Modifying the Vifa tweeter

D27TG-35/06 or HT-275D2

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Vifa Tweeters

Since they first came out, I have been using the Vifa silk-dome tweeters, especially the D27TG-35/06, for the cheaper speakers I build. I consider them a very good value. However, they definitely don't have the clarity of more expensive models, such as the Dynaudio Esotec, which I have also used in several sets of speakers. Specifically, the Vifas aren't as clear as the Esotecs at any power level, and their sound hardens up much sooner as power levels increase.

Modifying

Even so, they are very good for the money, so I thought it might be worthwhile trying to modify them to see if I could at least narrow the gap. After trying a number of mods, I came up with one that is easy, simple, and quite effective.
A comparison of the Vifa with the Esotec shows that the most obvious physical difference is the structure that dissipates the backwave. The Esotec has a number of sophisticated design features to do this, but the Vifa does not (quite understandable at its price). If you take the back off one of the Vifas, you find that the bore in the pole piece is empty, and the only measure taken to dissipate the back wave is a simple layer of felt in the back chamber. By contrast, the Esotec has a bore that is stuffed, along with a more sophisticated back-chamber shape.
I decided to see if adding stuffing to the Vifa would help its clarity. It did. Before-and-after SPL checks (I use a Mitey Mike) show that a couple of small peaks, which seem to be due to cavity resonance, almost vanish. Listening tests show a significant improvement in clarity, and less hardening at higher outputs. No, it's still not as good as an Esotec, but it's a lot closer.

The Procedure

I have modified about 20 tweeters now, at almost no cost, and have evolved the following simple procedure. (For those who worry about such things, yes, I'm sure it would void any warranty on the tweeters.) Just be careful to protect the dome while you're working on the tweeter. Beyond dome damage, though, I don't see how anything could easily go wrong.
Remove the back chamber, which is easiest to do by cutting into its plastic edge, just against the magnet, with a hacksaw blade. That provides a space that lets you pry off the chamber (use a screwdriver blade gently!). The chamber comes off fairly easily, and there is nothing delicate you might damage in the immediate area. Next, simply place the tweeter face down on a clean table top. Since the dome is recessed, this position actually protects it from damage.
Now stuff the pole-piece bore. I use polyester batting, contained in a fine tulle netting, which is very cheap at any fabric store. The actual amount of stuffing is not critical. I have tried a wide range of stuffing densities. If you make it very dense, the tweeter resonance drops, but there's no need to go that far. I now put in just enough stuffing so it will stay securely in place, using the following steps:

1. Roll a plug of the polyester approximately 1" long, with a diameter larger than the bore, and center it in a patch of the netting about 3" square.

2. Shape the netting around the polyester into a small cylinder. Gently insert the end of the cylinder that is closed by the netting into the bore until you feel it pressing against the tweeter dome. It's not difficult, the dome is quite strong from that direction. If you watch the dome as you are doing it, you can see it move outward very slightly.

3. Pull the plug back about 1/8", then cut off any polyester that is still protruding from the bore. Leave the netting that protrudes, since it will act to stop the plug from moving, once the back is in place.

4. Replace the back with a bit of glue to hold it in place (I use silicone seal). That's it! I consider the mod very worthwhile, since it does make an easily audible difference for almost no cost.

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Edit by R.A. van der Steen: if you remove the front plate of the tweeter and carefully remove the dome assembly, you can easily access the bore from the front. That way you can leave the back plate intact, skip the cutting and glueing part and the tweeter will remain undamaged.