



THE PLANGENT PROCESSES PLAYBACK SYSTEM is a hybrid hardware/software package combining state of the art contemporary analog electronics coupled with unique digital signal processing. It begins with an ultra-wideband low-distortion custom reproduce head and subsequent associated hand-wired preamp, followed by proprietary DSP that provides total speed stabilization and wow and flutter correction. This unique combination of integrated hardware and post-processing provides the archival mastering and preservation community a level of playback quality never before possible.

Every analog magnetic recording starts with a motor dragging a rusty strip of plastic over rollers and guides, across scraping metal parts. Unfortunately, every inconsistency in the speed of the tape as it traces this obstacle course distorts the music being recorded. The transport's various imperfections create an ever-changing matrix of speed variations, slow or fast, subtle or severe. At worst, this results in the familiar warps and warbles known as "wow" and "flutter." It can even (as in the famous case of Miles Davis' "Kind of Blue") cause a perceptible tuning change over time. Even the very best analog recordings - wherein the obvious wow and flutter are fairly well under control - are nevertheless affected by varying and shifting patterns of high frequency flutter, causing random beat frequencies to be introduced which seriously interfere with the natural harmonic structure of the musical material. Further, in many otherwise well-designed machines there exists a phenomenon called "scrape flutter" which is a combination of the oxide rubbing against the head and physical resonance of the tape as it spans unsupported

area between guides and heads; a significant source of distortion and noise modulation.

Until now, there was no way to eliminate these defects and to regain the neutrality and transparency originally in the mix at the console output. But by using our unique combination of a wideband low-noise repro capture system and forward-thinking DSP it is possible to correct these artifacts.



THE HARDWARE

- Custom Plangent/Flux Magnetics stereo head assembly standard - up to 16 track on special order (24 coming soon)
- 4 Channel Playback preamp standard - other configurations available on special order
- Precision de-emphasized outputs (4X) adjustable to NAB/AES/SMPTE/IEC curves
- Flat simultaneous outputs (4X) "direct from the head" allowing de-emphasis curves in DSP
- VHF output flat to 1MHz for bias capture and archiving
- Heterodyned (mixed) carrier output for bias capture and storage as "Mechanical metadata"
- Other custom head and preamp configurations available

WOW! (And I mean that in a good way!) The wow is gone, it sounds great! I can't hear any degradation in the sound at all!

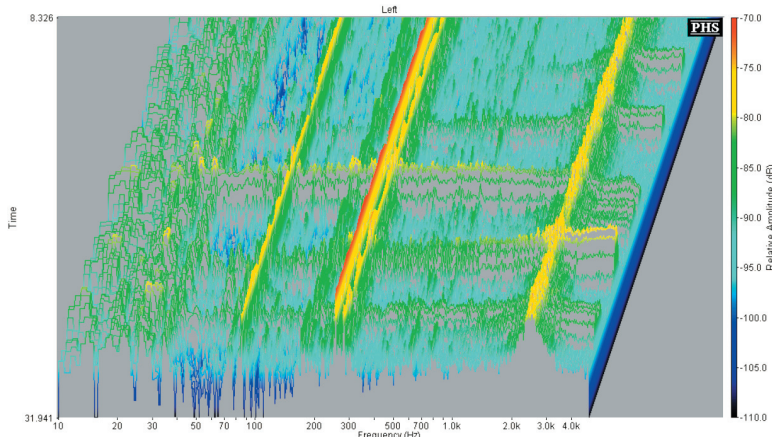
– Ellis Burman (Audio Mechanics, Burbank)

Anybody who does a transfer without using this is nuts!

– Phil Ramone

I've used Plangent Processes on a variety of projects for the Grateful Dead on older 16-track tapes as well as 2-track 7.5 ips material. The benefits of using the Plangent Process were added imaging, and outstanding clarity of the audio and pitch solidification...while keeping the original analog warmth.

– Jeffrey Norman (Grateful Dead Productions)



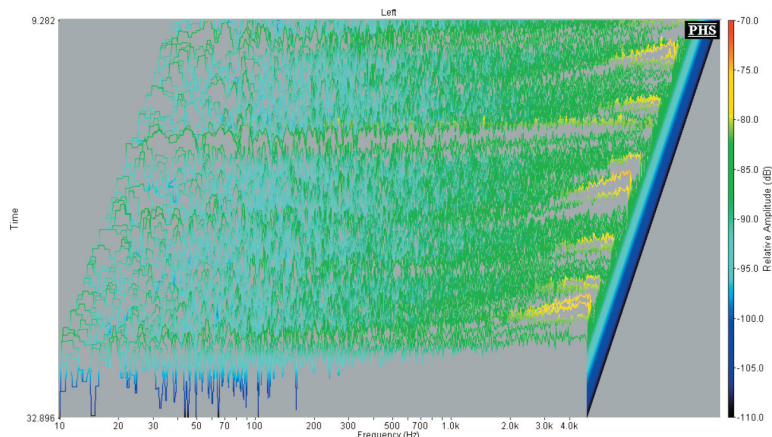
BEFORE

Elvis Presley - "That's Alright, Mama"

1956 30IPS RCA copy master of the Sun Session original

3D Waterfall FFT of wow and flutter spectrum

Note ridges of specific fast flutter at 86Hz and 240Hz and scrape flutter at 2.5 kHz.



AFTER

Elvis Presley - "That's Alright, Mama"

1956 30IPS RCA copy master of the Sun Session original

3D Waterfall FFT of wow and flutter spectrum

Note overall reduction of wow at low frequencies (left area) and flutter is eliminated.

THE DSP

After capturing the audio and the VHF signal from tape Plangent offers a laboratory forensic service that reduces or in many cases removes entirely all speed drift, wow, and flutter from the record/playback. This correction is capable not only of fixing long-term pitch issues but it is also of sufficient resolution to correct even the fastest flutter - including scrape flutter - of the original machine, which yields a much lower distortion output from tape than otherwise possible.

The charts to the left show the eradication or substantial reduction of these artifacts - in a 50 year old recording - mitigating both the early tape recorder's flaws and even minimizing the subtle effects created by a modern perfectly maintained playback machine at a world-class mastering facility.

Unique in the analog to digital world is this particular correction step; this is the only currently available process that reduces known errors and distortion of analog playback in the digital domain without subtracting from or diminishing the quality of the original program content. The result of this novel state of the art DSP is a stunning stability and transparency previously unheard from these classic sources - even surpassing the raw playback directly from the analog source.

Retrofitted to your classic tape transport, Plangent Playback provides the finest contemporary analog electronics, followed by the most modern DSP available - in the service of delivering the highest fidelity analog audio playback on the planet today.

CLIENT LIST

Sony Pictures
Fox Video
Neil Young/Redwood Digital
Warner/Rhino
Grateful Dead Productions
Chace Productions
Airshow Mastering
Audio Mechanics

Feature Films (partial list):

South Pacific
Oklahoma!
West Side Story
Close Encounters of the Third Kind
From Here to Eternity
Young Frankenstein

Music (partial list):

Grateful Dead "Egypt" "Live at the Cow Palace" "Winterland"
Neil Young "Archives Volume 1"
Woody Guthrie "The Live Wire" - **Winner of Best Historical Grammy 2008.**