

Key Bushing
Bill Spurlock's Technique
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Why Rebush Keys?

Bushings set the touch of the entire action of the piano. They must be not too tight and not too loose. Extremes would be too much friction or floppy, rattly

Equipment

- Key rest
- Bill Spurlock's key clamps
- Various thicknesses of bushing cloth, from thick to thin
- Various sizes of cauls
- Micrometer for measuring pins
- Elmer's ProBond Wood Glue (stays tacky for a while & doesn't soak into the felt because it is thicker than Titebond)
- Glue applicator is a shank with one end sharpened like a pencil
- Olfa L-2 Snap-off retractable blade. (The black is 4x as sharp: olfa.com.)

Removing Bushings

- Windex or 409 Glass Cleaner: any window cleaner with ammonia
- Accordion squeeze bottles with needle tips, available from Rockler's Woodworkers Supply on Stone Way
- Thin pointy tweezers for pulling out the loosened felts

Sizing

Measure the thickness of the pin in order to choose the appropriate sized caul. Bill's cauls take into account the need for slight key play by making the cauls a couple hundredths larger than the pin size. Start with a medium-sized felt. Insert a felt on each side and insert the caul. Feel how tight or loose it is. Set some samples: insert each size of felt into each of several keys and insert a caul into each one. Feel them to determine which thickness of felt feels the best.

On older pianos if some of the wood breaks out, you can use a thin felt on one side and a thicker piece on the other side. If the wood actually breaks, it can be patched with a toothpick. Bill Spurlock makes a sizing caul that fits the empty hole while the keys dry, which produces very uniform holes.

Installing the Bushing Cloth

1. Apply a thin layer of glue onto the felt with the applicator – about an inch of glue at a time so it doesn't set up.
2. With the first cut, lay the felt across the hole, leaving a gap approximately the thickness of the felt on the far side of the caul hole.
3. Center the felt over the hole. Hold it tightly with the thumb and insert the larger intermediate caul into the hole.
4. Cut the felt against the caul.
5. Wipe both sides of the blade on a piece of cloth to keep it clean.
6. For the front rail, lay the felt across the hole just as with the balance rail felt, and insert the caul with the shoulder.

Hints

1. Heather rests the fronts of the keys on her key rest.
2. A fresh blade makes all the difference.
3. Bill never puts the tool down, and keeps several cauls in his other hand.
4. When the keys are dry remove the sizing cauls and then glue sizes the empty wooden holes by brushing watery hot hide glue over the holes.
5. Check for clearance with the key pressed all the way down.
6. Select smooth German felt over coarse Chinese felt.
7. Chinese key buttons are so hard that they are difficult to squeeze.

Prepare the new bushings

1. Tip the clamped keys up on end and spray TFE Teflon lube from Grainger (S00708) one little blast into each new bushing hole. ("Lowest coefficient of friction.")
2. Iron each bushing only one second.
3. Shape the balance rail hole to 1/8th inch with a gauged cutting tool.
4. Shape the balance rail hole with a tapered reamer.
5. Squeeze each side of the key bushings with key easing pliers so that there is only a slight bit of play of the key on the pin. Set a guide on the tool to prevent inserting it too deeply into the hole. Place the tool just to the bottom of the felt.
6. If you accidentally ease the bushings too much, moisten the wood with water or steam so it swells. Another option is to make a little knife incision into each size of the wood and insert a little piece of veneer into the slots.

Time

- 30 min to remove the old bushing felts
- Actual bushing 1-1/2 hr
- Lubing and ironing takes only a few minutes.
- Installing the pins individually, reaming, etc. takes another 1-1/2 hr.