

Making Harmony's Coil Guide

HARMONY'S COIL GUIDE

To make an adjustable coil guide for a drill press saw you will need.

PARTS

2- blocks of polyethylene or hard wood.

Vise block 6" X 4 1/2"

Moving block 6" X 2 3/4"

Blocks may be from 3/4" to 1" thick.

You can get polyethylene at a plastic supplier or a wood working tool store.

4- carriage bolts 5/16" X 3"

4- 5/16" wing nuts

4- 5/16" flat washers

4- 5/16" internal tooth lock washers

4- 9/16" X 1 3/8" X 0.072" springs

You will need the use of a table saw. We assume you have a drill press.

In this picture:



The block held in the vise, secured to the drill press table, will be referred to as the "vise block".

The block next to the wing nuts will be referred to as the "moving block".

Cut the two blocks to size.

CUTTING COIL GROVE

Set the blade on your table saw at 45 degrees. Raise the blade above the table, so that two passes of the block (from opposite directions) will cut a "V" 3/32" deep (1/16" for small coils).

Practice on scrap until you get this setting right.

Set the fence on the saw so you cut the "V" in the center of the moving block.

Match this grove on the vise block.

This grove, that will hold the coil, can also be cut with a molding head on the saw.

CUTTING ARBOR ANGLE

Looking at the grove side of the vise block, you will cut the right 6" edge at 45 degrees. Look at the picture. This is where the arbor will set. The blade in this picture would turn clockwise.



DRILLING BOLT HOLES

Lay out the 4 holes on the moving block.

About 5/8" in from the long side and 1 1/2" in from the short side.

Drill the holes with a 21/64" bit.

Place the two blocks together, so the groves face and match.

Clamp the blocks together and drill through the moving block holes into and through the vise block.

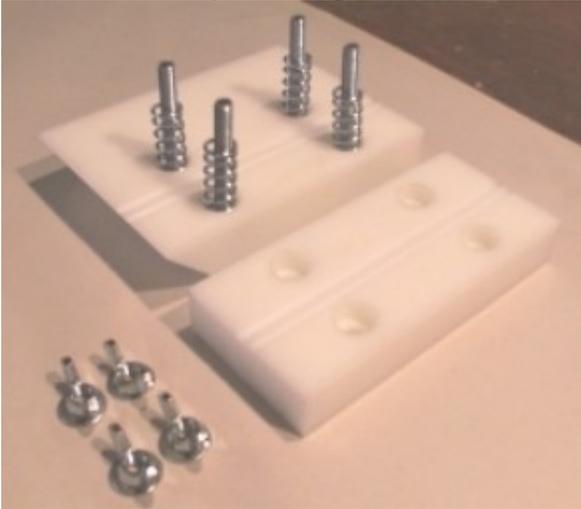
DRILLING SPRING POCKETS

Drill the holes for spring pockets on the grove side of the blocks. Center a 5/8" forstner bit over the bolt holes and drill holes 3/8" deep.

SQUARE FOR CARRIAGE BOLTS

Using a 1/4" wood chisel, square the bolt holes on the non groove side of the vise block. Check fit of carriage bolts.

If all went well, you have parts that look like this.



Note: The guide shown has two coil grooves. One for large coils and one for small.

Assemble guide.

SETTING UP GUIDE

Cutting the blade slot into the guide.

Mark the center of the groove, on the angled edge of the guide, with a pencil.

Tighten the guide into your drill press vise, do not secure vise to table at this time.

Open guide until two halves are about $\frac{3}{4}$ " apart.

Set coil guide so blade is next to angled part of guide.

Raise the table until the blade is even with your pencil mark.

Lock table.

Turn on saw and cut into guide until arbor touches the angled edge of guide.

Adjusting guide for coil.

Place coil in guide, about ½" from cutting end of guide.

Tighten wing nuts.

Loosen wing nuts just enough to allow coil to move.

Move guide until saw blade is into guide and arbor is touching guide.

Make sure blade is not too far into guide. Blade should just cut through the coil. Moving tapered part of guide forward will pull blade out of guide.

Once you are satisfied with guide position, bolt vise tightly to table.

As you cut the coil, rings will ride the blade out of the guide. Most will fall into your collection container, but some will enjoy the ride too much and fly off the blade. I stop these with a two sided barrier made of 1/8" plywood, others use gallon milk jugs formed to fit around the cutting area.

Cutting coils.

Move coil forward, just short of touching the blade.

Start lubricant on to coil. Lubricate as close to the blade as possible.

Start saw.

Slowly move coil into blade.

As you cut, make sure blade is covered with lubricant. This also cools the blade. If lubricant smokes, you are feeding the coil too fast or blade is worn.

Listen as you cut, if you suspect vibration in the coil, tighten the front wing nuts a little.

As the end of the coil starts into the guide, push it with a flat stick (a paint stirring stick cut to ¾" works very well). This works much better than using another coil or a wooden dowel.

As you reach the end of the coil, be very careful. The stick and cocked rings can break the blade. One of the advantages of this guide, you can see into it.

Note

The small V groove is for small coils. If you cut a lot of small coils, you may want to get a set of weaker springs for your guide. The springs that come with it are hard to tighten when the guide halves are very close together.

The cutting area of the guide, if it gets worn, can be dressed with a table saw set a 45deg.

The flat sticks I use are 12" long. I push the coil on the cutting side of the guide.

If you have questions:

Dave Cox (Harmony)

6919 N. Walnut Rd.

Spokane, WA 99217 (509) 924-1715 dccox@air-pipe.com

Information on cutting small coils. By Fyre & Ice

Taking just a sec here to weigh in on the adjustable guide that Harmony sells.... I have had success cutting coils as small as 1/16" ID with .030" wire. A lot depends on the time you take in setting up your rig to get the best cut, but blade thickness of .008" is an important piece as well. I find that as long as I take the time to line up my blade so that 1) it cuts straight through the coil rather than at an angle and 2) the blade is positioned to just cut through the coil rather than a deep cut, that the rings come out fine without any deformation. Using the smaller groove is also a must when cutting small ID coils, or the coil will slip around and the blade will skip off of the coil.

I spent about an hour yesterday cutting .035 bronze coils at 1/8" ID and I couldn't ask for a better cut.

F&I

Note Guide works much better cutting larger rings. As stated by Fyre & Ice, you can cut very small rings, but set up and a steady hand are needed.

Harmony