

Quiet Solution

Dynamic test of NoiseKiller Sprayable Damping compound.

Report 6045

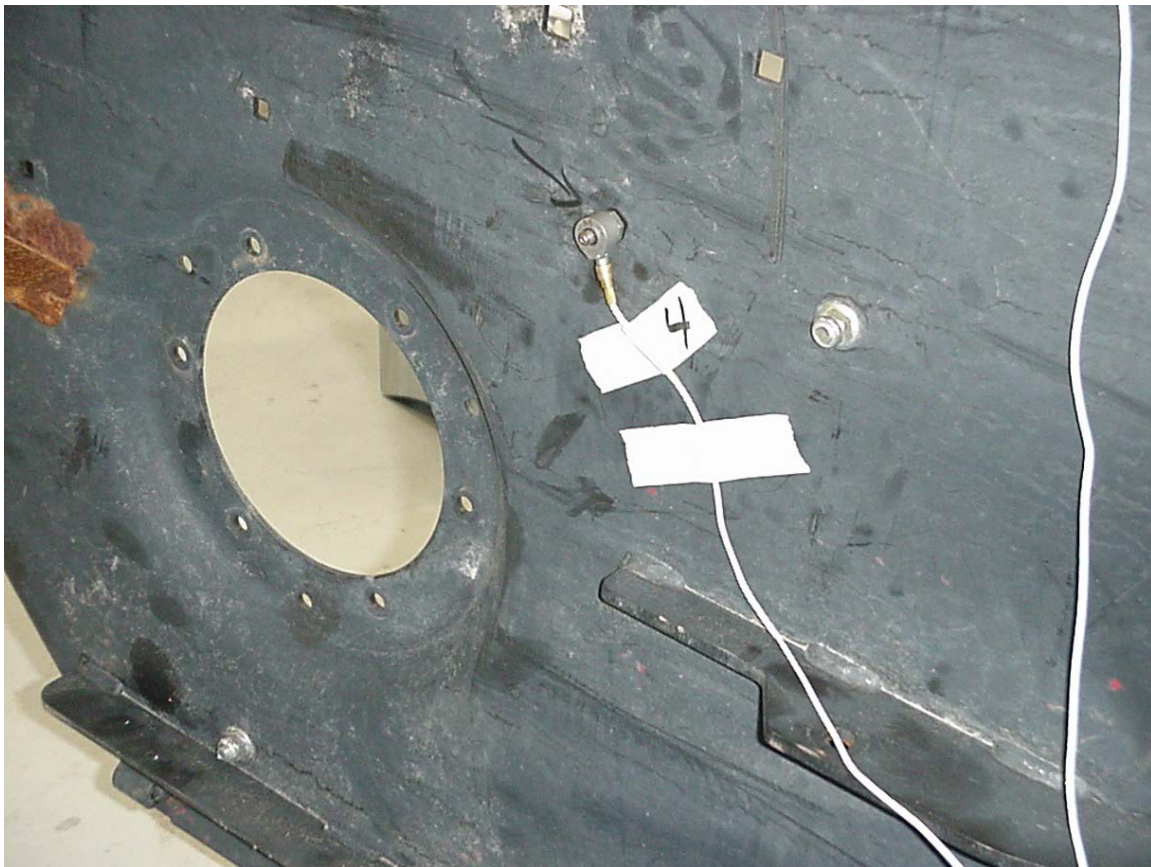
July 9, 2002

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Introduction;

Vibration testing was conducted at the Dynamic Labs facility, 2210 East Magnolia Street, Phoenix, Arizona. The purpose of the study was to document the dampening characteristics of spray-on soundproofing product for the specific application on a lawn-mower deck.

The measurements were taken twice. Once on June 18, 2002 before the dampening product was applied and a second time on June 26 after product application. One application of the dampening product was used.



The dampening product is manufactured by **Quiet Solution** and is sold under the trade name **NoiseKiller**.

The following instrumentation was used during the tests;

- Data Physics 430 Signal Analyzer, System 3813
- Kistler Modal Hammer, Model Number 9728A20000, Serial C111192
- Endevco Accelerometers of Model 7251A-10 and serial numbers: 11170, 11154 and 10120.

All equipment is NIST traceable and documentation of calibration is available upon request.

Three accelerometer locations (2, 3 & 7) were measured and analyzed. See Photographs.

Table of Figures

Location	Figure Numbers		Comments
1	1a	Off Axis	Time History
	1b	Off Axis	PSD, Narrow Spectral
2	2a	Edge	Time History
	2b	Edge	PSD, Narrow Spectral
3	3a	Top	Time History
	3b	Top	PSD, Narrow Spectral Density

Data was sampled at the rate of 20,838 samples per second.

A modal hammer was used to strike the mower deck. The deck was hit on the top of the deck on its right side. Peak force levels were measured as:

- 500 lbs, 0-p, 7ms duration for the case of mower deck without dampening
- 650 lbs, 0-p, 7ms duration for the case of the mower deck with dampening

All plots were normalized with the appropriate force peak data so direct before and after comparisons can be viewed in separate plots.

Survey Results;

The data is presented so that comparisons can be made in the time and frequency domain.

- a. Power Spectral Density Plots: Narrowband spectra having a fixed bandwidth. This narrow band data is used for determining the modes of the mower deck.
- b. Time History Plots: Showing the decaying function of the time history.

All three locations are plotted in terms of time and frequency. The before and after cases are plotted in separate charts and a direct comparison can be made between the cases.

Conclusions:

The survey shows that approximately 50% reduction of energy is obtained after a single layer application of NoiseKiller.

Paul Jackson
Lead Engineer

Attachments;

Chart location 2
Chart location 3
Chart location 7

Time History
Location 3

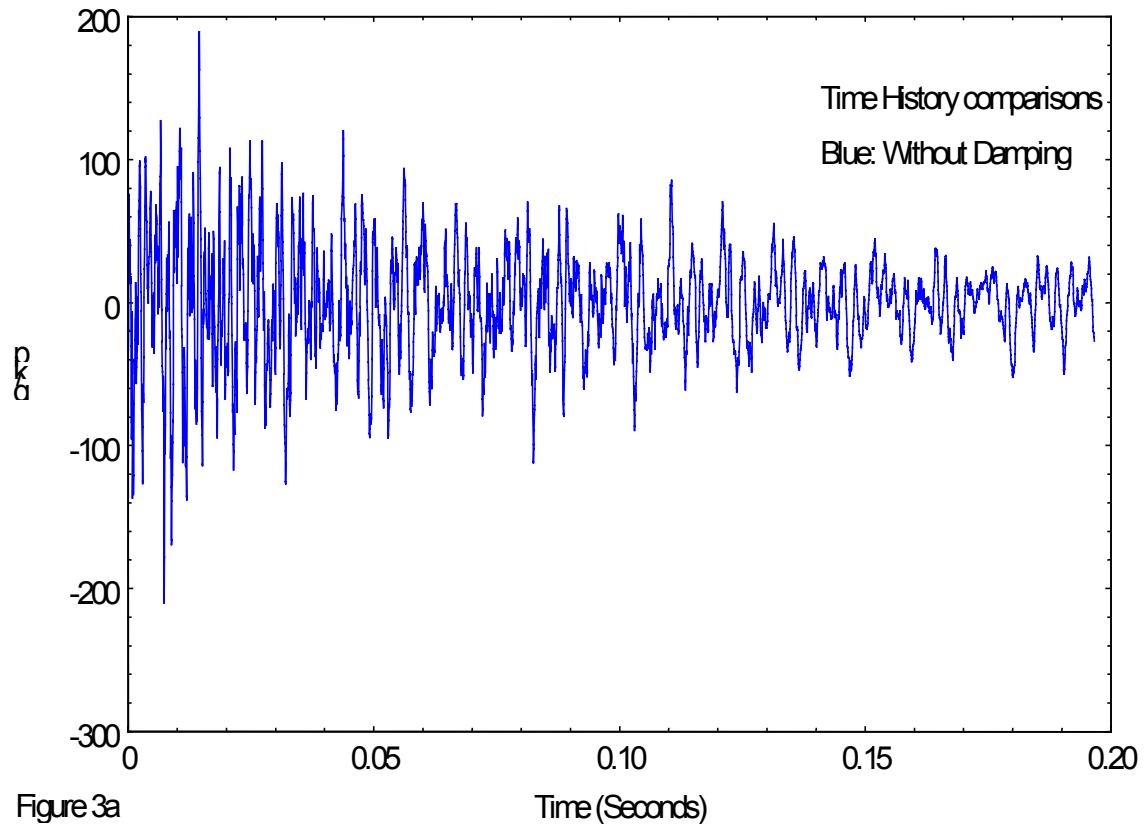


Figure 3a

Time History
Location 3

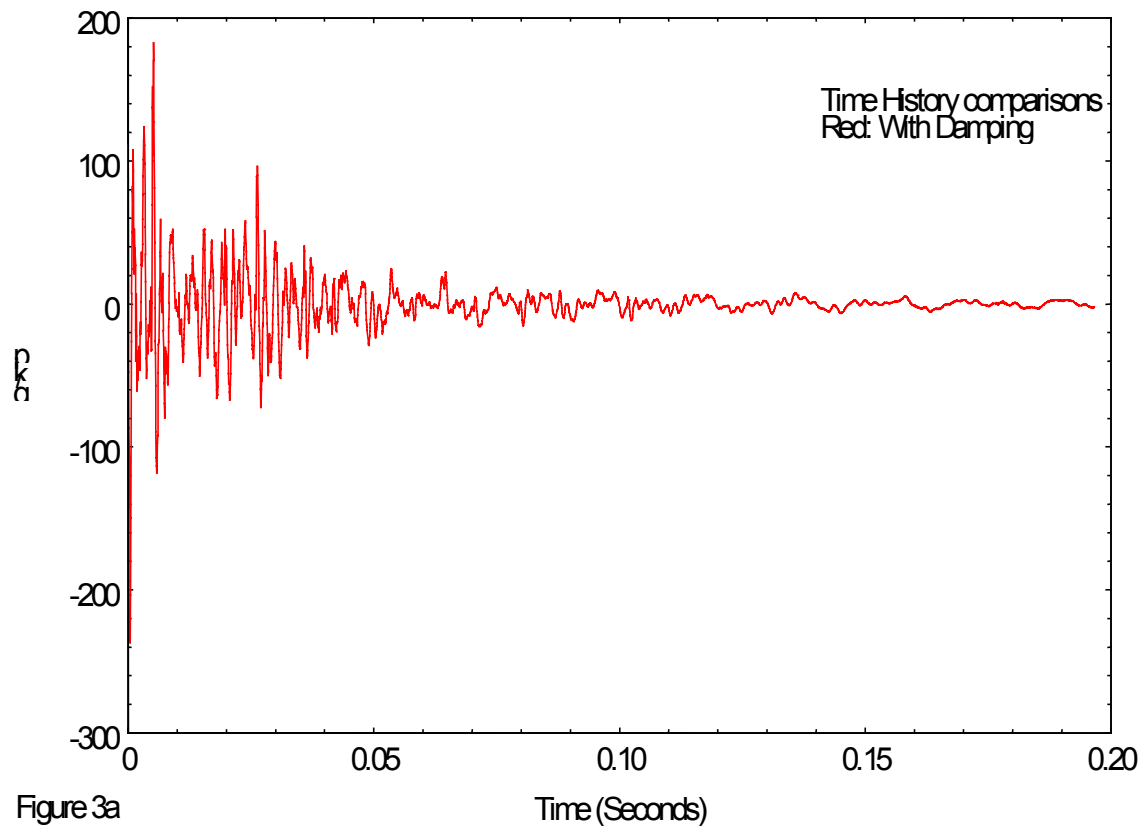
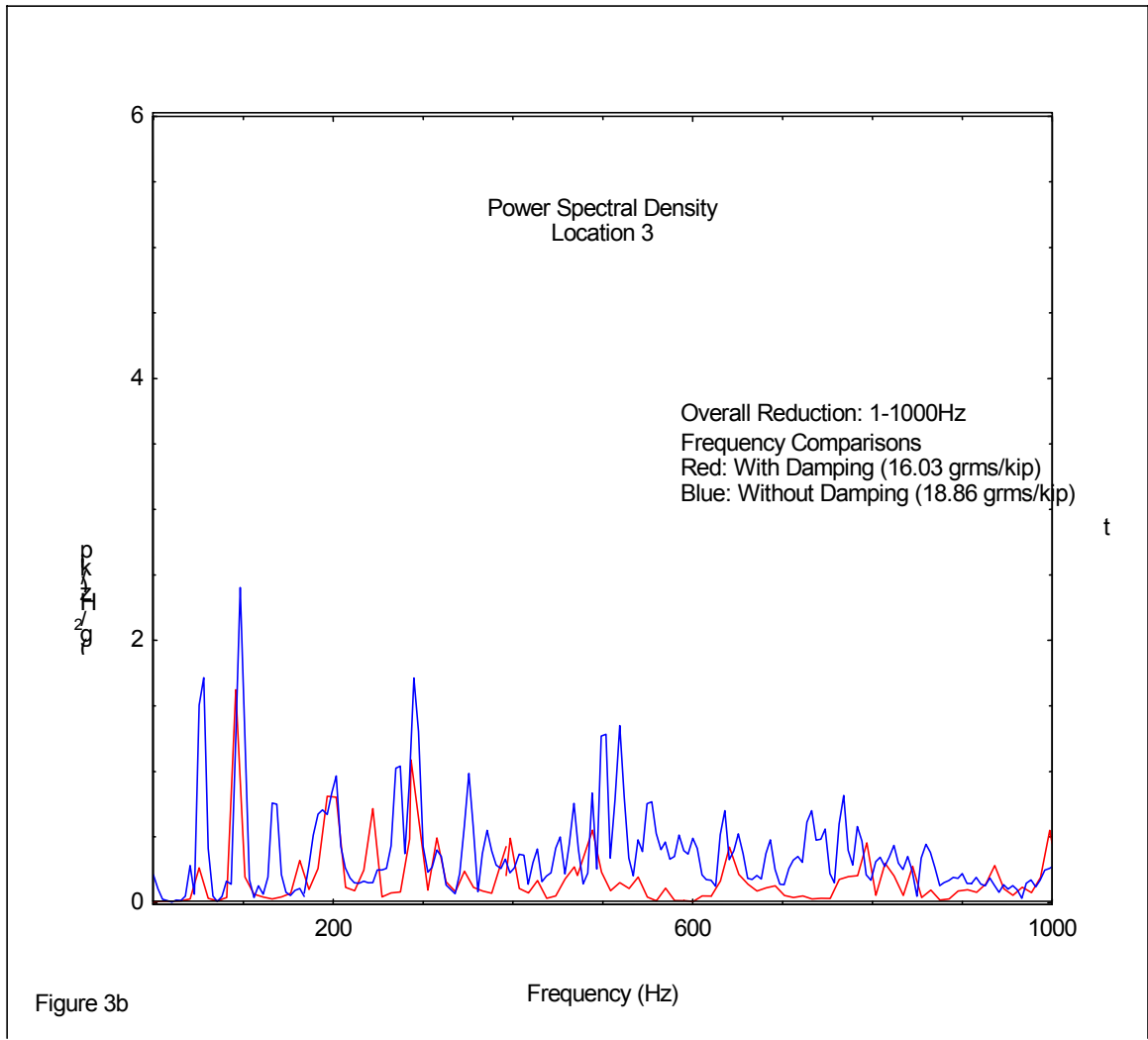
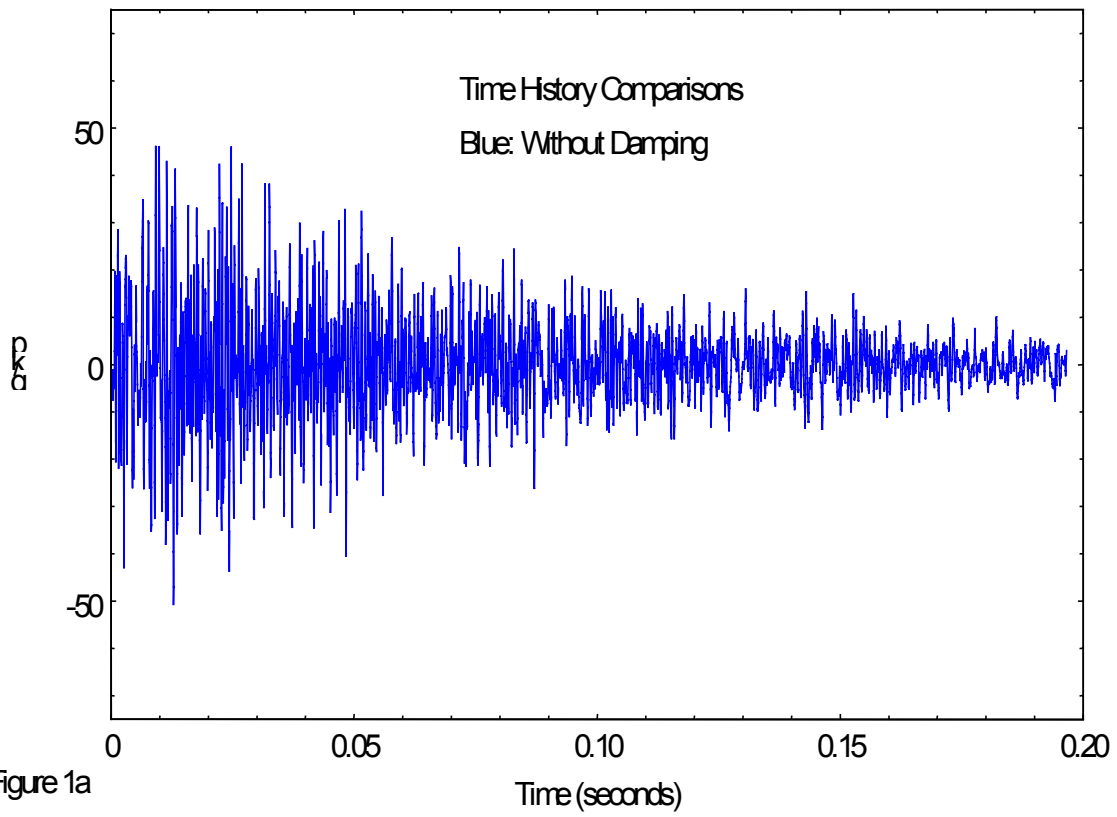


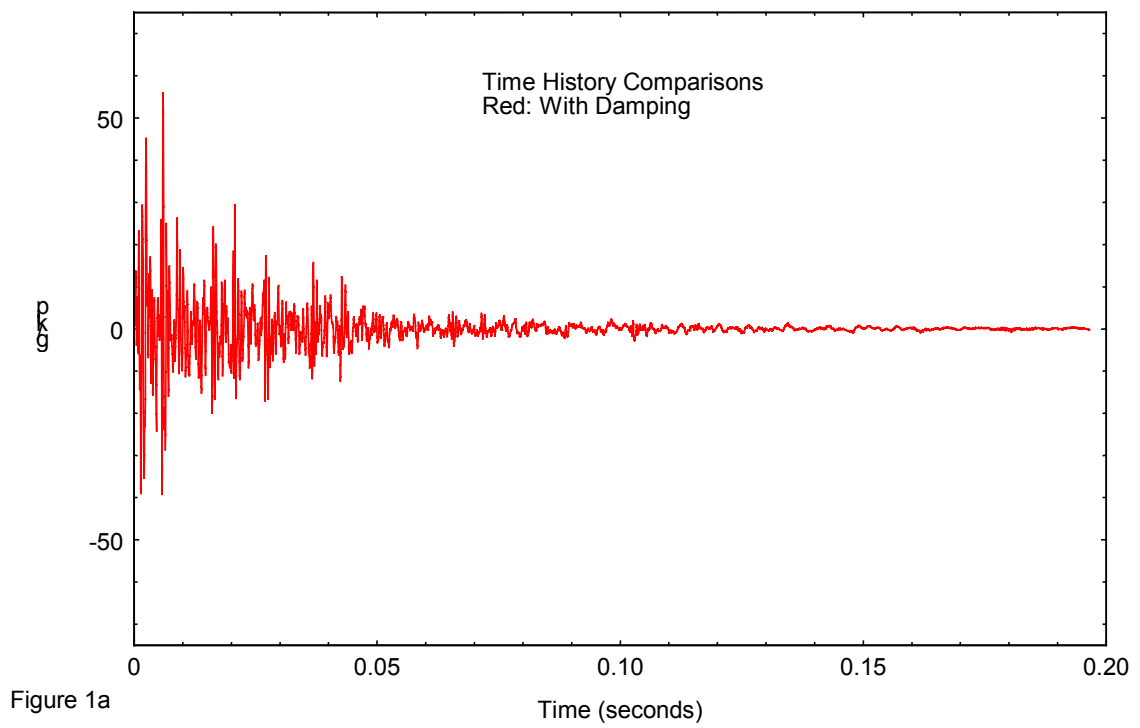
Figure 3a

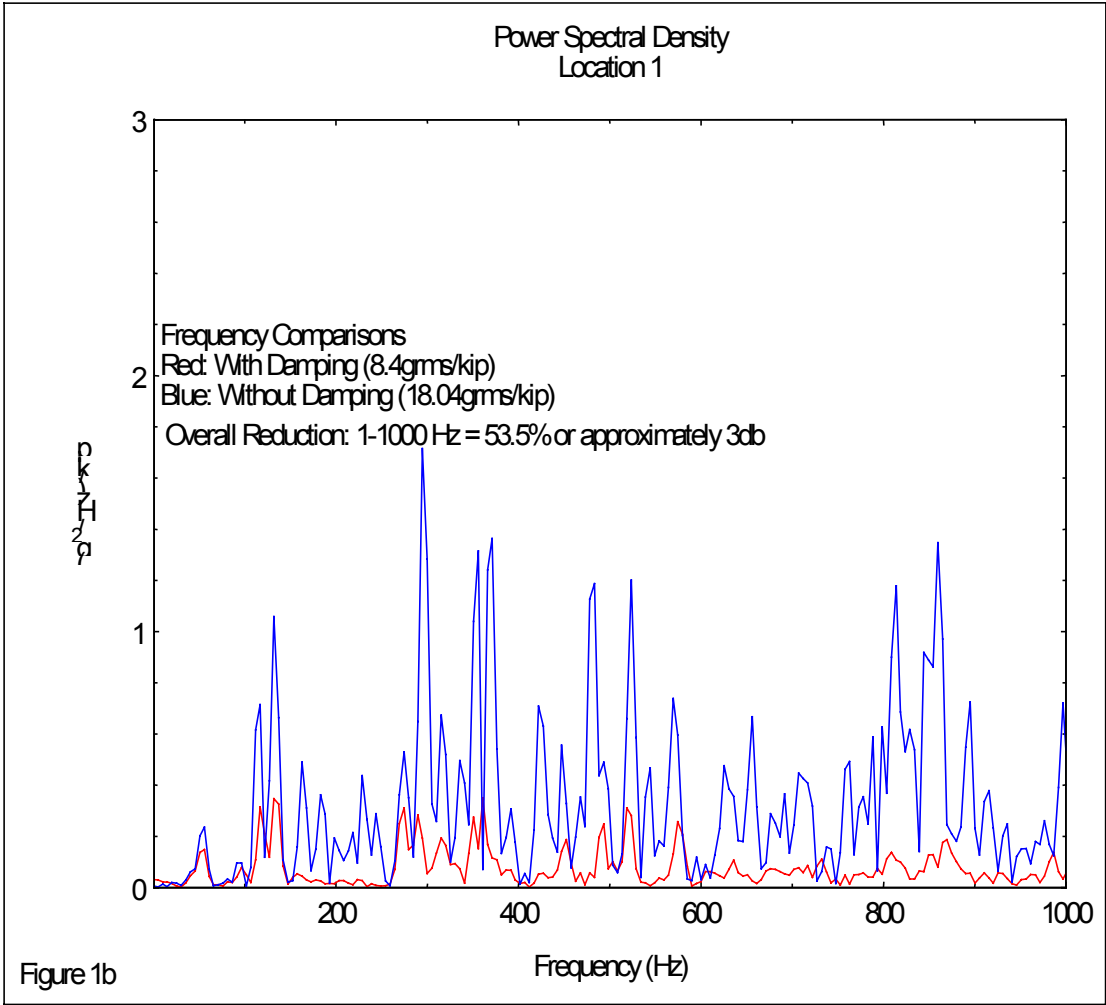


Time History
Location 1



Time History
Location 1





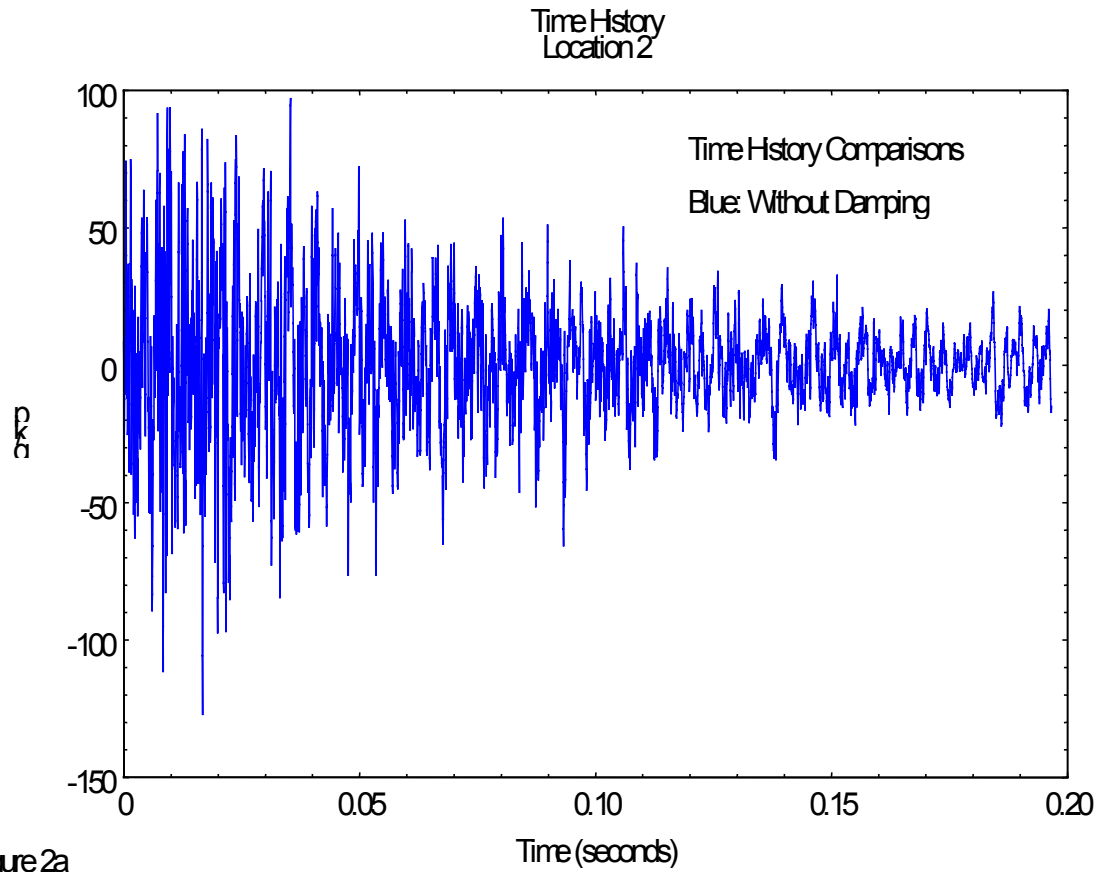


Figure 2a

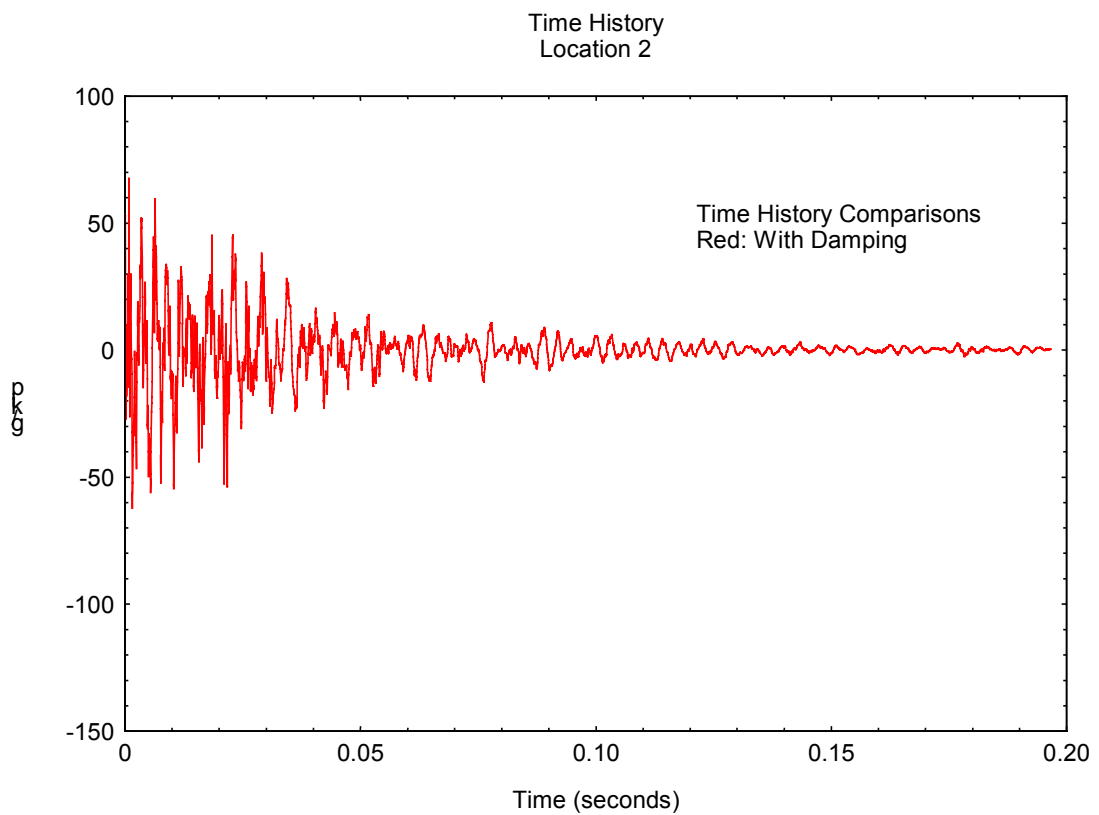


Figure 2a

