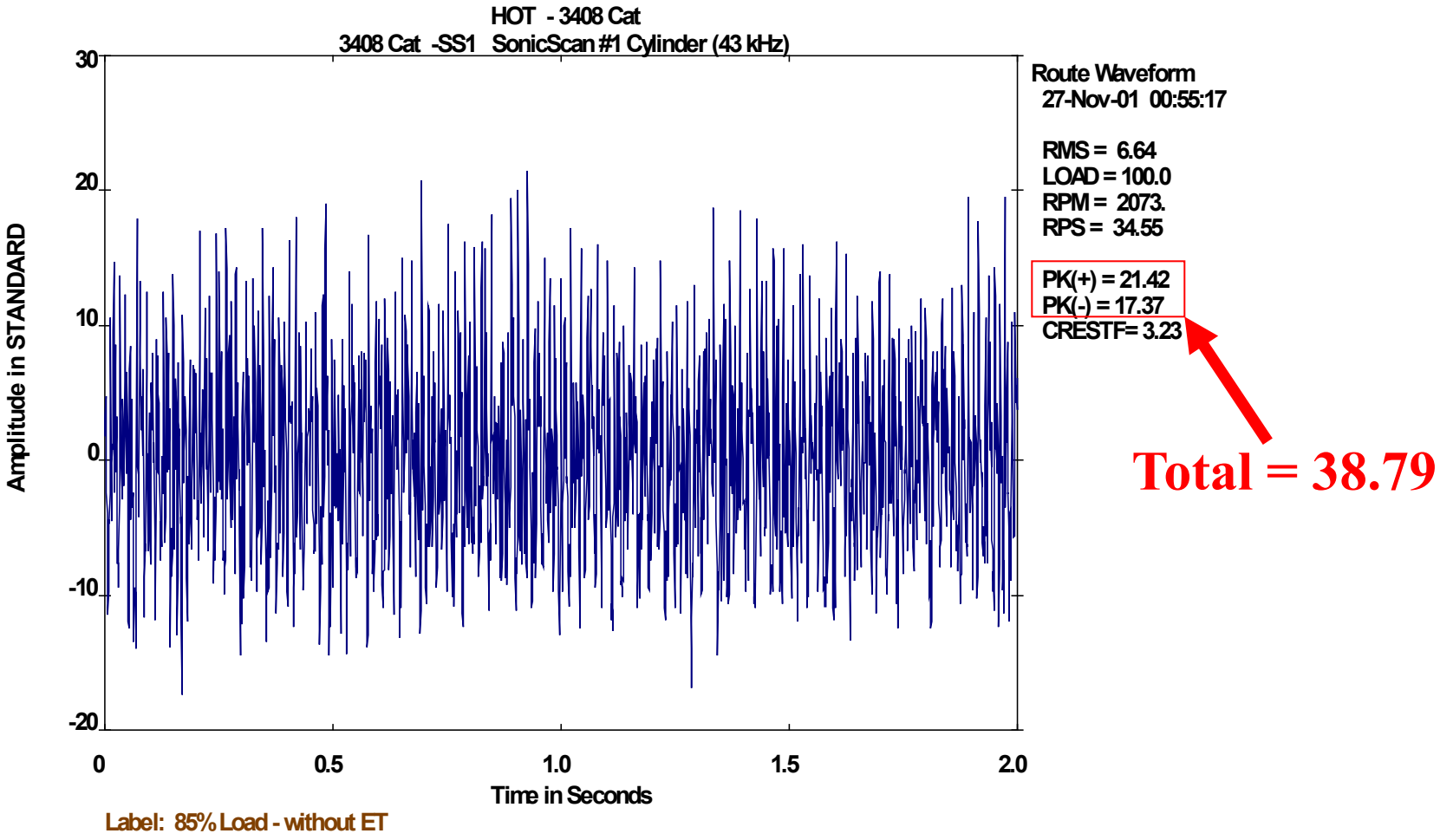


Summary of Torsional Data

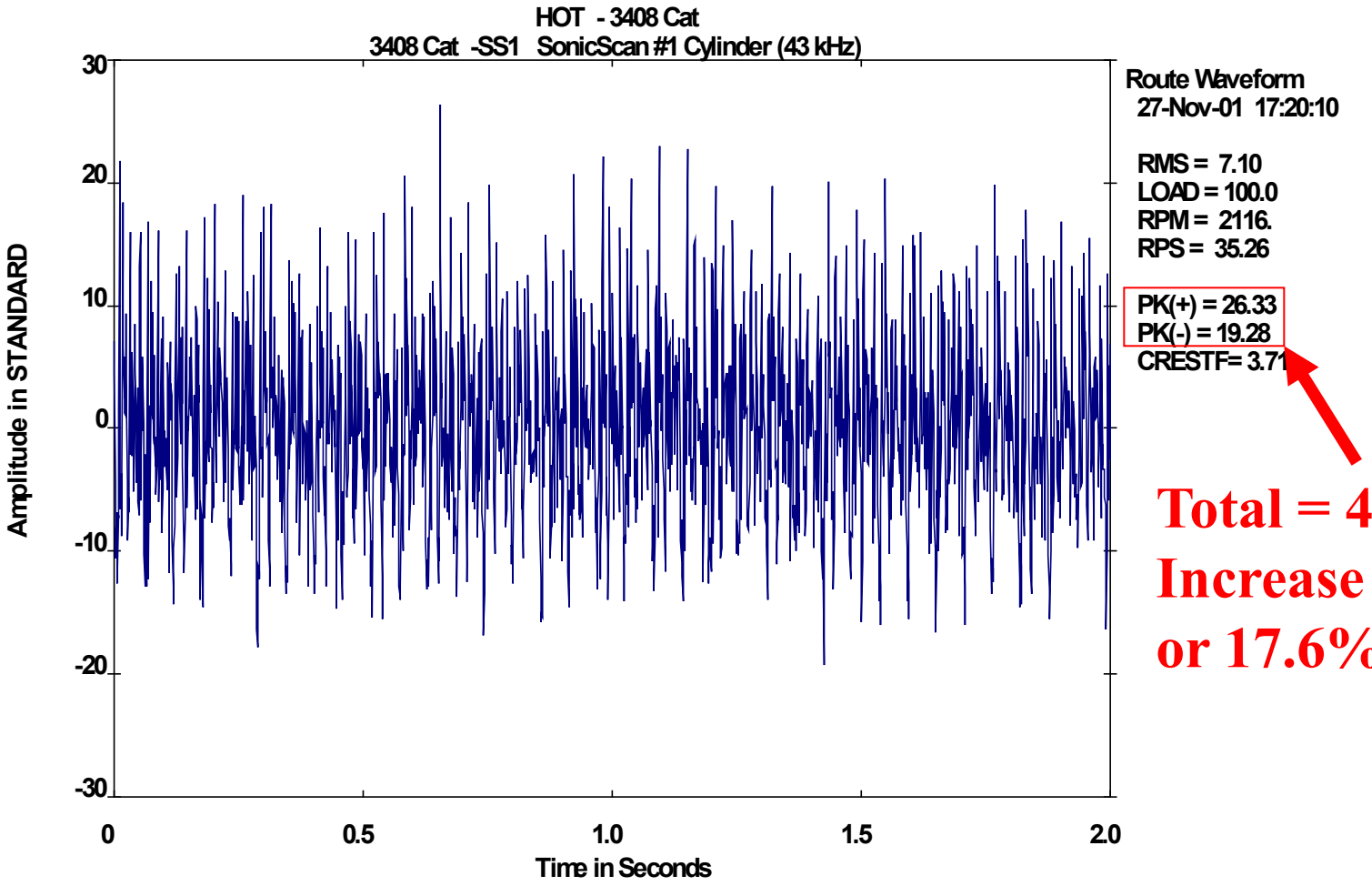
Harmonics	% *Change*
0.50	-27%
1.50	-21%
2.00	-23%
2.50	-5%
3.00	-27%
3.50	-24%
4.00	-24%
4.50	-6%
5.00	-5%
5.50	7%

Reductions in the torsion or the "dynamic torque" of an engine means that the engine is running smoother and that is less strain on the rod bearings and main bearings, resulting in longer engine life.

Ultrasonic Data – Before Catalyst



Ultrasonic Energy – After Catalyst



Total = 45.61
Increase of 6.82 or 17.6%

Summary of Ultrasonic Data

Before Catalyst -	40.63 dB*
After Catalyst -	43.93 dB*
Net Change	3.3 dB or 8.13%

This means that upon ignition the "Pop" is 8.13% larger which equates to more static torque or more horsepower.

** - Averaged over cylinders 1,3,5,7*