

# Instructions for the Wessell, Nickel & Gross Piano Action Order Sheet

The Wessell, Nickel & Gross Grand Action Order Sheet is intended to help the customer select the right hammer action (top action) and damper action (back action) with the appropriate feature set to address their specific needs. To fill out this form, you can either:

- A. Print the form, fill out the required information by hand, and then either mail or fax it to Wessell, Nickel & Gross at:

Wessell, Nickel & Gross  
4111 N. Freeway Blvd.  
Sacramento, CA 95834  
Fax: (916) 567-1941

- B. Open the PDF in the **latest version** of Adobe Reader, type your information directly onto it, save your finished form, and email it back to us at [sales@wesselnickelandgross.com](mailto:sales@wesselnickelandgross.com). Adobe Reader is free and can be found at this address: <http://get.adobe.com/reader/>.

## **Contact and Piano Information**

Please fill out all of the necessary contact information as well as the make, model, and serial number of your piano. This is to ensure that Wessell, Nickel & Gross can provide you with the best possible products and experience that it can give you.

## ***Hammer Action (Top Action)***

**\*Important\***

Before you can order a Hammer Action you need to have access to a Manufacturer Parts Kit (PN# 06-5325) and a Scale Stick Kit (PN# 06-5806).

To order a hammer action (both assembled and unassembled), please specify the following information on your order sheet.

### **Rails drilled and assembled**

WNG always drills the rails on our hammer actions. If you would like to assemble the rails yourself, please purchase our Unassembled Hammer Action. If not, choose our Assembled Hammer Action. In either case, you will need to fill out and send in a completed Scale Stick. If you do not know how to make a Scale Stick or have the tools for this, WNG offers both instructions and a convenient kit that includes five strips of mylar, a square, and a mechanical pencil on its website. (Part number: 06-5806 [www.wesselnickelandgross.com](http://www.wesselnickelandgross.com))

- Check the box confirming that you will fill out a **completed** Scale Stick and it to WNG.

### **Type of Action**

WNG offers its actions with either a Rest Rail or a Cushion.

- Check the “Rest Rail” box to order an action with a rest rail or the “Cushion” box for an action with cushions on the repetitions.

### **Shank & flange**

The standard WNG shank & flange is 17mm from the shank center pin to the center of the knuckle (10mm in diameter), however, WNG gives you the option to customize these dimensions. You can choose to position the knuckle between 15mm to 19mm in 1/2mm increments from the shank center pin, and choose from 8, 9, 10, 11mm diameter knuckles.

- Check the box labeled “WNG Classic / Modern (17 x 10)” to select WNG’s standard shank and flange. If you would like custom dimensions, check the “Custom” box and enter in the knuckle distance and diameter that you want.

### ***Repetition***

WNG offers nine heel sizes and 14 heel locations on its repetitions, and optional rest cushions. Note that when you made your selection in the “Type of Action” section you have already chosen whether or not your repetitions will use a cushion.

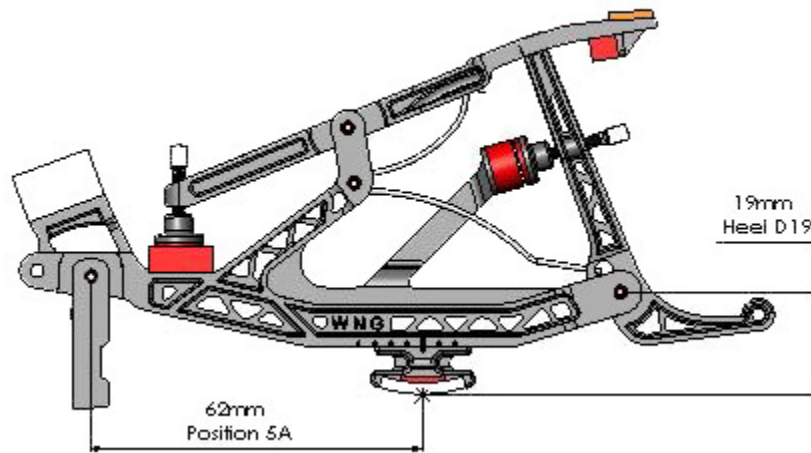
The WNG Modern repetitions have a jack length that is compatible with Renner Butterfly or Steinway actions and is also the most common jack length in the world. Note: WNG jacks use a low angle tender that matches up with the location of the WNG regulating rail.

WNG Modern repetitions use D-19 heels that are positioned 62mm from the repetition center pin. This is the most common heel configuration, however, WNG gives you the option to choose a custom size and location.

- Check the “WNG Modern” box if you would like repetitions that are compatible with the vast majority of piano actions made in the world today.

- Check the “Custom” box and enter the required information if you would like your repetitions to have a non-standard heel location or size.

If you have chosen to order a custom heel configuration you will need to select the distance from the repetition center pin to the center of the heel and the heel size. The drawing below should help you understand where the dimensions are taken from.



*The chart below contains information on the heel positions and sizes that WNG provides.*

<u>Position Code</u>	<u>Dimension</u>
1A	50.0 mm
1B	51.5 mm
2A	53.0 mm
2B	54.5 mm
3A	56.0 mm

3B	57.5 mm
4A	59.0 mm
4B	60.5 mm
5A	62.0 mm
5B	63.5 mm
6A	65.0 mm
6 B	66.5 mm
7A	68.0 mm
7B	69.5 mm

Pick the location where you want the heels positioned and write it in the space provided.

WNG makes 9 different heels ranging from 16mm to 24mm with each heel increasing in height by 1mm. Please note that the heel itself is not 16mm. Rather, the contact surface of the heel is 16mm below the jack center. See the above drawing for further information.

*The below chart contains information on the heels sizes that WNG offers.*

<u>Heel Code</u>	<u>Dimension</u>
A16	16mm
B17	17mm
C18	18mm
D19	19mm
E20	20mm
F21	21mm
G22	22mm
H23	23mm

When designing a keyboard it is important that the balance point of the key, the contact point between the capstan and the heel of the repetition, and the repetition center are on a straight line when the key is at half stroke. This is often referred to as “Half Stroke line” (for more information on the half stroke line, click [here](#)). The key designer can work these three elements to achieve a good design, however, when you work on an existing keyboard, you can usually only adjust the height of the heel. With WNG’s nine different heel sizes in 1mm increments, it is easy to solve this problem by adjusting the heel size to achieve a good half stroke line.

Since the balance points of the keys are different, it is impossible for the same half stroke line to be correct for both the natural and sharp keys. Some technicians are able to solve this by setting the half stroke line half way between the natural and the sharp balance points. This method is simple and gets both the natural and the sharp to roughly where they need to be. However, a more precise way is to have a different heel height for the sharp as well as for the natural. By doing this, the half stroke line will be much more accurate for both the natural and the sharp. To do this, the height of the sharp heel is typically increased by 2mm. This way there are two half stroke lines in the action.

If you would like all 88 notes with the same heel size, enter the same size for both natural (52) and sharp (36), and all 88 heels will be the same. If you prefer different heel heights for the sharp and the natural keys, enter the heel size you would like for the natural on the “Naturals (52)” line and the heel you prefer for the sharp on the “Sharps (36)” line.

If you would like helper springs, you can add a helper spring kit that contains 90 springs to your order. Lastly, if you would like WNG to install the springs for you, check the

appropriate box and enter how many you'd like installed. Please note that both the spring kit and the installation of the springs are extra charges.

## **Brackets**

WNG offers brackets in two different heights—short and tall—to accommodate your piano manufacturer's design.

WNG offers five different models of tall brackets that have an angled front foot and come in 2 degree increments from 2° to 10°. These angled brackets are used to work with the angle of the keys at the lower and upper treble breaks.

The WNG end brackets feature an additional hole. This extra hole is there so that the piano technician can create a physical locator for the action using a pin rather than the screws that anchor the action to the action cleat.

WNG numbers its brackets starting from the bass. For example, the bracket at note 1 is bracket #1. The brackets are also numbered sequentially so if the piano has 4 sections, there will be 5 brackets so in this example, the bracket at note 88 will be bracket #5.

*The below chart contains information on the brackets that WNG offers.*

<u>Code</u>	<u>Bracket Name</u>	<u>Part Number</u>	<u>Color</u>
TS/LH	Tall Straight bracket with locating hole	PN# 06-3009	White
SS/LH	Short Straight bracket with locating hole	PN# 06-3008	Red
T2	Tall Angled (2°) Center bracket	PN# 06-0273	Orange
T4	Tall Angled (4°) Center bracket	PN# 06-0274	Yellow
T6	Tall Angled (6°) Center bracket	PN# 06-0275	Blue

To order your brackets simply fill in the appropriate bracket codes with what you want.

- At the bass and treble ends select either a tall or short straight bracket.
- In the lower and upper treble, select the angled bracket that best matches the angle of the lower key in the break.

### ***Damper Action (Back Action)***

To order a damper action, please specify the following information on your order sheet.

#### **Rails drilled and assembled**

WNG can either let you drill and assemble the rails yourself or we can do it for you. Please note that if you choose to have WNG drill and assemble the rails, you will need to mark and send in a Scale Stick with your drilling specifications. If you do not know how to make a Scale Stick or have the tools for this, WNG offers both instructions and a convenient kit that includes five strips of mylar, a square, and a mechanical pencil on its website. (Part number: 06-5806 [www.wesselnickelandgross.com](http://www.wesselnickelandgross.com))

- Check the appropriate box if you want or don't want WNG to drill and assemble the rails for you.
- Enter the total number of dampers for your piano.

#### **Damper Heads & Wires**



WNG can include damper heads and wires with your damper action in either Ebony Satin or Ebony Polish at additional cost.

- Check the appropriate box if you would like to include damper heads and wires.
- If you selected “Yes”, choose either the Ebony Satin or the Ebony Polish and fill in the number of bass dampers and an additional cost will be applied.

### **Flange Rail**

WNG provides two different sizes of flange rails—thick and thin—to accommodate the vast majority of pianos. Both rails are functionally the same and there is no difference in performance between the two.

The thin flange rail is designed to work in pianos where the distance from the damper wire to the back of the belly rail is at least 72mm. While both the thick and the thin rails perform the same, because the thin rail is smaller, it requires one additional mounting point in the center.

WNG’s thick rail is designed for pianos where the distance from the damper wire to the back of the belly rail is at least 86mm. Also, because the thick rail is larger, it only needs to be mounted on each end.

- To order the thin damper flange rail check the box labeled “Thin”.
- To order the thick damper flange rail check the box labeled “Thick”.

### **Under Levers**

Wessell, Nickel & Gross' under levers are very customizable and offer many different features.

WNG provides three different spoon lengths for its under levers. Measuring from the under lever center of rotation to the tip of the spoon, WNG's short spoon is 73.6mm, its medium spoon is 76.6mm, and its long spoon is 81.6mm.

To choose the spoon length for your under levers:

- Check the "Short" box for spoons with a length of 73.6mm.
- Check the "Medium" box for spoons with a length of 76.6mm.
- Check the "Long" box for spoons with a length of 81.6mm.

Two different sostenuto tab heights are also available. The tall sostenuto top flange is meant as an American Steinway replacement because the sostenuto is mounted on the action frame in their pianos. This makes it necessary to use the tall sostenuto top flange.

For every other piano, WNG recommends that you use the short sostenuto top flange. The main advantage to having a short sostenuto tab height is that it moves the sostenuto rod further away from the back checks, which gives it better clearance and makes regulation much easier.

To select the sostenuto tab height:

- Check "WNG Standard Top Flange" box for a low sostenuto tab height.

- Check “WNG Aftermarket Top Flange” box for a high (American Steinway) sostenuto tab height.

WNG also provides you with the option of having either standard or custom leading. WNG’s “Standard Leading” option matches the most common leading in the piano industry, and is recommended for most pianos. It uses a two-lead system starting in the base with two leads (32 notes), one front lead (12 notes), one back lead (12 notes), and zero leads for the remainder of notes. If you would like custom leading, there will an additional charge of \$50.00.

To select what kind of leading you would like:

- Check the box labeled “Standard Leading” for your under levers to have leading that is compatible with most pianos.
- Check the box labeled “Custom Leading” if you would like to specify your own leading and fill in the appropriate boxes with the number of leads that you would like.

Lastly, WNG can include damper assist springs in your action. WNG mounts the spring and a screw to adjust the tension on a special flange. Please note that for this to work you need enough room in the damper action cavity to use the thick damper flange rail. Additional charges for a damper assist spring kit and labor (if you chose to have it assembled) will be added to your order.

To include damper assist springs in your action:

- Check the box labeled “Springs w/tension adjusting screw”.
- Enter the number of notes that you would like to have damper springs included with.

### **Sostenuto Rod**

If you would like add a sostenuto to your piano, Wessell, Nickel & Gross provides a Sostenuto Rod replacement solution that includes all of the necessary mounting hardware to mount it to your piano.

- To order a sostenuto rod and mounting hardware with your damper action, check the box labeled “Include Sostenuto Rod with Mounting Hardware”.

Note: WNG only offers an assembled sostenuto for manufacturers and kit form to individual technicians.