INSTRUCTIONS
FOR THE CARL MEYER
KEY LEVELING TOOL

Since key level and dip are essentially the interface between the piano and the performer, they are the basis of piano regulation. All other adjustments are made with this in mind.

LEVELING THE KEY BED

GRANDS

First, place the grand key frame on a flat surface (the bar of the tool may be used to check both the key bed in the piano and the work bench). Check for flatness: the front rail, balance rail, as well as fore and aft and cross wise. It is advisable to clamp the key frame to the prepared work bench at all corners. Care should be taken to shim the key frame to what exists in the piano key bed. A good height for the work bench is near belly button height, as much of the work will be done sitting on a stool, this allows viewing the gap between piano key top and the straight edge of the tool. Good lighting recommended, however the tool will produce a perfect job using sound and touch as guides.

IT IS WISE TO MEASURE THE HEIGHT OF THE KEYS AT BOTH THE FRONT RAIL AND BACK RAIL BEFORE REMOVING THE CLOTH AND PAPER PUNCHINGS.

Two piano key capstans are provided with the tool and a #18 drill bit . A hole needs to be drilled in the key bed, just in front of the felt bushings of pins 1 and 88. Screw the capstans into these holes and set the height of the reference keys 1 and 88 remembering the case parts and measurements of front and back rail. When assembled, the feet of the tool are positioned so that the conduit tube is to the rear.
The conduit is to stiffen the straight edge and is filled with sand to make it heavier.

Place plastic mending tape over the reference keys to protect them from becoming scratched, and attach the little wood blocks provided with the double stickey tape on the reference keys so that the straight edge is centered over the front rail pins of the white keys, with the long flat side of the feet resting on the white keys. Recheck the capstan adjustment for the chosen key height. Install lead weights (supply house) over the backchecks (Mother Goose uses grocery store beans 2 pound size two or three bags)
Place punchings on front and balance rail and straighten individual level and spacing of keys.
Now level all the WHITE keys by moving the bar up and down while lightly holding the tool against the wood blocks on the reference keys, to detect any that are too high. Using one hand at each end works well and any that are too high will cause the back checks to wink.
First remove paper punchings from winking keys and then next add punchings to all keys that show a gap. Visually estimate on the short side of one half the distance, as the ratio is 2 to 1 for the balance rail.
Do a section at a time as you have beans or weights, and place the punchings in front of or on the key that they will be put on. Don't sneeze. Repeat this operation with smaller and smaller punchings until level.
Check level by tapping lightly on the top and bottom of the key. If it clicks, it is not level.
Usually two to three times through and the level of the whites will be done.

Helpful hint: a couple of 1"x2"x8"slats fastened with a screw to work bench or under the key bed, will facilitate the handling of the tool.

Now, to set the key dip:
The real secret to this part is developing a consistent touch, as the felt of the front rail can be mashed to give different readings.

The use of a heavy weight, or third hand (350 grams), placed just in back of the white of the key stick and comparing the reading with that of your own touch will help you develop a quick feel for this measurement. Hold the tapered key dip block lightly between the thumb and first finger so that it will not force the bar up but slide in your fingers when slid into the gap between key top and edge of the tool. The first few times check your reading often to get just that right feel.

The "0" on the gage is .375 or 3/8" and should you feel more dip is needed "ASK JACK" and choose to set dip .010 or more. To ask Jack in a grand, you will need to set samples in the piano first, or return to the piano to check for dip after leveling.

Next, the sharps are done in the same manner and procedure as the whites, with the whites removed, except for the reference keys, with the tool turned around and the notch of the tool's foot resting against the wood blocks, in the same manner as the whites were done. The exception is that in setting dip one needs to use the 4" block of wood supplied in the kit. This is done by placing the block of wood on the back of two adjacent keys, a sharp and natural, and noting the tilt, if any, of the block. The block should not tilt to either side. Use paper punchings to make them the same. Now use the dip block and get a reading, it may not be the same as what you used on the whites but this is what is needed on this piano. Example- If the reading was + 20 and the next key shows - 10 use a .030 punching. The front rail is a 1 to 1 ratio.

Now the fun part:
Remove all sharps (the whites have been removed earlier) and flip all punchings so that the felt is now the top punching. Next remove the capstans and set the reference keys to match their neighbors.

Uprights:
Remove felt blocks from the hammer rest rail so that there is NO lost motion and the weight of the action of each assembly is resting fully on each key capstan. Or remove the action and use the bean bags.
If you do use the action as a weight be sure to remove it when you set dip as an unregulated action may give false readings.
A low stool may be great for allowing you to see the gap when leveling the keys, depending on your height or bench height.

HAPPY LEVELING, and do not forget to take the frosty tape off the reference keys when you put the tool away.

Mother