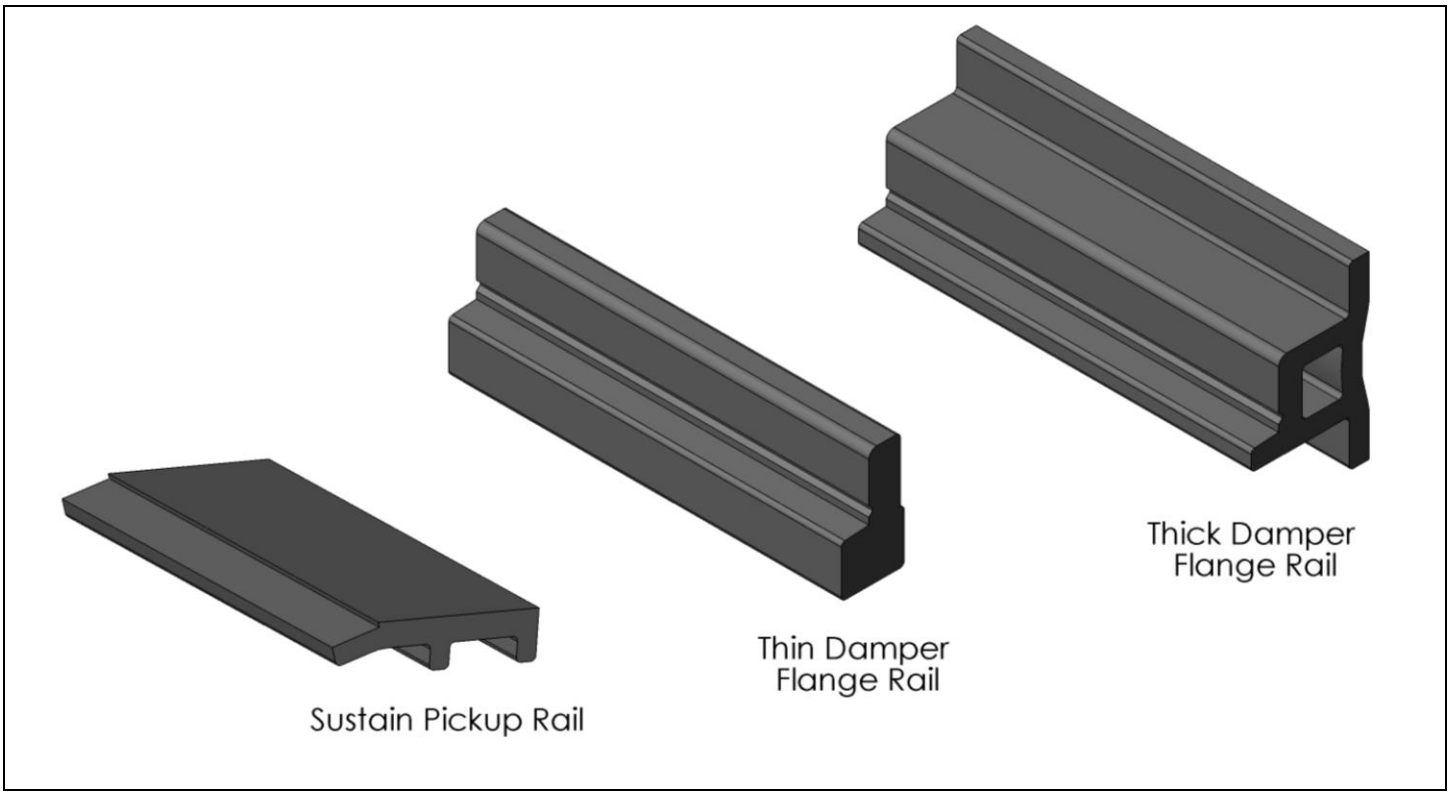
Drill WNG Damper Flange Rail



If you buy the rails undrilled, you will need to drill and tap the rails. WNG makes this easy for you.

WNG supplies both the proper drill bit and tap for this process.

To achieve drilled rails, all you need do is punch the appropriate scale on the rail and then drill and tap the holes to the appropriate sizes.

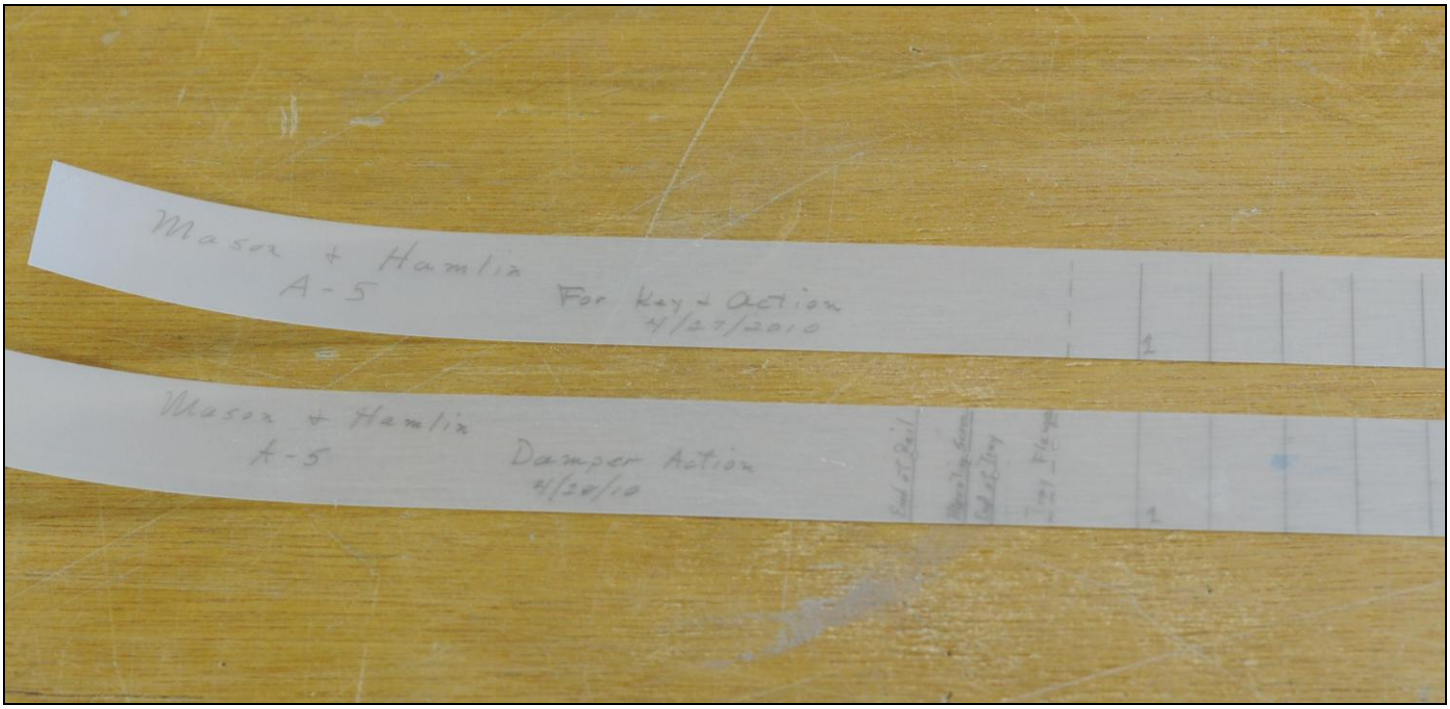
It's easy.

Shop Tools
- Drill press With a long table
- Clean table

Hand Tools
- Plastic mallet
- WNG Damper Rail Punch
- Small spring clamps
- Machinist's scribe
- Small machinist's square
- Drift punch
- Battery powered drill
- Metric 6" rule

Drill Bits
- 3.3mm drill
- M4x.7mm tap

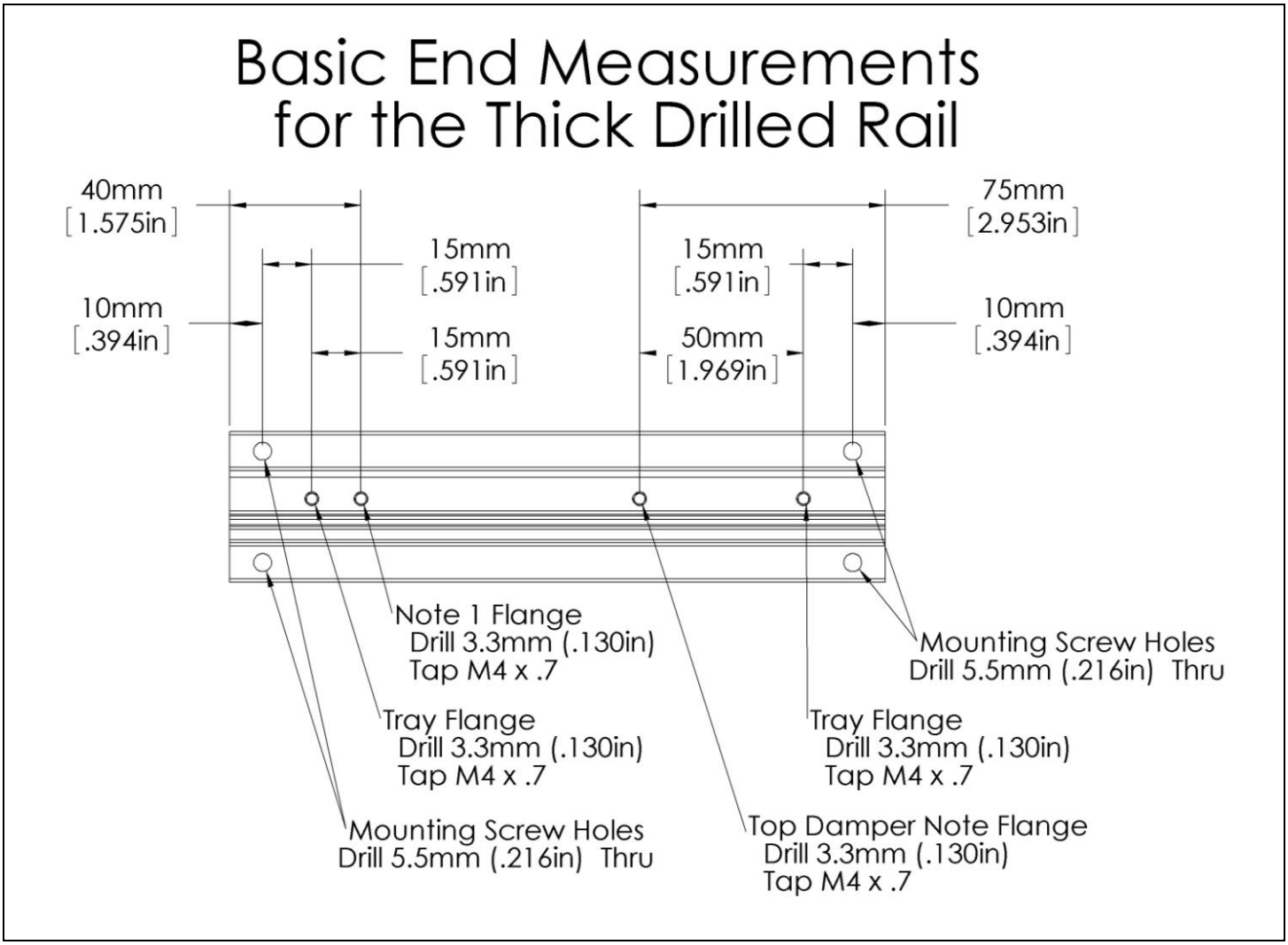
Supplies
- Mylar Scale Stick
- Masking tape – ¾" or 19mm wide
- Pencil
- Black Paint Felt Tip
- Tap Magic (Cutting fluid for Aluminum)



You will need a scale stick. WNG provides several methods of creating a scale stick. If you are unsure what a scale stick is, download the article that explains scale sticks.

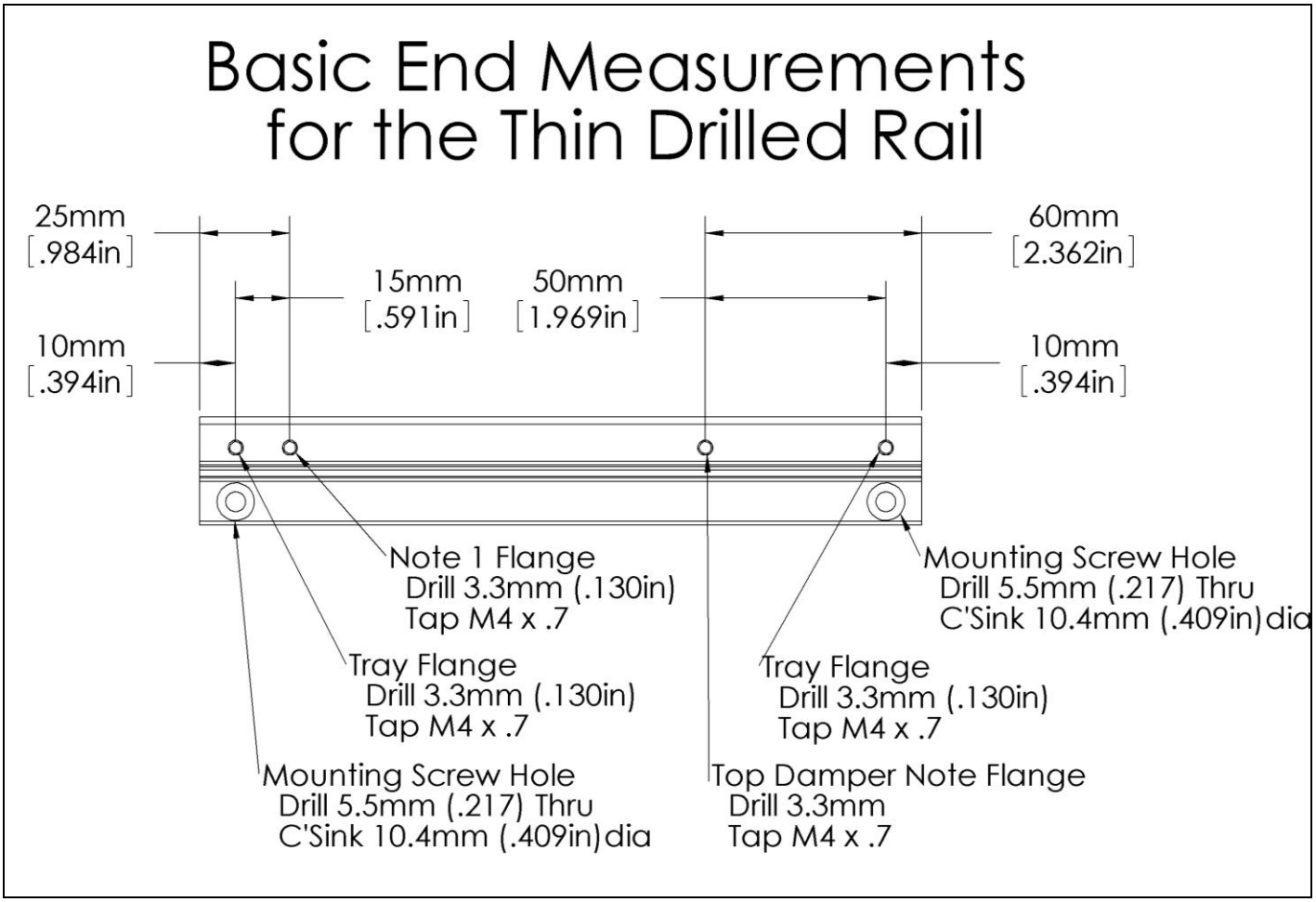
The mylar scale stick should show the location of the note centers, tray flange centers and the flange rail mounting holes in relation to the end of the rails.

Basically, a scale stick contains the information you need to drill the damper flange rail and sustain pickup rail.



On a thick rail, in the bass the first note should be 40mm from the end of the rail. The tray flange should be 25mm from the end of the rail. The mounting holes are 10mm from the end of the rail.

In the treble, the last note should be 75mm from the end of the rail. The tray flange should be 25mm from the end of the rail. And the mounting holes should be 10mm from the end of the rail.

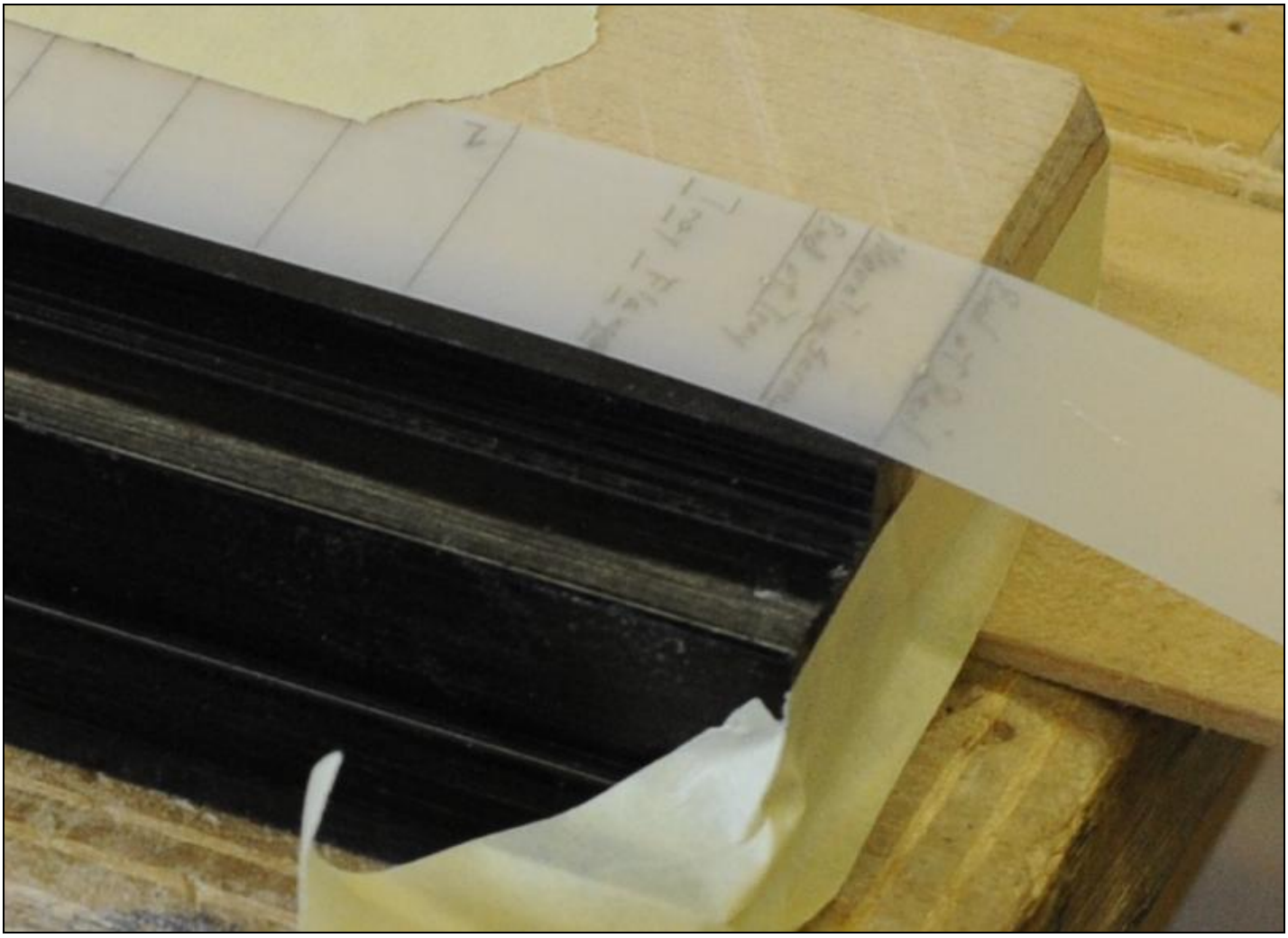


On a thin rail, in the bass, the first note should be 25mm from the end of the rail. Both the end tray flange and the end mounting hole are 10mm from the end of the rail.

In the treble, the last note should be 60mm from the end of the rail. The tray flange and the end mounting hole are 10mm from the end of the rail. Between the end mounting holes there should be three additional mounting holes spaced evenly across the rail.

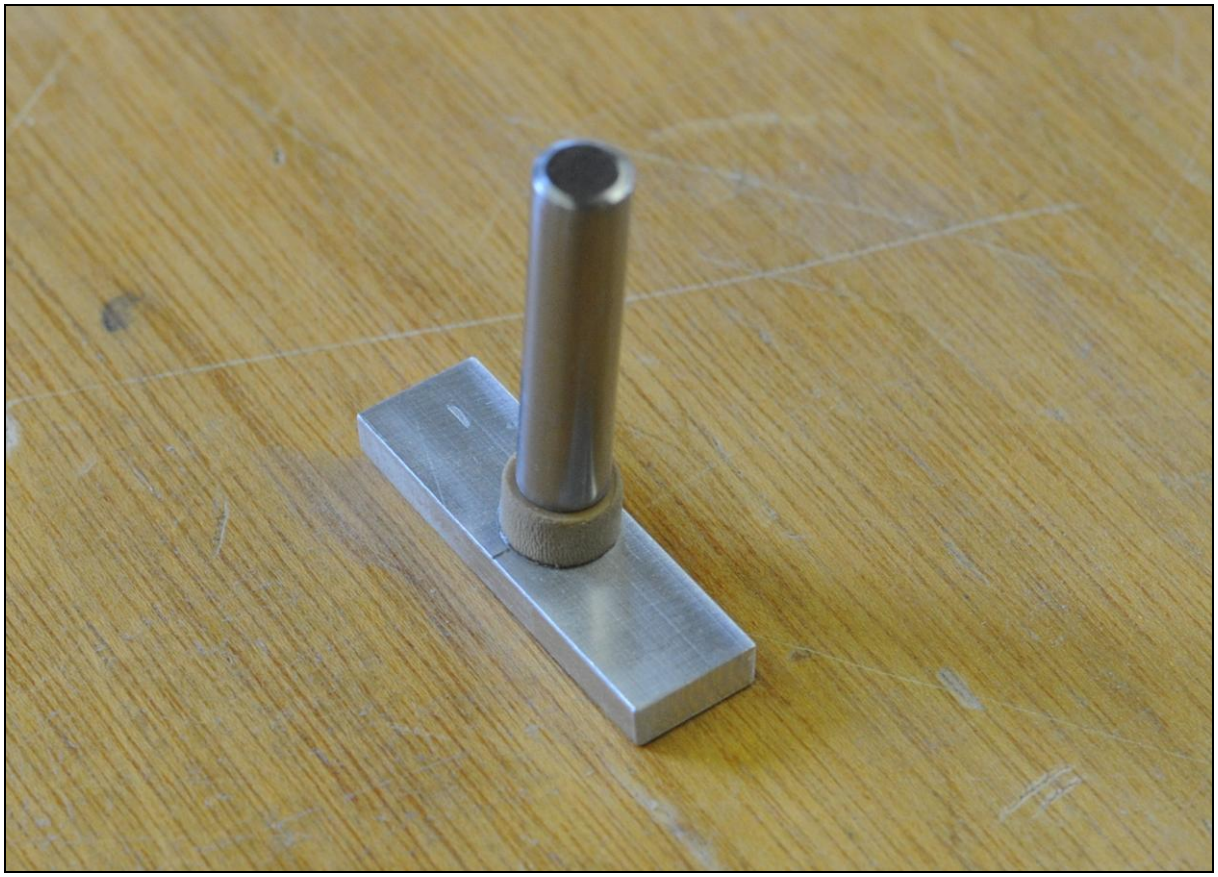
Make sure that that all of the above information is included on your mylar scale stick.

Clamp the undrilled damper flange rail to the bench. Marking a rail for drilling is much easier if it doesn’t move during the process.



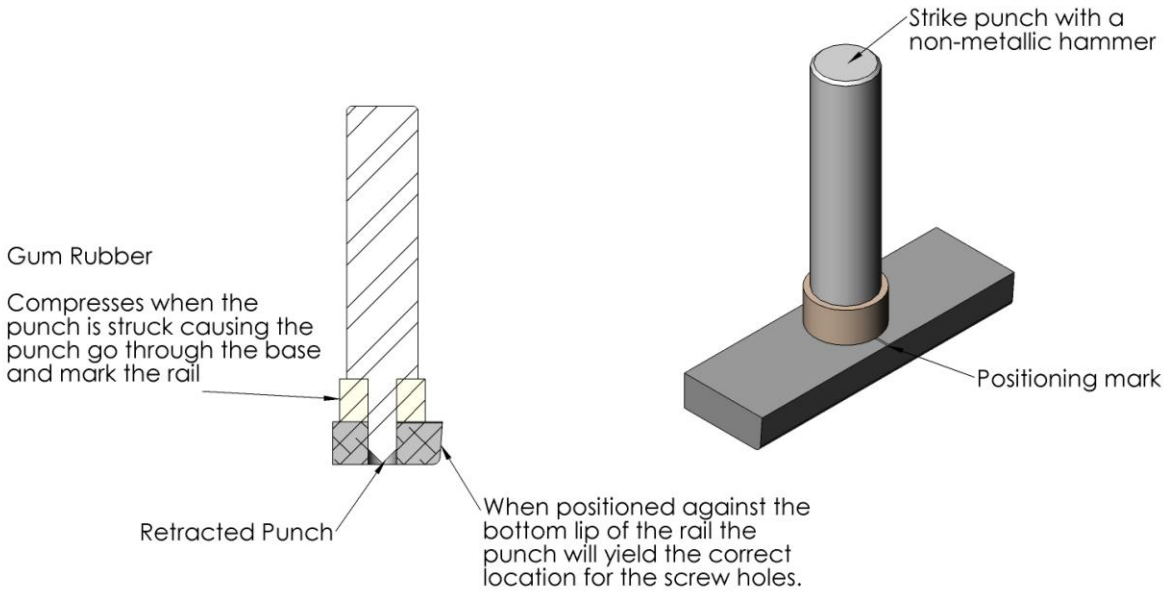
Tape the mylar scale stick on the bottom edge of the damper flange rail.

Position the scale stick so that the mark for the end of the rail in the bass is on the edge of the rail.



Damper Flange Rail Punch

The best way to mark out a damper flange rail for drilling.



This is the WNG damper rail punch. The punch is kept inside the aluminum base by the rubber punching. When the punch is struck with a plastic mallet the rubber compresses and the punch marks the rail underneath. It is important to use a non metallic hammer otherwise you will damage the tool.

The tool, when used properly, ensures that your marks are the correct distance from the compression edge of the rail.

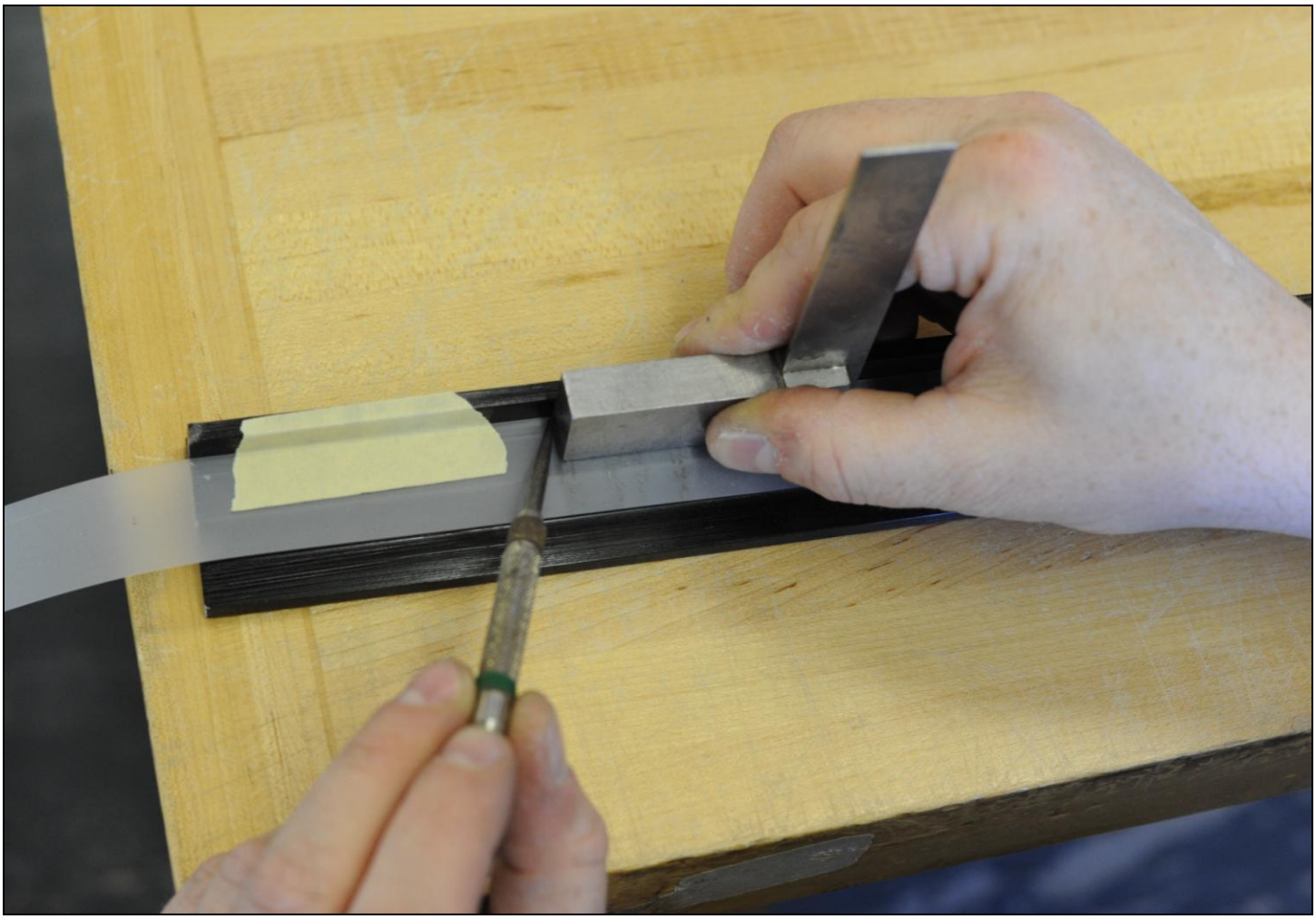
On the top of the base block there is a scribed line going from one side to the other going under the rubber. This line is the centerline for the mark.

To use the WNG Damper Rail Punch, all you do is align the mark on the base block with a line on the scale stick for a note or tray flange. When you strike the punch with a plastic mallet a mark will be made on the rail.

Make sure you look straight down when you align the mark on the WNG Damper Rail Punch and the line on the scale stick otherwise you will induce errors into the rail.

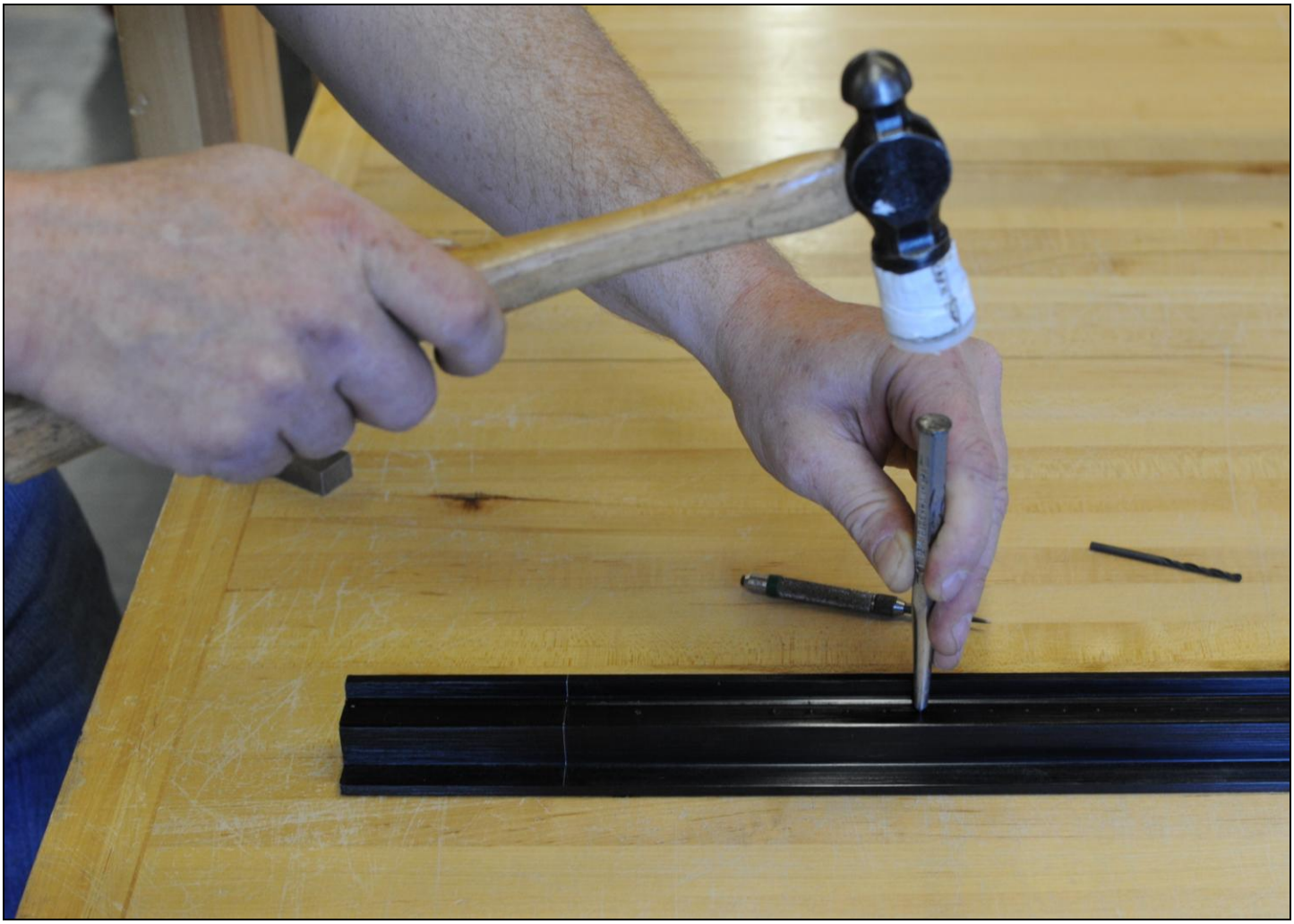
Mark the brackets and notes with the punch.

Again, do not use a metallic hammer for this operation.



After the holes are marked, with a square, scribe a line for the end of the rail at the treble end. Remember, you located the scale stick at the bass end of the rail so you only need to mark and cut the treble end of the rail.

The best tool here would be a plastic draftsman's small triangle and a simple machinists scribe.



Here you need a punch to enlarge the mark in the rail so it will hold a drill bit during drilling operations. The picture shows a standard drift punch. A spring loaded punch is a common machinist's tool and much quicker.

All you do is place the tip into the punch mark for a hole and hit the punch with a plastic mallet. If you have a spring punch, just press straight down. Either method results in a deeper punch mark for the hole.

This operation is necessary for the punch mark to reliably hold the drill when drilling.

Use a bandsaw to cut the flange rail to length. Cut to the outside of the scribed line on the rail. You can also use a hack saw if you wish.

Use a file to clean up the end of the rail.

After cutting the rail you will have a small section of rail left over. If you have never drilled and tapped aluminum before it would be easy to practice on this short section of rail before you work on the one that counts.

Set up your drill press with a table long enough so that at note 1 or the highest treble damper note the rail is safely on the table.

If you are drilling a thin rail you need to attach to the table a 6mm or ¼" strip of maple to support the flange part of the rail. Otherwise the rail will not sit flat causing you to drill a slanted hole.

Put a 3.3mm drill bit in the drill press. Set the speed at 3000 RPM. Raise the table until the tip of the drill bit is 3mm or about 1/8” above the rail.

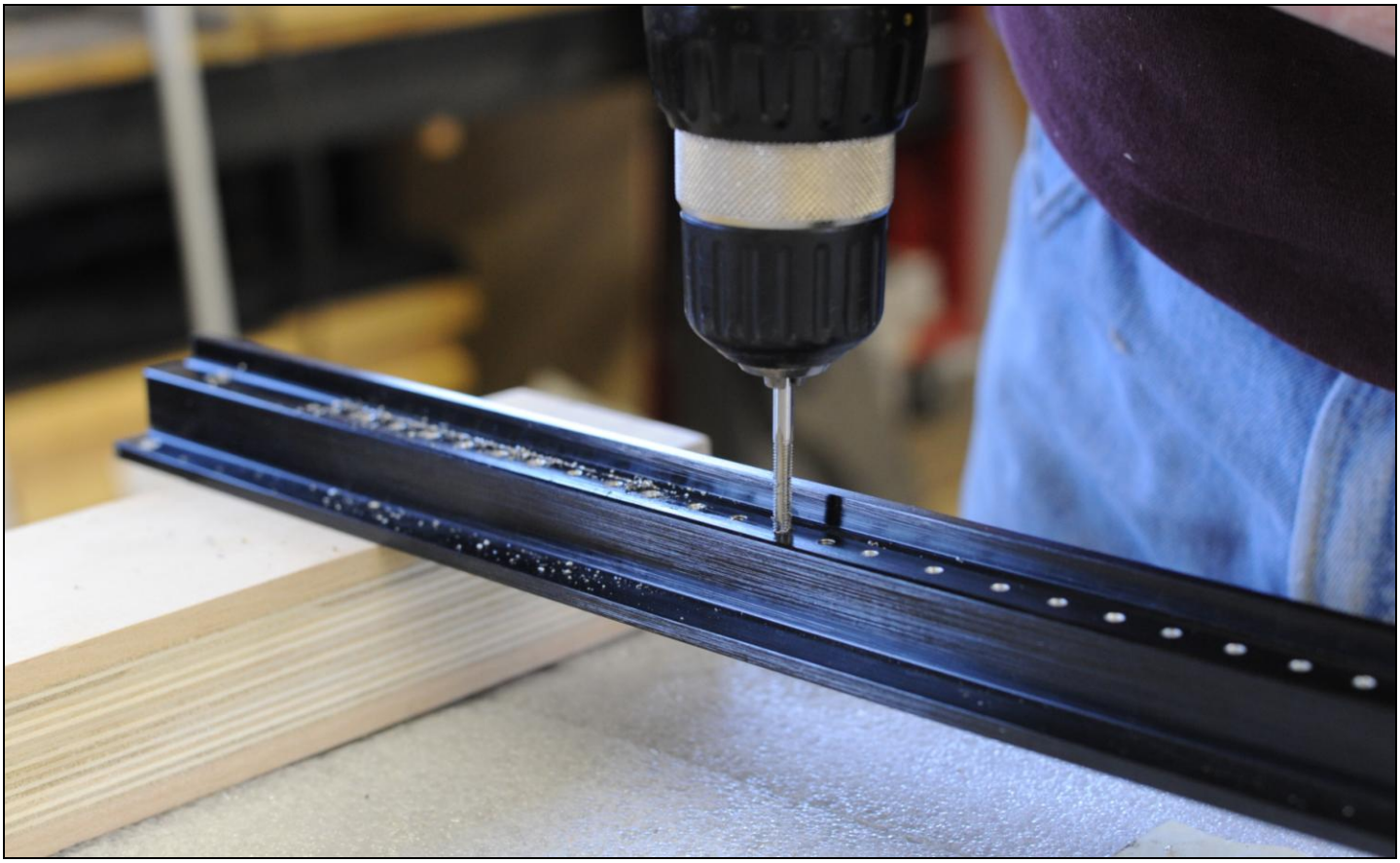
Position the mark under the drill and slowly lower while loosely holding the rail. The tip of the drill will catch the punch mark and pull the rail directly under the drill. Feed the drill into the hole at a moderate pace, fast enough to generate chips, slow enough to match the rate the drill can cut aluminum.

Drill all the note and tray flange holes with this setup. The hole size and threading are the same for note and tray flanges.

The easiest way to cut threads is with a tap in a battery powered drill. The tap size is 4.0 x .7mm.

Also, you will need the Tap Magic Aluminum Cutting Fluid to lubricate the tap while cutting threads in the aluminum rail.

Cutting threads in aluminum is easy however, you will need to apply cutting fluid to the tap. The cutting fluid keeps the aluminum from balling up in the threads causing a stripped hole.



The easiest way to tap the flange holes is with a tap in a battery powered drill. The procedure is easy.

Put the tap in the drill.

Set the direction of rotation forward and the speed slow.

While holding the tap vertical, pull the trigger and let the tap pull you into the hole.

When the tap is through the metal of the rail, stop the drill, reverse the direction, and pull the trigger. The tap will quickly thread itself out of the hole.

You can use any kind of felt tip to black in the end of the rail. A paint felt tip works the best. Obviously you can use any color you prefer however, our suggestion would be black.

Paint the end so it matches the color of the rails and does not stand out.