

Classic Elky Section / F-100 Supernats Coverage

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Waves - MaxxBass

Fundamental Bass

► As we mentioned last month in our column on subwoofers (“Barking with the Big Dogs” Sep. ’04), enjoying music with a lot of bass in your truck is one of life’s profound pleasures. Unfortunately, there are many small pickups on the road today that are space-constrained to the point where adding amps and subwoofer enclosures is a big challenge.

Enter MaxxBass, a remarkable new signal processor based on technology patented by a company named Waves that specializes in pro-audio equipment for recording studios. The MaxxBass processor, now shipping in mobile audio configurations from Orion and Precision Power, is truly unlike any other bass boost product on the market.

Acoustic designers, engineers, and musicians have long been aware of the phenomenon of the missing fundamental – going back to the time of the first pipe organs in the great cathedrals of Europe. The fundamental is the lowest primary note in a series of harmonic tones which determines pitch. Imagine hearing a great church organ playing a thundering, low C, resonating through one of its gigantic pipes.

The trick of the missing fundamental is to mimic the effect of that low C with a power chord of higher frequency overtones, such as a C and G chord an octave higher. The folks at Waves patented a psycho-acoustic technology quantifying this effect and then followed it up with an ingenious MaxxBass integrated circuit chip that is able to put the theory into practice.

Using that integrated circuit, the MaxxBass processor first uses a high-pass filter to remove the low frequency fundamental. It then generates the harmonic overtones of the missing fundamental and interpolates these tones back into the signal path of your stereo with a latent delay between 10 and 50 microseconds, which is undetectable to the listener. That subtle retiming of the harmonic overtones tricks the ear into thinking it is hearing the missing fundamental notes. What you hear is your music through your speakers, but thanks to the enhanced MaxxBass power chords, it now sounds like it has more bass.

The neat part is, by removing the fundamental and replacing it with its overtone harmonics, the speakers in your truck are no longer

straining to physically create those low notes. Instead, you hear those low notes louder because your speakers can drive the overtones with much less power and excursion. Instead of turning down your stereo because it’s distorting, you can actually crank it up.

One other neat trick is besides using MaxxBass to increase the perceived bass extension and loudness of a space-limited subwoofer, it can also be used ahead of your front speakers – even if your subwoofer solution is working just fine. That allows the speakers to play at higher perceived bass output levels while reducing cone travel, which is great for lowering distortion. In the process, it helps improve the acoustic illusion that the system’s bass is originating from those speakers and makes it harder for the ear to localize the source of the subwoofer’s output. You’ll need a separate MaxxBass unit for this if you’re also using it to improve the subwoofer’s performance, but the increased performance is well worth the additional cost.

The bottom line is MaxxBass should make trucks without subwoofers sound like they have one, as well as improve the perceived low frequency extension of smaller, space-limited subwoofers, making them sound full and deep. It should also add a low-frequency punch to the front speakers, delivering the up-front bass that’s the holy grail of just about every bass-head. Installation couldn’t be easier; the unit installs in the signal path just ahead of your amp and has a built-in clip indicator to make setting the correct gain levels a snap. It is supplied with a small, wired remote control that allows the user to control the amount of bass effect while driving. The unit is also fairly reasonable in price. For more information and dealer locators, check out www.orioncaraudio.com or www.precisionpower.com. **TR**

