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Making PVC Didgeridoos

MAKING PVC DIDGERIDOOS and BAMBOO & TEAK WOOD DIDGE MODIFICATION

This page is dedicated to all didgeridoo enthusiasts who would like to try their hand at creating a PVC or plastic pipe didge or would like to modify their bamboo and / or teak wood didgeridoo to sound more like a eucalyptus didgeridoo. First off, I would like to give the reader two reasons why I think this page is needed.

Number one is COST. **PVC, Bamboo and Teak wood didgeridoos are an economical way to find out what didging is all about.**

A word of caution / advise is in order here.

Be advised there are a number of companies, businesses, and online auctions (such as eBay) found on the internet that sell PVC, Bamboo, and Teak didgeridoos. Some sound very good, some average. Some have beautiful artwork painstakingly applied----hours involved, some are tuned properly, many have had some real labor involved in their making.

However, some didges are massed produced using low paid (possibly working under sweatshop conditions) workers,-----painters who may have absolutely no idea the meaning of dot painting, authentic Aboriginal design, and are just being paid by the piece, i.e; painting a bamboo tube or teak didge via a rote formula. They might just as well dot paint Homer Simpson on the outside.

Look for true quality and workmanship. When it comes to price ask yourself this: "Does the business or company deserve and can justify charging \$30 / \$40 / \$50 / \$60-\$100 for this didge?" If the answer is "yes" by all means support them, and enjoy their instrumnts.

But if someone is trying to sell you a PVC or ABS didgeridoo either on the Internet or on an online auction such as Ebay, and the price just doesn't seem to fit the quality, remember the following if nothing else:

One business sells a PVC didge, with no bell, no bends, no art work and a rubber mouthpiece which appears to be an ordinary rubber disposal or lavatory gasket---for over \$40.00! Now with PVC pipe

selling for \$1.49 for 5 feet, a quick coat of paint, and a \$1.29 rubber mouthpiece (rubber gasket)...well you do the math! Caveat Emptor!

Number 2 is SOUND. I have bought a number of PVC didges that were made by others and sold on eBay and elsewhere on the internet and frankly some didn't sound all that great. One I purchased sounded more like flatulence. Another, (twisted almost completely shut) could not even muster a decent drone. Whether they were oddly twisted, ("Do we really find twisted didgerideos growing in the wild?") or whatever, I found that the secret is **how the INSIDE of the digeridoo is finished** regarding PVC and bamboo didges. Authentic eucalyptus didges, (bored out naturally by white ants), have bores and interiors that are *anything* but smooth, the wood never twisted. PVC and Bamboo didges essentially have smooth interiors. Many sound the same from one to the other. I experimented with building a number of PVC and have found what I believe is a good combination of bends, dimples (inward depressions), outward bumps, that can be added to a PVC didge that will not only give it superb backpressure, but will increase the volume as well. Trying to recreate the inside of a natural didge was the goal. I also have found one method of taking an ordinary Bamboo didge and adding the right amounts of glue, sawdust and wood shavings to the interior surface, so that it too sounds more like an authentic eucalyptus didge.

SPECIAL NOTE: Having said all that. I will be mindful that authentic indigenous eucalyptus didges created by skilled hands in the outback and many hardwood didges that are made professionally outside of Australia-----just sound superior. Period. Wood just resonates better, feels better, looks better, smells better, etc. I myself have a few eucalyptus didgeridoos, and can appreciate the craftsmanship white ants and man have mutually collaborated upon. It's just that with all of the PVC, teak wood and bamboo didges sold on Ebay, the internet, and elsewhere---I'm surprised that more is not written or discussed about the importance and need, to work with the **INSIDE** of a homemade didgeridoo, rather than just addressing the cosmetic external features.

Please feel free to email me with your results of the following methods, or if you have unique methods of your own I can add them later to this page. **HAPPY DIDGING!!** Now on to the instructions:



First: Get all of your tools together: In the picture you will see and need,

- **A Hot Air Gun - Used to bend the PVC tubing. Also, the gun is used to focus hot air in specific areas for adding dimples, and "outees" on the didge, as well as adding a bell. This is the most expensive item---so try and borrow one from someone. A hair dryer does not generate enough heat to soften PVC plastic.**
- **Wine or other beverage bottle - Used to either shape a bell on a PVC didge, or to start a bell that can begin to slip over a bulb planter.**
- **Bulb Planter - Found at most any garden center, Home Depot, etc; the bulb planter makes a GREAT 3" tapered bell for the 2" PVC pipe didge. Can't say enough about this handy item!**
- **WD-40 Spray Lubricant - Used to lubricate the bottle and bulb planter so that the PVC doesn't stick. A must have.**
- **A Metal Bolt With a Rounded Head - Used to make dimples in the PVC didge when the plastic is heated**
- **A "rounded" Wood Dowel - I use a hedge clipper handle. This is used on heated PVC to make an "outee" or outward bump. A shovel handle works fine. Just make sure the handle is rounded, so as not give the PVC didge a sharp protrusion.**
- **Dust Mask - Always used a dust mask when heating PVC pipe, and most certainly when sanding PVC. Lungs and PVC dust are a **DANGEROUS** combination. ALSO - Remember that PVC and ABS plastic pipes give off **DANGEROUS** fumes when heated. Heat only in a **VERY WELL VENTILATED** area. Outside is better.**



CREATING THE BELL:

First, spray WD40 on the bottle and bulb planter. Wipe off any excess.



Heat the PVC Plastic on the PVC pipe until soft (Thin walled 2" PVC pipe seems to resonate better than thick walled)



Next, place the heated end over neck of bottle and press down.



Hold the PVC on the bottle until just warm. (if you pull off too soon-the PVC will contract).



Heat the end again and carefully place over the end of the bulb planter.



You will have to continue to heat the PVC and carefully rotate the bulb planter while pushing. As the plastic heats and the bulb planter is rotated be careful with the bulb planter and the metal rivets. I ripped an almost perfect PVC bell, the plastic getting hung up on a rivet.



Keep working the PVC and heat until the bell is almost to the end of the planter. Let cool. The planter will slide out easily as long as you remembered to lubricate the bulb planter.



You now have a GREAT 3" tapered bell!

ADDING BENDS TO YOUR DIDGE: To add bends to your didgeridoo, heat the didge about one third from the mouth end. Simply rotate the didge as you heat. Then put a "slight" bend in the tube. Heat the didge again this time from the bell end, about one third up, and create the bend going the opposite of the other bend. Bends should be slight. This begins to create your back pressure process.

CREATING DIMPLES:



Heat a small area of the didge.



Take the bolt and gently press into the heated plastic, using the head of the bolt. Repeat this with as many dimples as you want. I have found that the shorter the didge, more dimples are needed for backpressure. I counted 33 dimples on my 44 inch PVC didge with a 2" diameter. Too many dimples on a longer didge and you have so much back pressure--the sound can seem a bit muffled.



Close-up of a "dimple". I used a nail which left a ringed impression. The bolt made dimple will not.



Here is a didge I made with quite a number of dimples. It's shorter than most. But it is loud, has a great sound and back-pressure!



This is looking into into the bell end of the same didge. You can easily see the dimples



Here is a picture of a didge where 7-8 inch dimple sections have been heated and formed, the PVC pushed in by means of a wide putty knife.



Here is the long dimple almost reaching the end of the bell. The long dimple can be done on four sides of the tube. This again allows for more back-pressure to the didge as well as creating a more realistic eucalyptus-type inside.



This is the long dimpled didge looking into the bell end.

ADDING PROTRUSIONS (or Outees):





Next, heat the didge in one small spot about 12 inches down from the bell, as though you're going to add another dimple.



Put the rounded end of the wood handle into the bell end and move it around until you see the outline. The PVC will start to go out as you find the "hot spot". Now simply press the didge down with one hand. The other hand press down on the wood handle. The wood handle will press the PVC wall out.



You now have an "outee" on your didge. Go to mouth end of the didge and repeat the process while the bell end cools. Repeat the entire process until you have 4 "outees". If you go too far deep into the didge, you won't have enough leverage to push the heated PVC. About 12-14 inches is maximum



BAMBOO DIDGE MODIFICATION



Now our focus will be the modifying an ordinary Bamboo didgeridoo, into a didge which sounds a bit closer to that of a eucalyptus. In the above picture are two didges. On the left, is a bamboo didge, 47", cost---about \$21.00, had the tonal quality of...well...a bamboo didge. On the right is a eucalyptus didge, 43", cost---\$85.00. Sounds pretty good overall. **OBJECTIVE:** Get the bamboo didge on the left, to sound more like the eucalyptus didgeridoo on the right. Here are the instructions:

- **First, buy a large container of Tightbond #2, Elmer's Glue with Wood, or a similar wood glue that is water resistant or waterproof. Do NOT use any glue that is flammable or contain harmful vapors!**
- **Obtain hardwood sawdust and woodshavings, about 5-6 cups worth total. I used a drill with a 1" wood chisel bit and drilled numerous holes from scrap hardwood lumber. Drill over a cut garbage bag layed out like a drop cloth (the shavings will fly). Also get a wood dowel or metal rod that is at least half the length of the didge. Course sandpaper will be attached, then used to finish the inside of the didge.**
- **IMPORTANT! Make sure your wood bamboo didge's inside interior bore is "untreated". I tried this method with a bamboo didge I had earlier treated with Linseed oil. The glue would not stick and chunks & sheets of hardened glue and wood shaving fell out of the didge.**
- **Pour about 8 ounces of the glue into the bell end of the bamboo didge. Rotate the didge at the same time so that the glue covers the walls. Keep rotating the didge while it remains upside down, for about one minute or until the first few drops of glue comes out of the mouthpiece. Now-hold the didge horizontally and continue to rotated the didge several minutes.**
- **Next, put the sawdust and wood shavings into the bell area a little at a time. Put you hand over the mouthpiece and your other hand over the bell and rotate the didge over and over, shaking occasionally. Don't worry if the sawdust & wood shavings create a block. You will be punching through the block with the wood dowel or metal rod later. Shake any excess wood shavings out of the bell end. You may want to do this over a tarp or garbage pail, because this can get messy!**

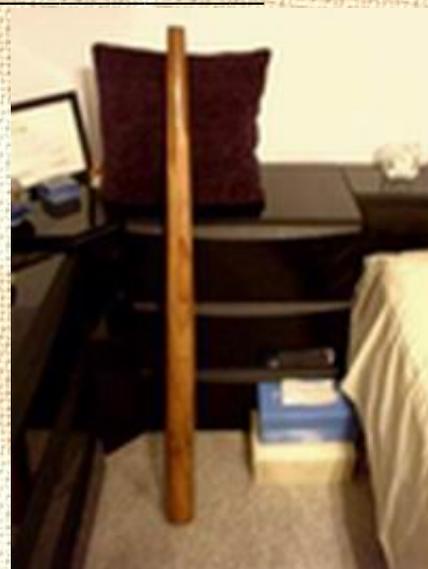
Rotate the didge over and over for several minutes.

- **Now allow to dry. I found that the glue dries better and faster if you take the bell of the didge and place the end up to a box fan. Turn the fan on low, and let sit for about seven hours. Then, take the wood dowel or metal rod and punch though any blockage inside the didge. You may find some wood shavings still moist with glue. Put the bell end up to box fan and continue to dry for another 24-48 hours.**
- **Finally, take the course sandpaper, and duct-tape a piece to either the metal rod or wood dowel. Carefully scrap the insides of the didge for any loose wood shavings. You will notice that the bamboo didge is much heavier than before. I later added another 6-8 ounces of wood glue alone into the bell, over the wood shaving areas and again let dry for a least 72 hours. The glue dries completely over a long period of time.**
- **Now give it a blow!**



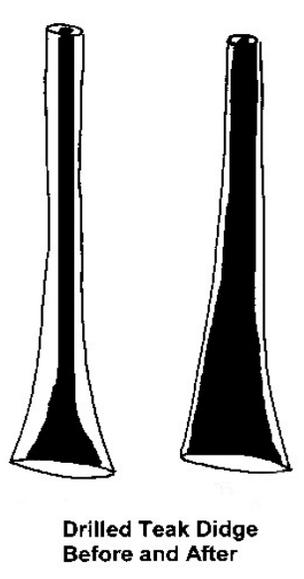


On the top is the bell end of a eucalyptus didgeridoo. On the bottom is the bell end of the motified bamboo didge.



TEAK WOOD DIDGE MODIFICATION

Teak Didge Modification. Some time ago I had purchased a cheap Teak didgeridoo from a bin from a retail import store at a mall. The bin contained various Bali bamboo and teak didgeridoos. The price was right, (\$21.99) but the sound was just average. I brought a small flashlight with me to look at the insides. The bell had a thickness of about 3/4" and went in about 3 inches, it abruptly ended into a 1 inch diameter hole that went up the remainder of the didge. (Picture a large narrow funnel) The purchase price for this cheap teak didgeridoo was \$21.99. What the heck... I began to experiment on improving the sound quality. I came upon the idea of using an electric drill, with a rotary rasp attachment, which in turn, was connected to an extension rod. I thinned the walls of the bell to about 1/4" and tapered the rest of the didge's insides, removing almost three full shoeboxes of fine wood shavings. Total time, about 6 to 7 hours of labor. (See Before & After drawing to get an idea)



Drilled Teak Didge
Before and After

THE SOUND??? MY MOUTH HIT THE FLOOR!! This lowly \$21.99 Balinese Teak didgeridoo, played and sounded better than the EUCALYPTUS didgeridoos I had purchased over an internet auction this last year. I am not kidding! The improvement of sound, i.e., drone, vocals, resonance, etc; was so dramatic, so night & day different, so remarkable, I just had to share this information. I reworked and modified a 2nd teak to see if the first one was just a fluke, a stroke of luck. The 2ND **SOUNDED JUST AS GOOD AS THE FIRST!** This was not luck, but it did make me realize that some Indonesian Teak Didgeridoos are not prepared properly---but just drilled---(possibly too labor intensive for the workers?)

LATE NOTE: As of May, 2003 I have modified three more TEAK Didgeridoos. These were the taller, heavier, "carved" didgeridoos with the animals such as dragons, lizards, etc. (see picture below) These were also purchased for \$21.99 at the same mall import store. I have recently played them along with a \$300 authentic Aboriginal made stringybark eucalyptus, ochre painted. The sound of this eucalyptus could be classified as a near concert to a low concert sounding didge. I played them to my wife and friends to compare sound quality. THE TEAK DIDGES sounded just as good, if not better than the Australian Aboriginal didgeridoo. Wow----I had mixed feelings! I had really stumbled upon something----that drilled teak didges can be modified to sound EXCELLENT! I also realized I had paid over \$300 for an authentic eucalyptus didgeridoo---that was equaled to, or beat out by a \$21 teak didge. (in same picture below)



Well, enough of the contrasting----now it's time to show and tell you how this is done. Do NOT try this method with Teak or hardwood didges that have expertly prepared!! Look carefully. If your Teak didge sounds great, has thin resonant walls, and looks as if a lot of work had gone into it-----you DON'T need this tutorial. But if it's an el-cheapo, drilled Teak didge like I described above, ...let's go!



First, remove (if you want to) all of the paint designs, and old varnish. I found that with my didge, there was a plug that had been inserted into my didge. (see pic of outline) The plug went partially into the cavity of the didge. Be careful not to use the rotary rasp against the plug or you may accidentally pop it out. If I had not removed the paint I would never have seen the plug. It had been hidden under black paint. Also, removing the paint also allows you to see any other imperfections or holes in the didge that may need filling. I used the new Elmer's wood glue that has wood particles mixed in with the glue. Water proof and strong!



Next, obtain a rotary rasp bit. I found several made by a company called Wolfcraft and another company, Vermont American. Also, purchase a drill bit extension rod (13 inches). The rasp bit is held firmly in place by two allen screws. The allen wrench comes with the rod. Total cost about \$6.00-\$7.00 (another 13 inch extension can be added easily to 1st). So, with a second extension rod, \$9.50 - \$11.00
Can usually be found at Home Depot, ACE Hardware, Menard's, etc.



Start slowly and **LIGHTLY** press the rasp against the walls of the bell and start removing the wood. These rasps are faster than rotary sandpaper bits. After about 2-3 minutes. Turn the didge upside down and tap out the wood shavings.



Keep widening the bell and the the interior. Tap out the shavings. **HELPFUL HINT:** To remove the more stubborn wood shavings and sawdust that tapping on the didge just won't dislodge---use a handheld hair blower / dryer, and insert it into the bell end. You may wish to aim the mouth end portion towards the outside of your house or an area where you don't mind sawdust / wood shavings to land. Turn on the hair dryer--you'll see a small cloud of wood shavings / sawdust fly out of the mouthpiece.



Now take a small flashlight and continue to examine the inside. You want to keep the bell at least 1/4 inch thick but probably no thinner. As you go further into the didge, you can remove more wood but there really is no need to get the entire wall 1/4 inch thick. Let the hole taper.



Altogether I had almost three shoe boxes full of wood shavings from inside the didge. **BE PATIENT.** This process took about 4 - 12 hours total (depending on the size of the didge and how much wood has to be removed). You must be careful not to press the rasp too hard against the walls of the didge--you don't want it to poke through or crack the wood! Let the rasp do the work for you. When you are done, duct tape sandpaper to a wood dowel, and smooth the inside. (This sanding method almost resembles loading an old musket rifle) When you smooth the walls it actually allows the drone to become brighter sounding.



Once you are completely satisfied with the end results, one more task needs to be completed. Use Spar or Marine varnish, coat the inside of the bell, and attach the the brush to the wood dowel, give the entire insides a good coat of varnish. Don't forget to put the varnish near the mouth end (where most of the moisture from your mouth collects). Spar varnish or Marine varnish dries rock hard and and is more durable than ordinary shellac. I also noticed that using Spar or Marine varnish on the entire inside surface, because it dries so hard, actually helps with resonance.

See below for teak didgeridoo Before Modification & After Modification pictures and click the Before and After link for a sound file. **WHAT A DIFFERENCE!**

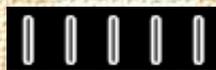
[TEAK BEFORE](#)
[TEAK AFTER](#)



FINALLY:



Paint your didgeridoo any style you want. Because I also enjoy astronomy---(see bottom didge) I painted one with an outer space theme. Let your imagination soar!
Final words of advice: Don't get discouraged. I ended up with many PVC didges on the scrap heap before I finally found what seems to be the right combination. I sincerely hope these hints and methods will be useful to you. Please let me know.
Thanks and Happy Diding... ..Steve



The Didgeridoo Web

The didgeridoo and world music portal site / MP3

The Didjshop - Didgeridoo Shop with MP3 Online didgeridoo shop providing pictures and downloadable MP3 sound of individual didgeridoos. Huge selection of didges, boomerangs, bullroarers, clap sticks and didjbags - plus a didjeridu tutorial video.

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