

Customer Testimonial

Featured Company: Pfaff Racing Engines

Meta-Lax® Dramatically Increases Life of High Performance Parts

Stress Relief

Often, heat-treating processes are employed

Lax sub-resonant stress relieving process and the process has proven itself to be "equal to or better

to reduce the internal stresses present in a part after production. In many cases, these thermal stress-relief processes are very effective in reducing the magnitude of internal stresses. Thanks to Bonal Technologies, Inc., the Meta-Lax stress relief process offers an appealing alternative to the thermal processes. Bonal Technologies, Inc. has patented the Meta-



Here's just a few of the items which can be treated with the Meta-lax process. Both ferrous and nonferrous materials can benefit from this sub-sonic stress relieving.

than any other stress relieving process in both consistently successful results and in method of verification," says the company.

Meta-Lax

Recently, we paid a visit to Paul Pfaff Enterprises of Huntington Beach,

> California to see the Meta-Lax process in action. Paul Pfaff is a well-respected engine builder in both automotive and marine circles. **Paul**



This graph shows a complete Meta-Lax process. Initially, the measure resonant frequency was at 162 Hz. After the Meta-Lax process, the part was relaxed so that the new resonant frequency was only 152 Hz. Pfaff incorporates the Meta-Lax process on every engine which carries his name and also provides the service for customers who assemble their own engines. While at the shop, Paul demonstrated the Meta-Lax process.

First, the parts to be treated are bolted to the shaker table. Next the transducer is mounted to the table. After this initial set-up process is complete, the parts are shaken to find the resonant frequency) more on resonant frequency later). The parts are then shaken below their own natural frequency. After having the Meta-Lax machined shake the parts for 30 minutes at (149 Hz), the operator checks to see if the resonant frequency has been reduced. In our case, the resonant frequency was reduced from 162 Hz to 152 Hz. The operator then shakes the part at a lower frequency (141 Hz) for 15 minutes. After the second shake, the resonant frequency was

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measured again. This time the measured resonant frequency was the same as before the second shaking (152). When

stresses are being relieved to produce a lower note when struck. The stress relief plan can turn high-

shaking (152). When this occurs, the Meta-Lax process is complete.

Getting in Tune-Lowering The Resonant Frequency

Anyone who has ever played with a string instrument can tell you that "the tighter you make the string, the higher the note that is emitted when the string is plucked." This simple association can be applied to the relationship between resonant frequency and internal stress.



Cranks, before Meta-Lax processing, would normally last 10 races before needing replacement. Now, with Meta-Lax processing, cranks last 30 races.

As the amount of stress is increased (or the string tightened), the resonant frequency (or the tone of the note) is also increased. When the amount of stress is reduced, the resonant frequency is also reduced. With the Meta-Lax process, the internal

Meta-Lax process. Although the Meta-Lax process doesn't add any power, it can greatly enhance engine reliability. Increased reliability means the money saved in towing bills will easily pay for the process.

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strung parts into relaxed performers.

Conclusion

The new Meta-Lax process has proven itself an effective stress-relieving process for use in high-performance applications. When the Meta-Lax process is employed, parts have a dramatically extended service life before breaking. Anyone interested in extending the life of their crankshaft, connecting rods, or engine block should seriously consider the