



PHOENIX GOLD RSD12

AN AFFORDABLE SUB WITH EXPENSIVE SOUND

TEXT: ERIC HOLDAWAY

How would you like to be able to buy an affordable subwoofer? Say something that cost about \$169.99? What if it had a brushed-aluminum-looking cone encircled by a mean-looking gasket and a butyl-rubber surround? Well, out in the market there appears to be a number of subwoofers available that fit that description, but most of them do not come anywhere near to sounding as good as they look. Many of these super-spiffy-looking subs sound really, really bad, so I was a little skeptical when my boss, Casey, assigned a \$170 subwoofer to me. I thought "Not another chromed wonder woofer!" That was before Casey told me it was from Phoenix Gold. That brought back warm feelings of the Titanium Elite subwoofer I tested a few years ago and hope was born anew.

INSTALLATION

I called Erin Keeling at Phoenix Gold, who turns out to be the guy who did the final in-car listening and enclosure recommendations. So, Keeling would be the correct guy to ask questions to when it comes to this subwoofer. I asked him to give his recommendations on the proper size and type of enclosure for the very best in sound quality when using the RSD12. He recommended a 1.8ft³ sealed enclosure. He stressed that the RSD12 would work in any sealed enclosure that measured

from 1.2ft³ to 2.0ft³. Many of you may be thinking, "Man that sub takes a BIG enclosure." And you would be correct. If you believe it when the other subwoofer manufacturers tell you their 12" sub will work in a smaller enclosure.

Well, I'm here to tell you, I am constantly complaining during these listening tests of a humpy, non-uniform frequency response. The hump is from the enclosures being too small. Just about every subwoofer manufacturer is in a race to claim the smallest enclosure sizes. If you have read some of my past reviews, you may remember that on any number of tests, I have stopped and built a bigger enclosure to improve the sound of the test subject. I am very glad Phoenix Gold has gone with what I think are the correct enclosure sizes in their printed material and did not go with the poor-sounding,

undersized air spaces that many of the other manufacturers have been pressured into recommending.

I had my guys at the Speaker Works bust out a 1.8ft³ sealed enclosure. I also tested the RSD12 in a 1.2ft³ enclosure, just to hear what it did in Phoenix Gold's minimum recommendation—I was highly impressed to say the least. The master installation group at Speaker Works liked the nice nickel-plated, spring-loaded, push-button terminals on opposite sides of the basket for the wire hookup and that it installs into a standard size cutout. This makes the RSD12 installer and DIY friendly because it fits easily into most pre-made enclosures.

To power the Phoenix Gold RSD12, I installed two Crossfire VR1000d amplifiers bridged together. These two amps running into the RSD12's single 4-ohm voice coil will produce well over 1,000 watts of power. I used the internal crossovers from the amplifiers and bypassed the subsonic filters. The front half of my reference speaker system consists of a pair of USD Audio B-72pro WaveGuide separates. I am powering these with a Zapco C2 K 6.0X amplifier at 150 watts per channel. The built-in high-pass crossover filter was used to block bass from the component system. These amps are fed via Zapco's SymbiLink balanced line driver SLB-U. There are no other signal processors in the signal path.

SUBJECTIVE SCORE CHART

	Points Possible	Phoenix Gold RSD12
Overall Sound Quality	50	44
Tonal Balance	10	08
Low-Frequency Extension	10	09
Clarity at Low Volume	10	09
Clarity at High Volume	10	08
Impact	10	08
Total Subjective Score	100	86



LISTENING

I started off with Diana Krall's *Love Scenes* album. The RSd12 produced very clear note delineation. I was immediately impressed with how flat the frequency response was, from the very lowest notes all the way up the scale. There was no annoying upper bass hump that ruins the image location of the subwoofer and colors the sound quality. The big stand-up string bass was snappy, forceful and really energized the air within the listening vehicle.

Score: 8/10

Switching to the pop/R&B artist Usher, I played the song "Simple Things." Listening to this track, I found a renewed appreciation for how much I like larger subwoofers. Bigger is almost always better. Bigger subs reproduce the deep stuff with more authority than smaller subs. With the RSd12, I heard notes and details that I haven't heard since I tested the JL Audio 12W6 and the Stroker Pro 15". At low, medium and at high volumes, the RSd12 was unstressed and sounded wonderful.

Score: 8/10

Next, I played "Boxenkiller" from the *Focal Demonstration Disc 4*. The bass drum and bass guitar were reproduced tightly and with force. The RSd12 was very impressive sounding and I frequently reminded myself that it costs only \$169.99. The RSd12 has some real gusto. I really like how smooth the frequency response sounded and that there was nothing pulling the imaging to the rear of the vehicle where I had the enclosure installed.

Score: 9/10

On the final 2 albums, Phil Collins' *DVD Finally, The 1st Farewell Tour* and Eminem's *The Eminem Show*, the Phoenix Gold continued its masterful reproduction of the bass lines. It hit hard and went down to the lowest notes on the recordings with force.

Score: 7/10 (Phil Collins)

Score: 8/10 (Eminem)

CONCLUSION

As you can probably tell from what you've read to get to this paragraph, I really liked the way the Phoenix Gold RSd12 performed. It sounded awesome and, in light of the price of this subwoofer at only \$169.99, I have to give it a very high recommendation for you to listen to and to purchase. Phoenix Gold did not bow down to the pressures of chrome and flames. Instead they produced a fantastic-sounding subwoofer and the sound is what we buy speakers for, isn't it? For me the answer to that question is a resounding YES! Sound is the most important reason to buy any speaker. *

SPL in car measurement at 2.83 volts, 1 meter—with Brüel & Kjær Type 2231 Level Meter set to: Un-weighted, Max Peak and Fast.

20Hz	93.8dB
40Hz	96.6dB
80Hz	93.6dB
Max SPL	130.4dB

GREAT SOUND AT \$170

TEXT: CASEY THORSON

Speaker technology is getting better, no doubt. The evidence can be read in the subjective portion of this test and verified in the subjective score chart. So I pose this question: What makes this Phoenix Gold subwoofer sound better than most we have tested at this price level?

I spoke with Erin Keeling, technical product trainer at Phoenix Gold, to get the lowdown on the build of this subwoofer. What I found was a subwoofer that was fairly average in its parts and assembly. From the outside, the speaker looks like a normal subwoofer, albeit with its own cosmetic appeal. At first glance, you will notice the proprietary stamped steel, 4-spoke frame painted with a satin black texture coating that is the foundation for this sub. Just below its spider-mounting platform molded into the frame are four slot vents protected by perforated chrome sheetmetal. These slots allow the voice coil to "breathe" under high power.

At the front of the sub, a butyl-rubber surround attaches the frame to an injection-molded, aluminum-plated grained polypropylene cone. Unlike a lot of new woofers using a single uniform cone, PG uses a yester-tech dust cap. Although it may not have the soothing appeal a single-piece unit has, the use of a large dust cap on this cone does have its benefits: It adds rigidity to the cone when applied properly; and it allows the voice coil to easily be adhered to the cone using two glue joints (one on top of the cone and one below) instead of a single joint at its base. This is important since this area of a woofer sees the most stress.

The motor structure is rather conventional. It consists of a ferrite magnet sandwiched between a machined steel top plate and single piece t-yoke. The t-yoke is drilled through the pole with a radius at each end. While this will aid in cooling the voice coil, it is not the most effective form. The voice coil is large for this price range at 2.5" in diameter, with a total of three layers and is wound over an aluminum former. Signal enters the woofer through push terminals attached to a binding plate riveted to the frame. It is then sent to the voice coil via insulated tinsel lead wires. I was told these lead wires are molded to retain their shape so they never touch the cone.

Aesthetically, the woofer is complemented by a reversible, injection-molded rubber gasket that wraps over the mounting ring on the front of the basket. It has a pleasing design that incorporates the Phoenix Gold insignia. Over the motor is an agreeable injection-molded rubber boot that also includes the corporate logo.

As I mentioned earlier, this woofer is basic in its architecture. The majority of its parts are typical of a woofer in this price range. That brings up the question I posed in my intro: What makes this Phoenix Gold subwoofer sound better than most we have tested at this price level? According to Keeling, Phoenix Gold uses computer modeling software and specialized analysis tools such as Speed, Reverse Speed, MLSSA, LMS and LEAP. Keeling also mentioned that sound quality was top priority in the development of the Radial Sd line and a lot of listening was involved before the final product was determined. It just goes to show you that the general components of a subwoofer may be very common amongst subwoofers, but the design of those components, the materials, the alignment of the pieces and general construction can make a difference. The Radial RSd12 is a shining example of what a little (or a lot) of engineering can achieve.

