Subject: Smith Horns, pt1
Posted by GarMan on Mon, 06 Jun 2005 01:30:32 GMT
View Forum Message <> Reply to Message

This weekend, I got it into my head that I need to build a pair of JBL 2397 / Smith Horns clone. How hard can it be? Just a couple of semi-circles sandwiching a group of internal vanes. Turns out, it was the hardest project to date.I spent more time designing and building jigs than actually building the horns themselves. A circle jig for the router to cut the 15" radius circles. A cutting board for the long straight cuts. And then, there were the vanes. Designing a jig and cutting a set of vanes measuring 1.5" high and 5/8" wide was tough. Doing the same for the "half" vanes (1.5" high, 5/16" wide) was a big PITA.Couldn't get it done over the weekend, but did get the set of 10 vanes, 4 half vanes, and major pieces cut. Assembly will probably take another weekend.This was supposed to be a quick "mock-up" project to see if I like the sound, before committing to real wood. I originally planned on using MDF, but found a source of Baltic Birch for just a little more than a sheet of MDF. The extra cost for the birch was well worth it to not have to deal with MDF dust.Vanes are routed out from poplar, based on its availability, cost, and workability. I first tried routing it out of stacked baltic birch ply, but found it impossible to cut 1.5" of it with a router at once.Design based on plans posted by Mr.Widget from Lansing Heritage board.gar.
Smith Horn Project

Subject: Re: Smith Horns, pt1
Posted by Wayne Parham on Mon, 06 Jun 2005 03:17:34 GMT
View Forum Message <> Reply to Message

Wow, Gar, that's very interesting! Thanks for the post and the pics!

Subject: Excellent job
Posted by wunhuanglo on Mon, 06 Jun 2005 09:50:06 GMT
View Forum Message <> Reply to Message

Your vanes are perfect - I have contemplated how to get repeatable, symmetric vanes many times but you've got a great method.Yuichi used a belt sander and shaped them by hand - your method is much better.Congrats.

Subject: Re: Excellent job
Posted by GarMan on Mon, 06 Jun 2005 12:38:27 GMT
View Forum Message <> Reply to Message

Finding ways to get the shape was easy.  Building something to hold the piece while shaping was hard.  I didn't exactly want handhold a piece 5/8" wide next to a blade spinning at 5,000 rpm.  Took a few tries on a workable material.  It only took two kick-backs while shaping the stacked plywood to convince my to switch to a softer material.  For some reason, the laminate bit kept grabbing the ply and ripping it out from the jig.I've been keeping my eyes out for a used pair of 2397 on eBay for a while, but they've been coming in a $500 a pair.  I'm convinced I can make a better one with $50 of material.  For example, I read that JBL purposely builds the input mouth of the horn larger than the opening of the throat adapter (horn mouth is 4", throat is 3.75").  This is to account for the poor tolerance in the adapter casting, so that even as dimensions vary, the adapter opening will never be larger than the one on the horn.  For this horn, I'm building the opening to exactly match the adapter to ensure smooth transition.gar.

---

Subject: Re: Smith Horns, pt1
Posted by GarMan on Mon, 06 Jun 2005 12:39:05 GMT
View Forum Message <> Reply to Message

I have even more respect for Martinelli now.

---

Subject: Re: Smith Horns, pt1
Posted by Manualblock on Wed, 08 Jun 2005 17:15:42 GMT
View Forum Message <> Reply to Message

Great work as usual Garman; looking forward with great anticipation to the finished product.  Excellent post.So you will be using the JBL titanium driver?

---

Subject: Re: Smith Horns, pt1
Posted by GarMan on Thu, 09 Jun 2005 12:21:48 GMT
View Forum Message <> Reply to Message

I'll be using my pair of 2445H that I'm currently running with 2380A.

---

Subject: Re: Smith Horns, pt1
Posted by Manualblock on Thu, 09 Jun 2005 21:56:38 GMT
View Forum Message <> Reply to Message

Thanks for making the build photos available; seems you have the concept of sharing a project down to a tee. Bill M. may have some competition here.