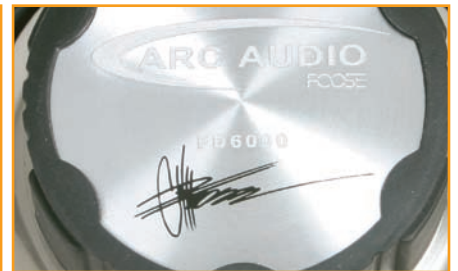


Arc Audio FD6000

APPROVED
By Paul at 2:49 pm, 2/22/07



Text & Measurements by
Dave MacKinnon (Of Sound Mind Labs)



So here we are – the dawn of another new year and I already have a pile of products ready to be reviewed. At the top of the pile is a set of component speakers from Arc Audio, bearing the name and signature of none other than legendary car designer Chip Foose. These are the Arc FD6000 (Foose Design) 6.5-inch components.

Since the beginning of this year, I've personally seen Chip (if I may be so bold as to address him by his first name) twice already – once at the Arc Audio booth during the Consumer Electronics Show (CES) in Las Vegas, and again in Toronto, Canada at Speedorama. In both instances, Mr.

Foose was hard at work signing autographs and talking cars with his legions of fans. That man works hard! This is all about the product at hand though, so let's see if the guys at Arc worked as hard on the design of the Arc FD6000 set?

DESIGN AND FEATURES

The Arc FD6000 is, as I mentioned, a 6.5-inch component speaker set. The kit includes a pair of 6.5-inch woofers with grilles, a pair of 1-inch tweeters and a set of passive crossover networks. The networks are housed in a plastic case that mimics the design of the Arc Audio amplifiers that also bear the Foose Design logo and

accompanying signature.

The woofers are based on a stamped steel chassis that has a brushed finish. The magnet has a similarly styled brush plate on the bottom that bears a reverse-embossed Arc Audio and Foose logo, and of course another issuance of Chip's signature. The magnet boot is quite handsome and gives the assembly a quality look. It's well worth pointing out that there is a foam gasket attached to the mounting surface of the basket to help ensure a tight seal – something I don't see very often on midrange drivers at this price point. A second gasket has been implemented on the top of the basket. There are ten mounting >>

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holes, allowing for installation in nearly any application. Combine this with a mounting depth of 2.5 inches and the applications are quite varied.

The cone of the woofer also bears a brushed aluminum finish – keeping with the theme of the product line. A narrow rubber surround at the top of the cone controls resonance and adds some compliance. At the base of the cone is a very large spider, measuring 3.35 inches across. It features a linear design. The cone shape is slightly curvilinear for good strength and the polypropylene material keeps it nice and light. A conventional domed dust cap adorns the center of the cone. All the adhesive applications on the driver are extremely neat and tidy.

Electrical connections are made to the 1-inch voice coil assembly via a pair of woven tinsel leads. The voice coil former is made of Kapton and the winding height is 9.6mm. Connections to the driver are via standard spade tabs, 0.125 inches on the negative and 0.2 inches on the positive.

The tweeter is based around a neodymium magnet and features a silk dome. Dome diameter is 28mm, as is the voice coil winding. The standard mounting configuration is an eyeball socket and Arc provides three feet of connection wire to make the installation quick and simple. The tweeter has the same finish as the grill of the woofer, and both provide concealment for all the mounting hardware.

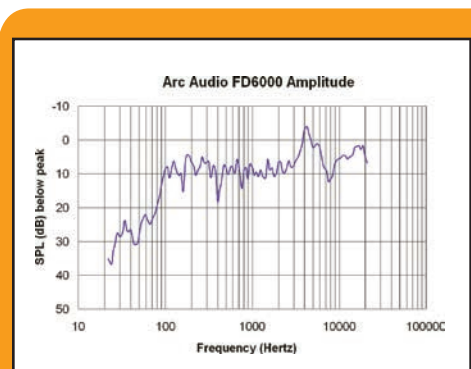
The crossover network has three pairs of connections – input, woofer and tweeter. Inside the case is a jumper to allow you to attenuate the tweeter output by 2dB, should you so desire. The network features a pair of inductors, one iron core and one air core and a pair of capacitors, one electrolytic and the other Mylar. The configuration is 12dB per octave for both the high- and low-pass outputs and the crossover frequency has been set at 3,500Hz. Protection for the tweeter has been implemented in the form of a varistor, to keep the maniacs at bay.

TESTING

To start, we'll take a quick look at the driver's characteristics. I swept both the woofer and tweeter with my Woofer Tester 2 to get a feel for things. The tweeter showed a resonant frequency of 1.7kHz with a nominal impedance of 3.5Ω. The woofer had a resonant frequency of 103Hz with a total Q of 1.37 and a Vas of 0.1834 cubic feet. Some quick modeling in BassBox 6 showed that the driver should have a -3dB point of just under 83Hz when installed in my 3 cubic foot reference enclosures. However, the -3dB point stays below 90Hz down to as small as 0.5 cubic feet, meaning these are going to work great in almost any door.

I forgot to mention, I of course broke in the entire set overnight with pink noise before I set to measuring them. Once the bench measurements were complete, I installed them and connected up my Arc Audio SE2150 amplifier and DRZ9255 source unit for a listen.

OK, so I must admit, I make some mistakes during testing sometimes and have to redo my work before I let you folks read it. For this test, I had left the source unit in one of its multi-channel modes, rather than the usual full range signal I normally use. No wonder there were no highs when I started. A few button pushes later, all was rectified and it was time to sit back for a listen. Ah, my poor Focal Demonstration Disc 1 was up for another workout. >>



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I figured I'd drop the gloves right out of the gate and give the FD6000 a tough challenge. They sounded very good – Rebecca's voice was smooth and natural, with only some slight emphasis on the S and SH notes. I moved the tweeter attenuation to the -2dB position and this helped some, but the emphasis still remained. I moved the speakers to listen to them 45 degrees off axis to see if things changed. They didn't. That being said, I am being quite picky at this point – the speaker set sounds very good through the all-important midrange – you'll just need to tweak one of the top EQ bands. The saxophone on track 8 (Sweet Georgia Brown by Harry James) was nice and raspy – very realistic. The cymbals were clear and defined, easy to make out each and every tap and rattle.

I grabbed Disc 4 and cued up track 15 – Resistor by Yellow – to check out the bottom-end capabilities of the woofer. The bass was tight and sharp, but not a pant leg rattler. That being said, you'll experience some significant increase in low frequency output once the transfer function of the car is added to the mix. I'd suggest you'll want to use these with a sub-woofer to achieve maximum impact – the FD10D2 from Arc would (not surprisingly) be a good starting point – though I really liked their Arc8 I reviewed last year. The benefit of this is that the driver clearly has a low mass and therefore can respond quickly

to the input signal – one of the reasons it sounds so good through the midrange.

Once I was done annoying my wife, son and neighbours with all the loud music (in short bursts) I took my frequency response measurements. The attached graph shows the story. The spike in output is near the crossover point of 3,500Hz. One option to make these drivers really come alive would be to forego the passive crossover network and use a four-channel amp with them and filter the signals electronically. This way, you can bring the tweeter down to 3,500Hz and then bring the mid up to whatever frequency results in silky smooth frequency response. Arc Audio offers an extensive line of multi-channel amps perfect for the application.

CONCLUSION

It may sound like I was a might hard on the Arc FD6000 sound – this couldn't be further from the truth. This is a great-sounding speaker set. The performance from 100Hz to 2kHz is ruler-flat, and it performs just as well off-axis – a very important feature. This set sounds good, looks really cool and it of course bears the signature of a legend in the automotive industry. It's well worth checking out, offering solid value and bang for your buck. **PAS**



THE SOURCE

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