Create a scale stick from a shank rail

To create a new action for your old piano WNG needs certain information about the old rails. WNG needs to know the length of the rails and the spacing down the rail for the bracket and flange screw holes. This information is called a scale stick.

There are a number of ways to create a scale stick. The method in this procedure is the most common way to create a scale stick. This scale stick can be used to replace an action, a keyboard or, with additional work, a damper action.

Minimum Spacing Between Notes

WNG requires a minimum of 12.2mm between notes. Before you invest a lot of time and effort, you should determine if your action meets this criteria.

Measure the distance between the first and last notes in each section of the piano. Divide this distance by the number of notes minus 1 (that is if the number of notes is 26 divide by 25). This calculates the inherent spacing of the notes. If the number you arrive at comes to less than 12.2mm then the WNG action will not work.

It may be possible to stretch a section to achieve the required spacing if you are also replacing the keyboard. If this is the case you will need to contact us to determine feasibility.

Tools

You will need the following tools.

Screwdriver – Slot for action screws
Chisel – 1”
Sanding block
80 grit sandpaper

WNG Scale Stick Kit
- 25mm wide Mylar strips
- Small square
- Mechanical pencil for Mylar

Long straight edge

Remove the shanks from the shank rail

We are going to create a scale stick from a wooden shank rail. Our first task is to remove the action parts from the rail so we can get to the screw holes.

Remove the sandpaper from the shank rail

When taking this scale stick it is necessary to see old screw holes clearly. For this reason it is necessary to remove the old sandpaper from the rail. Use a chisel to lift the old sandpaper from the rail. Usually the sandpaper is quite deteriorated and thus easy to remove.

Sand the shank rail so the old holes are clearly visible

After the rail is stripped of sandpaper, sand all remaining paper from the rail so that the old screw holes are clearly evident. Use 80 grit sandpaper.

With compressed air or a vacuum, remove the sanding debris from the rail. Now you are ready to start measuring the spacing for the notes and brackets on the rail.

The scale stick kit

WNG provides a scale stick kit with all the materials needed to create a scale stick for your action or damper action.

The kit includes strips of Mylar 25mm or about 1 inch wide, a pencil with the correct lead for Mylar, and a small square. These tools will allow you to create an accurate scale stick for your action.

Mylar is dimensionally stable as humidity changes and easy to work with. One side is coated so that a pencil can write on it.

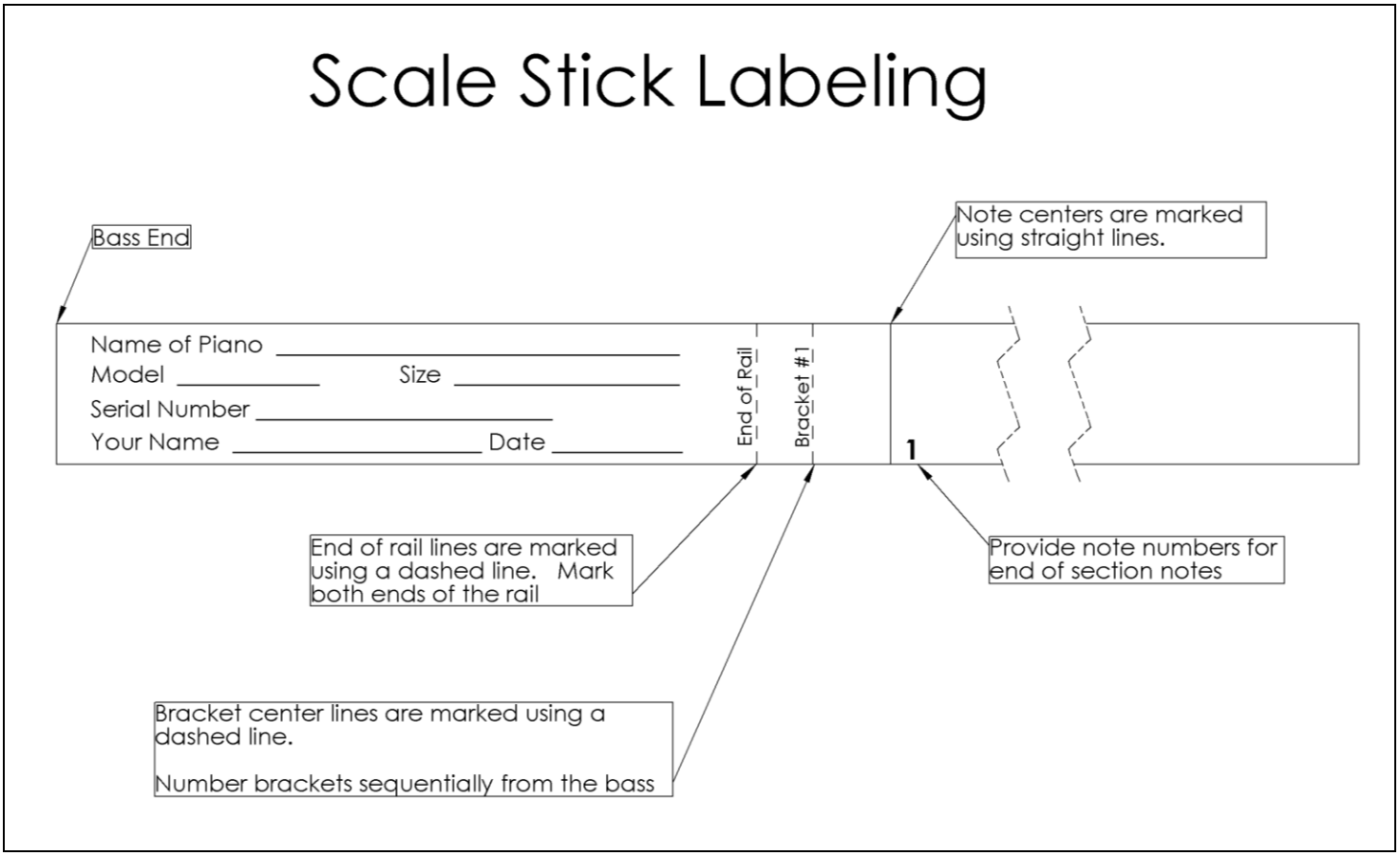
Tape a strip of Mylar to the action rail

Tape a strip of Mylar onto the rail so it covers the length of the entire rail. Give yourself about 6” of Mylar at the bass end.

Make sure that you do not stretch the Mylar during this operation as that would distort your scale stick causing a serious error.

The frosted side of the Mylar should be up for you to write on.

One edge should be against the lip of the shank rail so that the Mylar runs parallel to the rail.



Scale Stick Labeling

WNG has established a scale stick protocol that ensures we understand your information.

- Note centers are marked with straight lines.
- Bracket centers are marked with dashed lines.
- Brackets should be numbered sequentially from the bass.
- Each end of the rail is marked with a dashed line.
- At the bass end of the scale stick mark the following information as shown above.
    - Name of Piano.
    - Model and size of piano.
    - Serial number of piano.
    - Your name and the date this scale stick was taken.

The purpose of the WNG scale stick protocol is to reduce confusion. It helps us to avoid mistakes when we are looking at your scale stick. Avoiding mistakes helps us all.

Mark the note centers

It is easiest to mark the center of each screw hole and then draw the center line on the Mylar scale stick.

The task is simple. For each note in the piano, find the center of the screw hole and place a small mark on the Mylar.

Draw the note center lines

The scale stick kit includes a small square. Place this square on the action rail on top of the Mylar. One leg of the square should ride on the lip of the shank rail that locates the end of the hammer shanks. The other should go across the note screw holes and bracket holes.

For each note, move the square to the mark for the center of each screw hole. Draw a straight line from one edge of the Mylar to the other. Again, with WNG scale stick protocols, a straight line signifies a note center.

Mark the ends of the rails

Move the square to the each end of the rail.

Mark a dashed line on the ends of the rail.

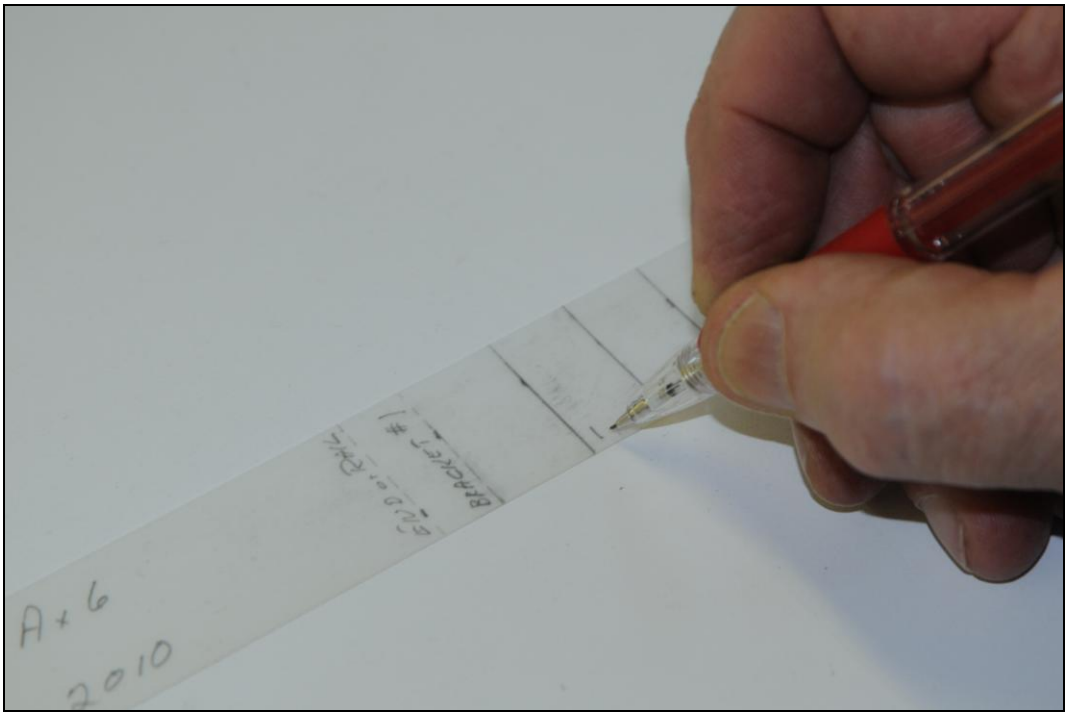
Label the ends by writing on the line “End of Rail - Bass” or “End of Rail – Treble”

Mark the action bracket centers

Find the center line for each bracket. With a wooden rail action this should be the center of the hole for each bracket screw.

Mark the bracket center on the Mylar.

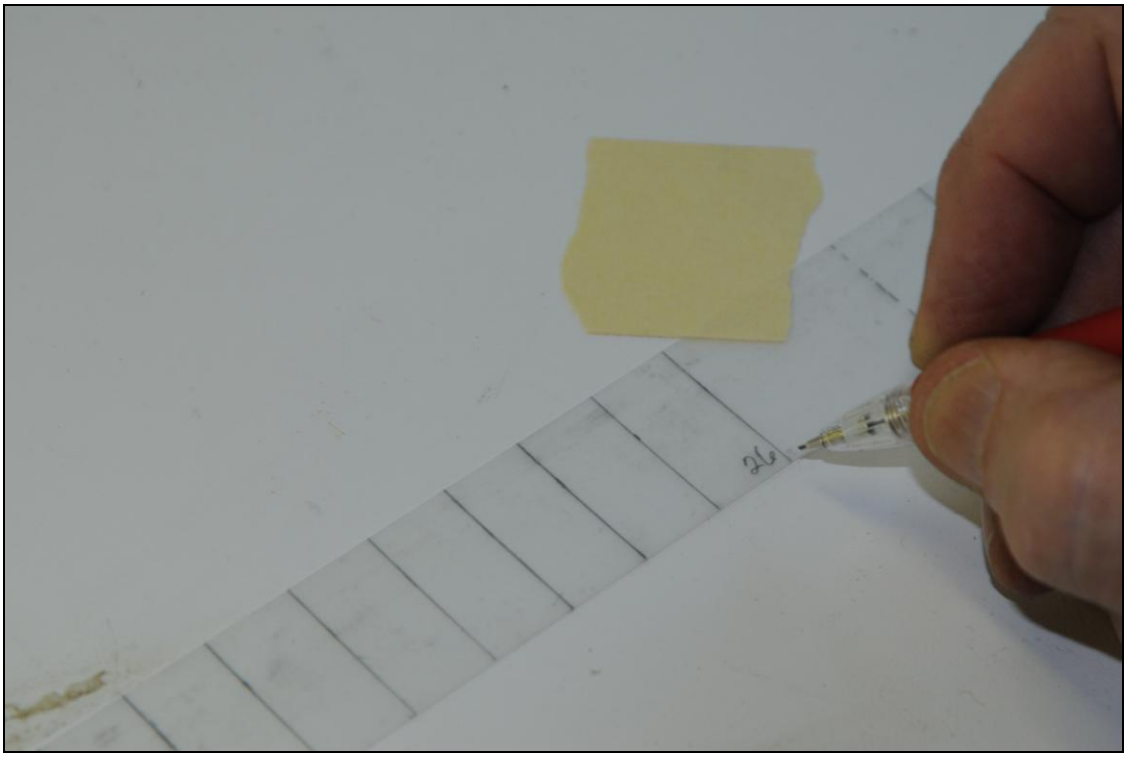
Draw the bracket center lines. Move the square to the center of each action bracket screw hole as previously marked. Draw a dashed line from one edge of the Mylar to the other. Again, a dashed line denotes that this is not a note center.



Write bracket numbers on the bracket lines]

Write the bracket numbers on the bracket lines on the Mylar scale stick. Number brackets sequentially from the bass.

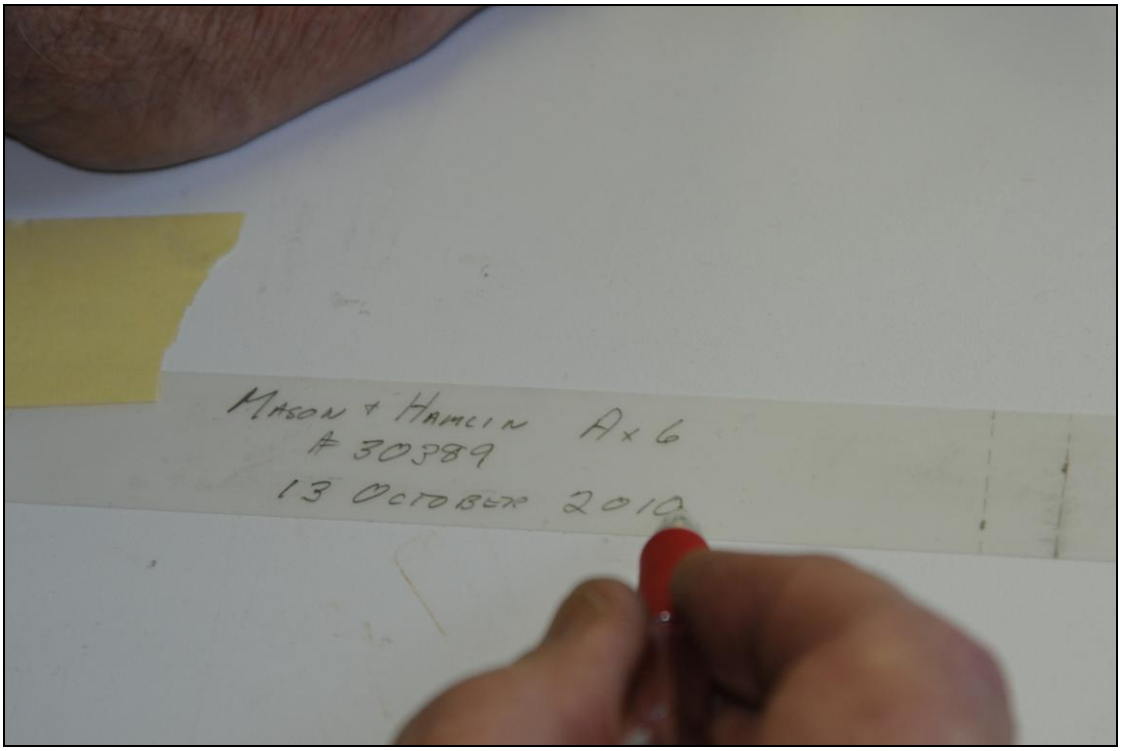
The WNG scale stick protocol is that the bass, or bracket 1, or note 1, is on your left and numbers are written so you can read them in this orientation.



Write the note numbers at the end of each section

Write the note numbers at the end of each section on the Mylar scale stick.

Write the numbers as close as possible to the note center line for each end of section note. Because we will need to check these numbers, legibility is good.



Write the name and serial number of the piano at the bass end of the scale stick

Just to the left of the #1 bracket write the name and model of the piano, the serial number and the date on the scale stick.

You have now created a scale stick.

Send this Scale Stick to WNG

Send the scale stick to WNG so we can drill the action rails for your new top action. The best way to do this is to roll the scale stick up with a rubber band around it. You will also need to fill out the WNG Action Build Sheet. This build sheet specifies the feature set you wish for the WNG top action.

Send the scale stick to:

Wessell, Nickel & Gross
Suite #1
Attn: Mark Burgett
4111 North Freeway Blvd.
Sacramento, CA 95834

Even Spacing

When your action was designed it is possible, even likely, that some of the sections were evenly spaced. During the manufacture of the rail and your subsequent extraction of a scale stick, small errors have likely occurred. Consequently, on the scale stick you send us, the note spacing might not be as originally designed. On a tight scale, because of the random nature of these deviations, the distance from one note to the next could easily fall below WNG mandatory minimums.

For this reason, when we receive a scale stick from you, we will evaluate the various sections of the piano to see if even spacing is reasonable. Of course, if even spacing is not reasonable we will go 100% from your scale stick.

If, in our judgment, equal spacing is sensible for a particular section, WNG will use the first and last notes from that section on your scale stick and evenly space the notes between. If you plan to replace the keyboard, you will need the action scale stick from WNG to provide to your key maker. WNG will gladly provide a copy of the final scale stick if requested.