Can You Fix This?

What to expect from your piano technician

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Download at:
http://pianosinsideout.com/Classes.html#CanYouFixThis

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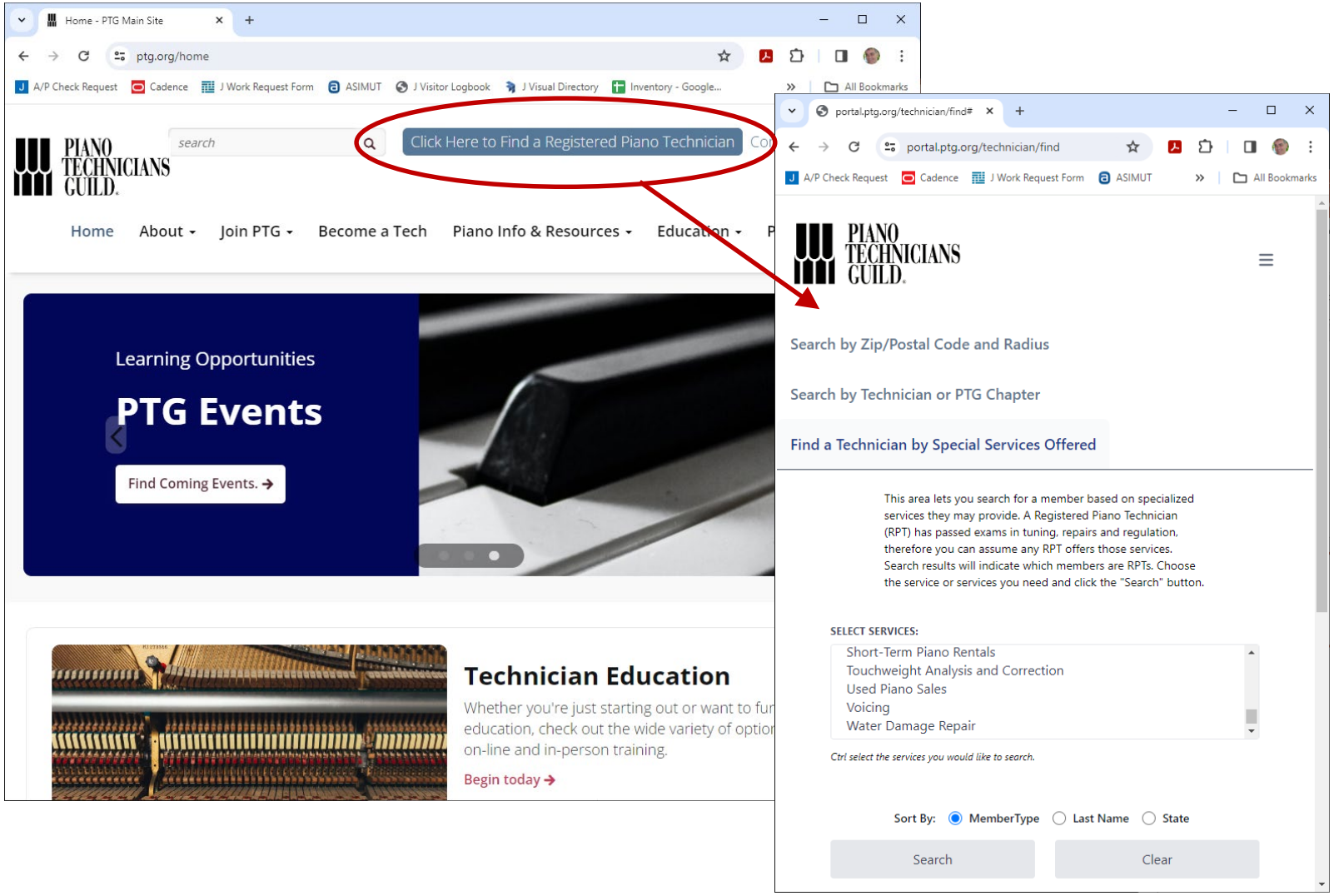
Technician skillsets

- Piano tuner
  - Tuning, repairs, maintenance
- Concert technician
  - Fine regulation, voicing
- Action rebuilder
  - Action parts, keys, dampers, strings?
- Piano rebuilder
  - Soundboard, pinblock, refinishing, strings, dampers

Finding a technician

- Recommendation
- College techs
- Rebuilding shops
- Piano dealers
- Ptg.org



Maintaining your piano

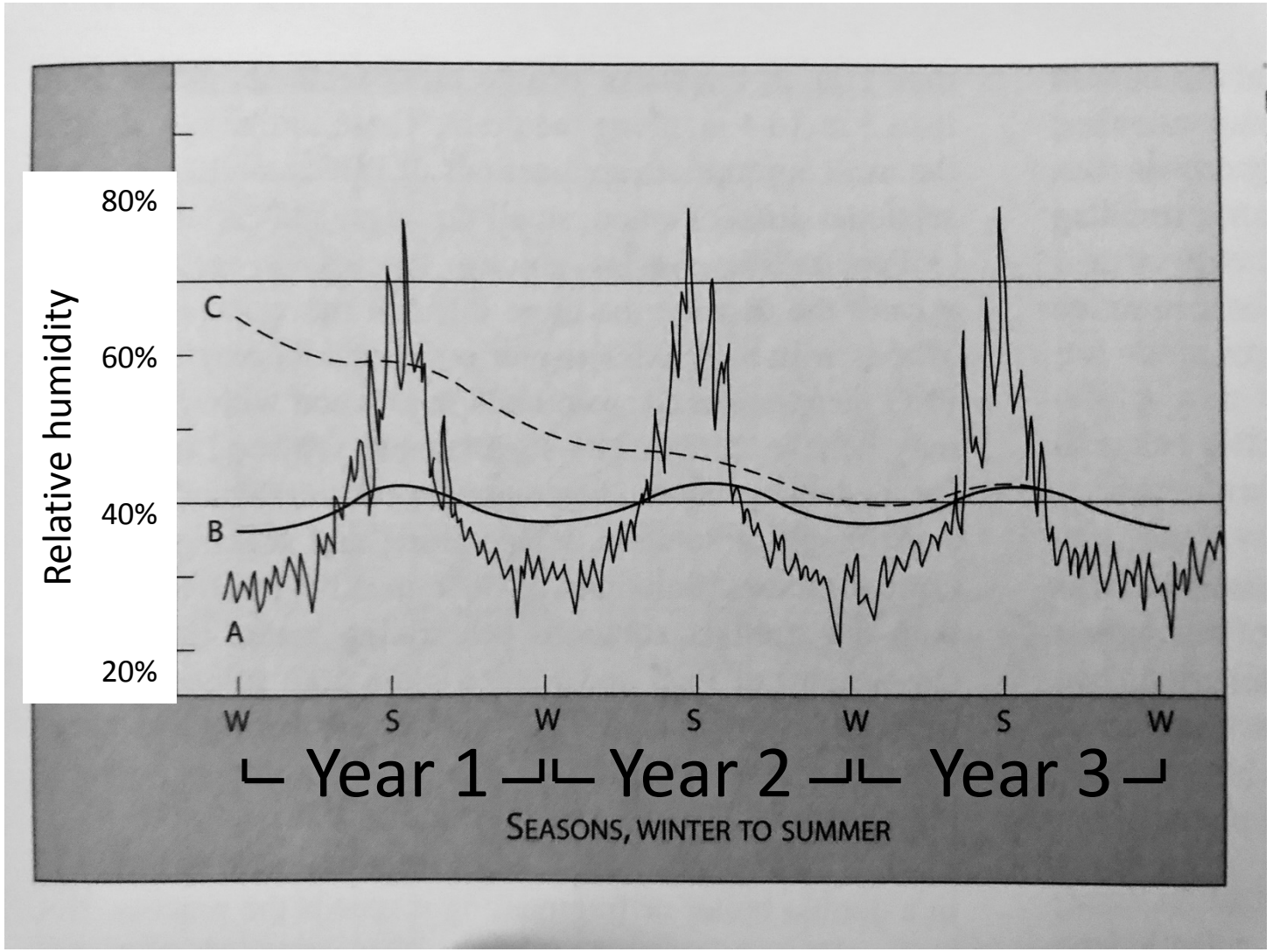
- Tuning 1-4 times a year
- Thorough service (1 or 2 days) every 2-3 years
  - Cleaning (grit = noise = premature wear)
  - Lubrication
  - Rejuvenating felts and cloths (e.g. key bushings)
  - Action regulation
  - Reshaping hammers
  - Voicing

Maintaining your piano

- Control humidity
  - Ideal: 40-50% RH
  - Tolerable: 30-60% RH

Humidity

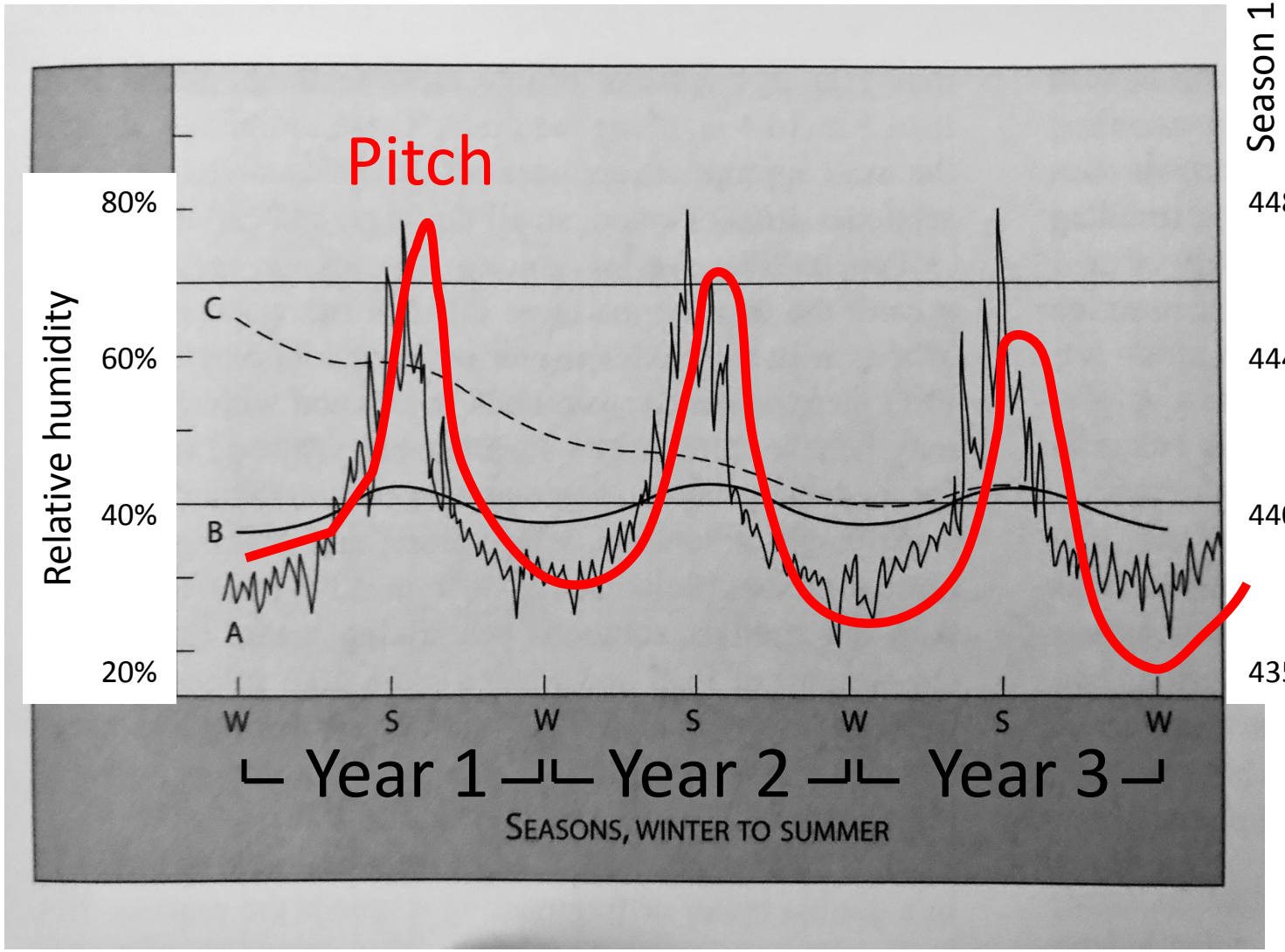
- Seasonal changes



Bruce Hoadley, *Understanding Wood*, p. 135

Humidity

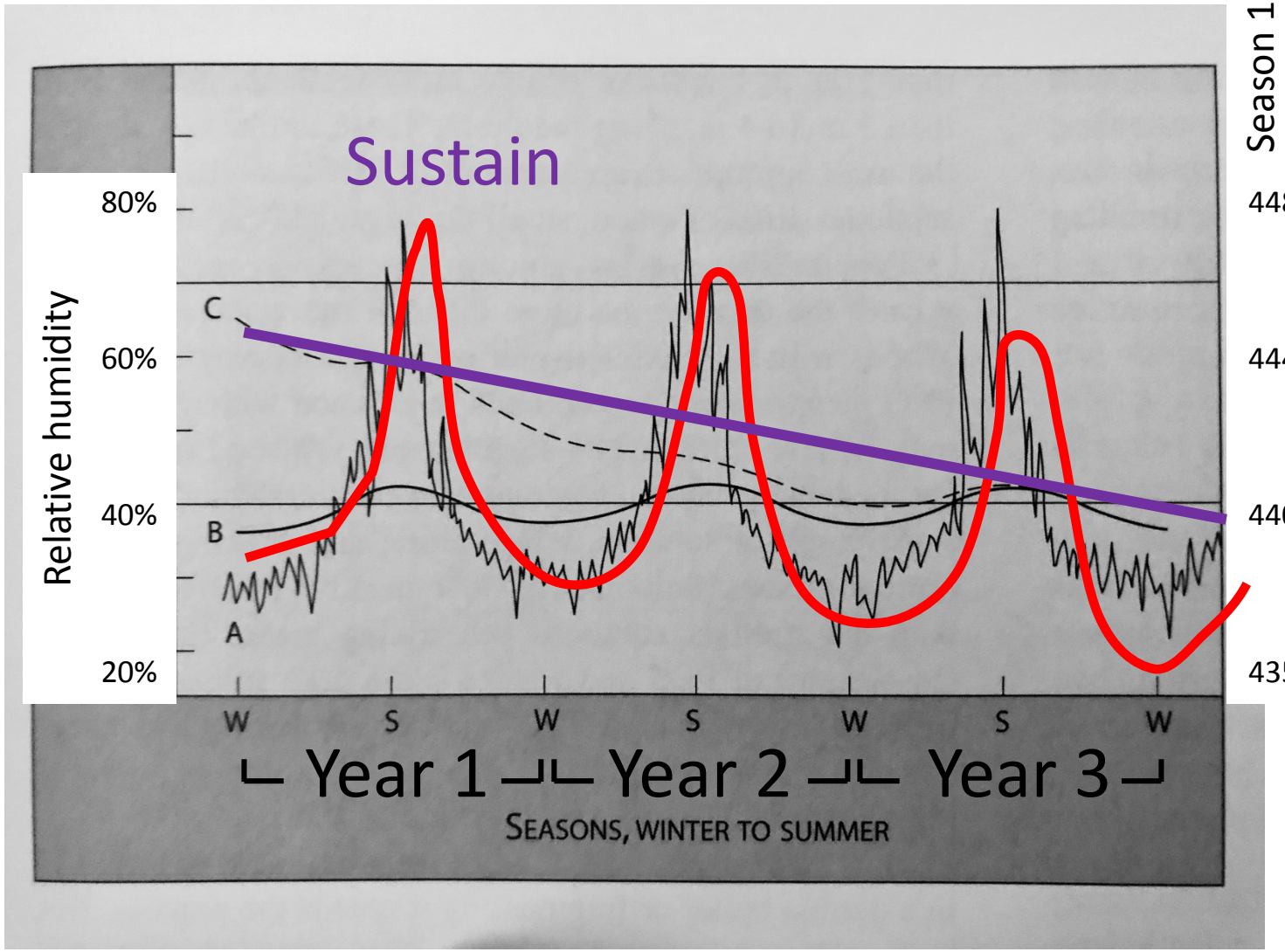
- Seasonal changes
- Pitch follows humidity



Bruce Hoadley, *Understanding Wood*, p. 135

Humidity

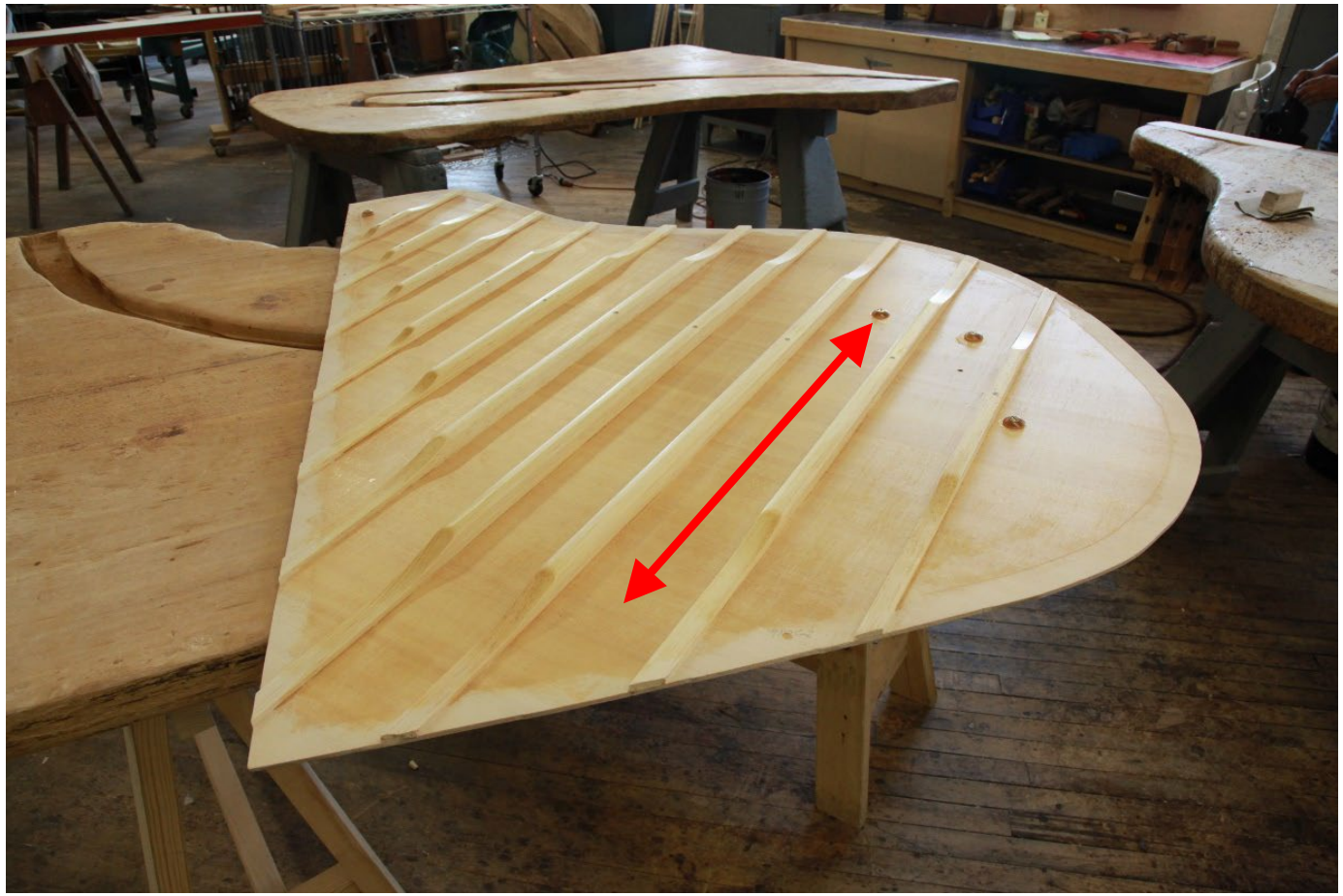
- Seasonal changes
- Pitch follows humidity
- Sustain gets shorter with time
- The tone dies!



Bruce Hoadley, *Understanding Wood*, p. 135

Humidity

- Expansion, contraction (in piano soundboard: across the grain)



Humidity

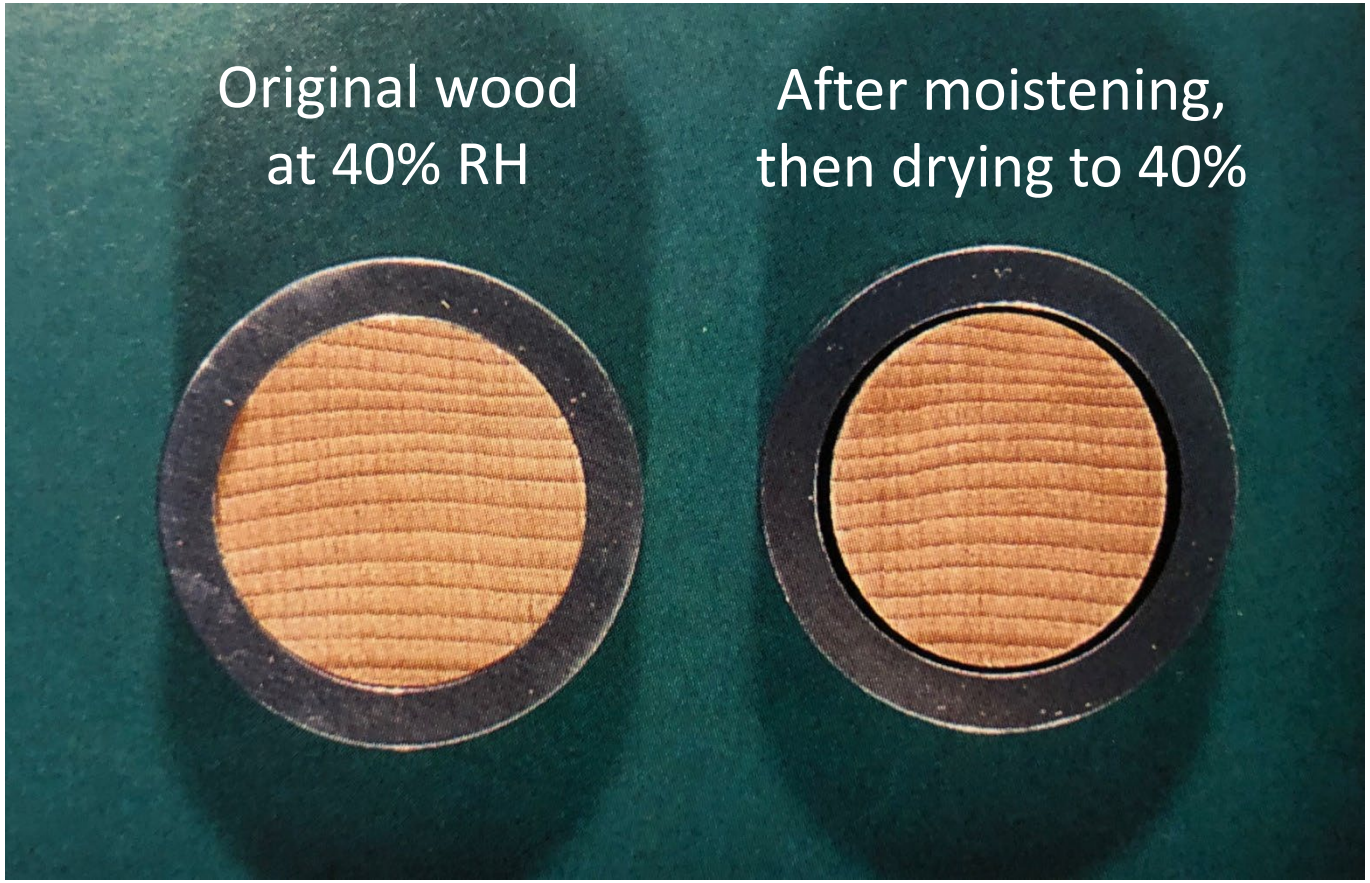
- Expansion, contraction (in piano soundboard: across the grain)
- But wood is constrained:
  - Ribs

Humidity

- Expansion, contraction (in piano soundboard: across the grain)
- But wood is constrained:
  - Ribs
  - Glued to rim

Humidity

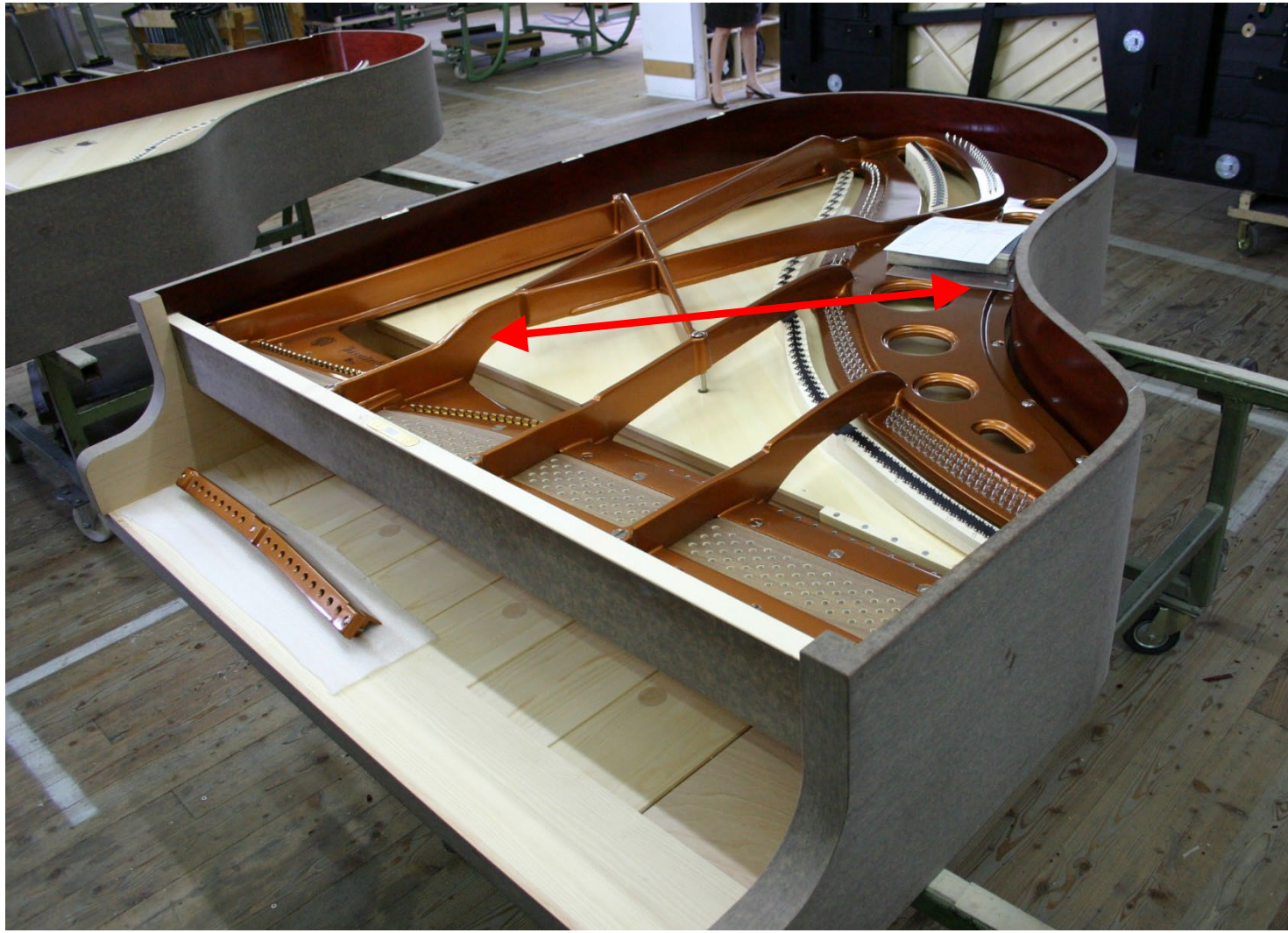
- Compression set



Bruce Hoadley, *Understanding Wood*, p. 129

Humidity

- Soundboard has nowhere to go

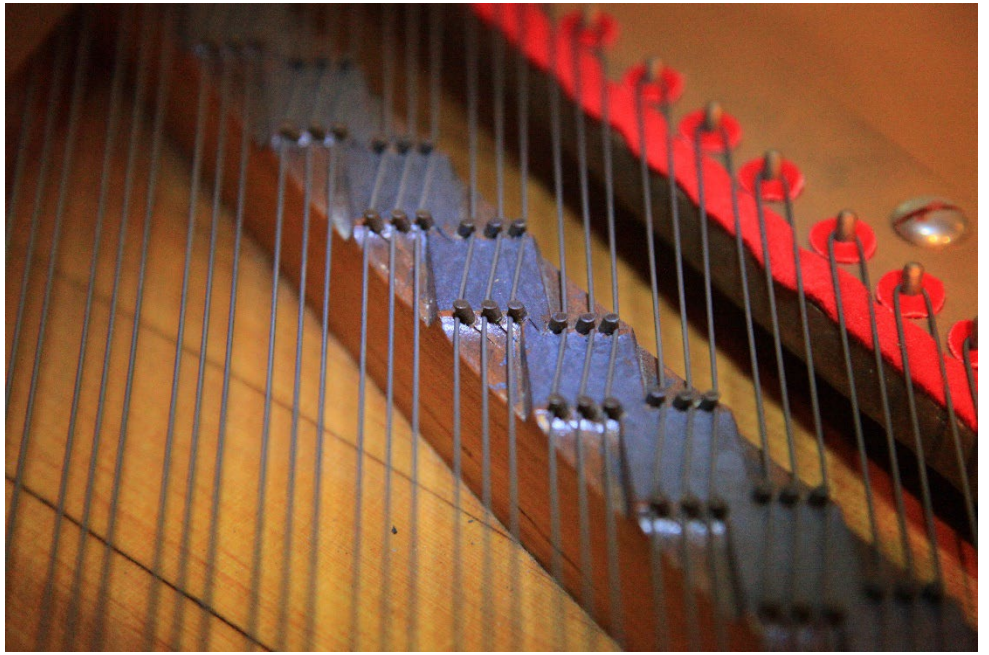


Humidity

- Soundboard has nowhere to go … but up and down, affecting pitch

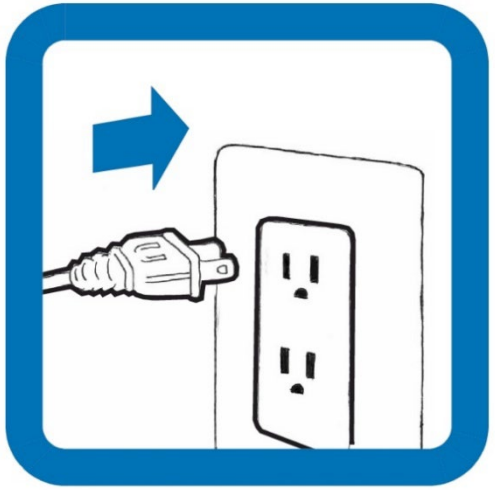
Humidity

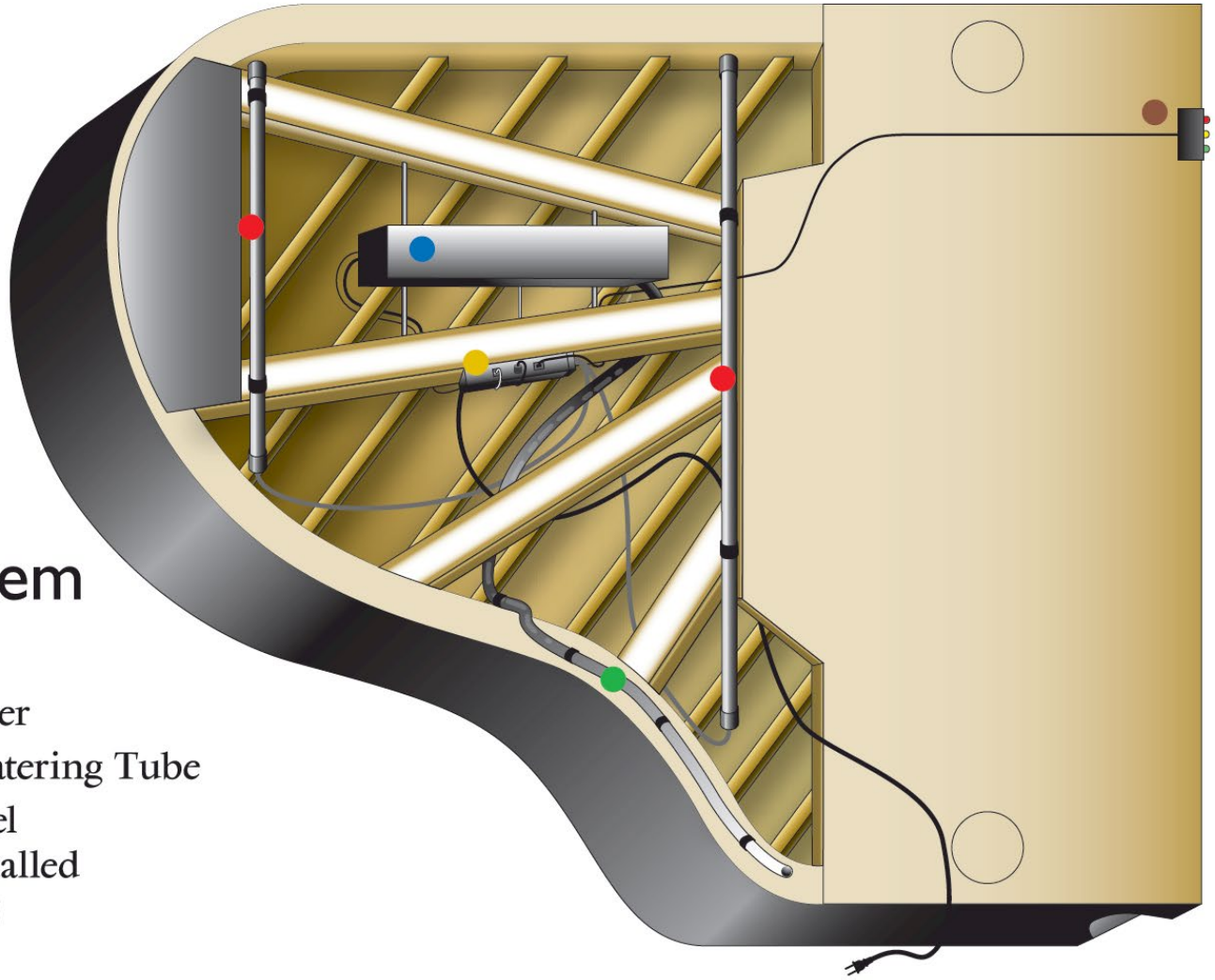
- Wood eventually cracks



Humidity solutions

- Dampp Chaser's
  Piano Life Saver System
  - Dehumidifier only
  - Full system





Humidity solutions

- Dehumidifier

Humidity solutions

Humidifier

Whole-house evaporative type with automatic control

- https://www.amazon.com/HD1409-Whole-House-Console-Style-Evaporative-Humidifier/dp/B00KVN8CLA/

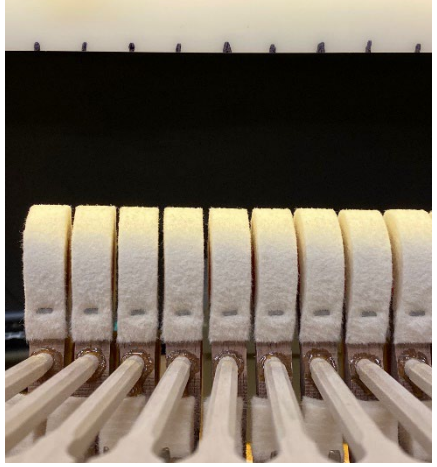
- Additive: https://www.amazon.com/Chemical-Humidifier-PRODUCT-CANNOT-SHIPPED/dp/B01LX7ECBZ/

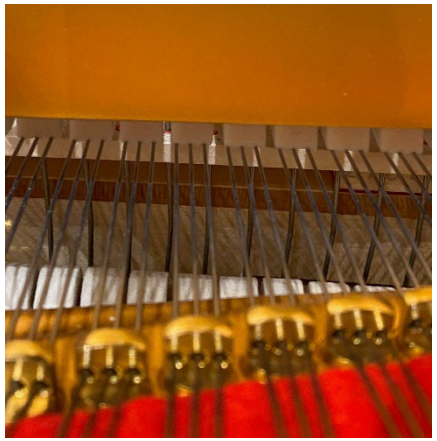
Tuning

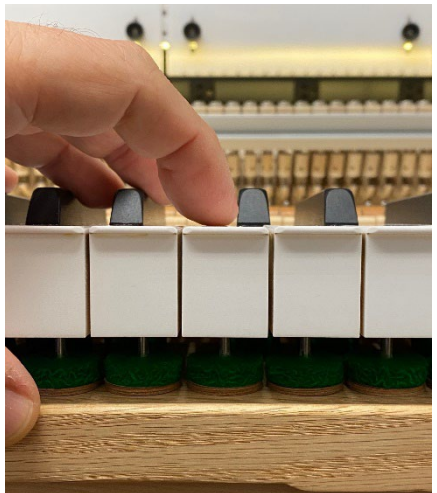
- Pitch a440?
- Pitch correction
- Temperament
  - Octaves
  - Fifths narrow
  - Fourths wide
- Unisons
- False beats
- New strings

Action

- At rest

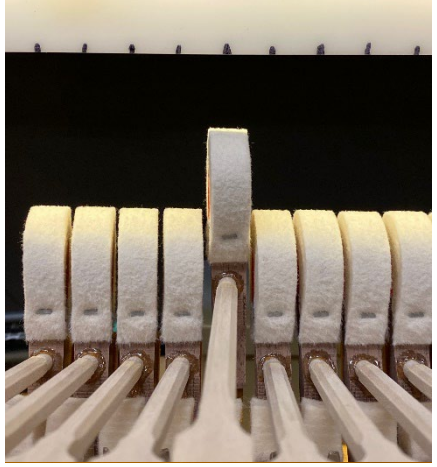


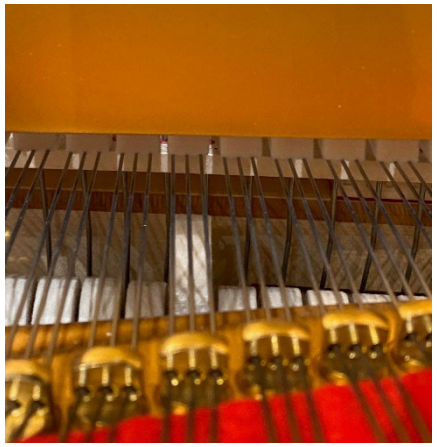


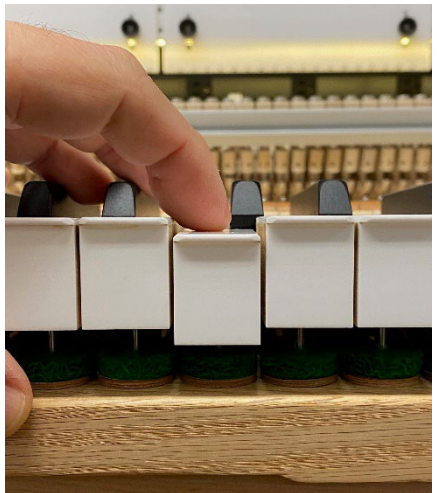


Action

- Damper lift

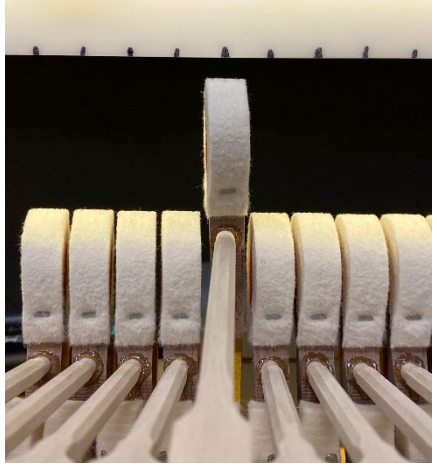


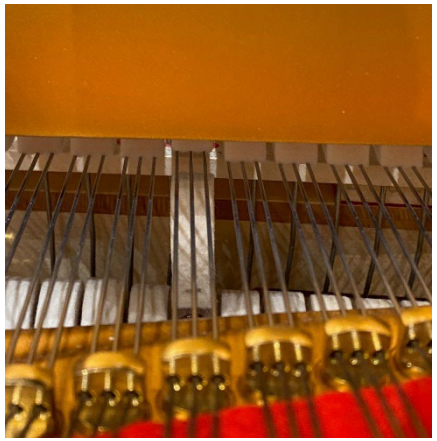


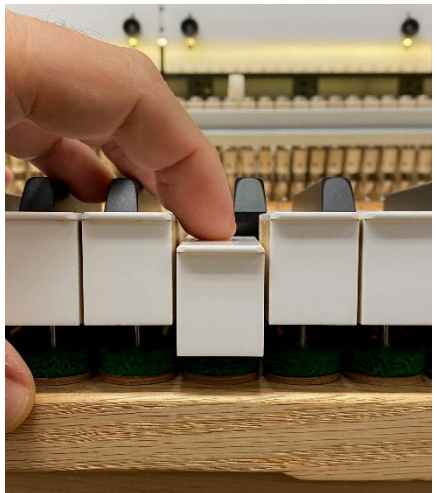


Action

- Escapement bump

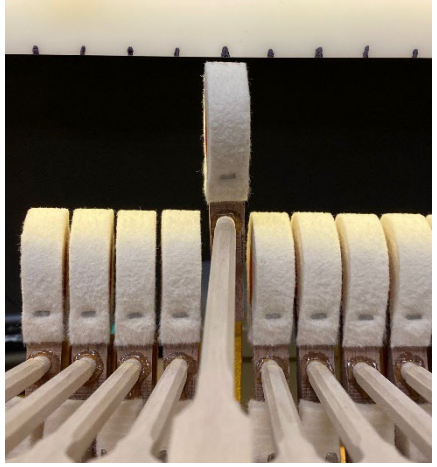


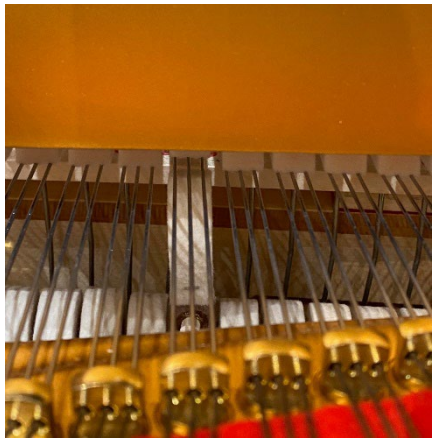


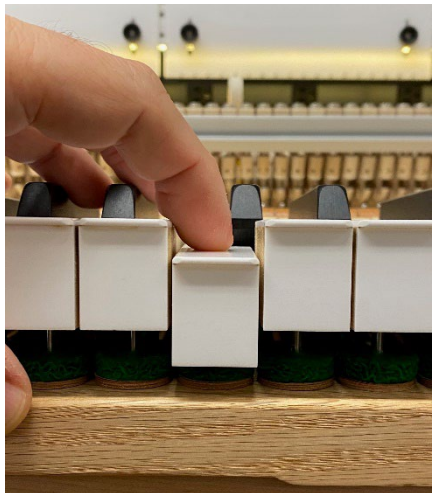


Action

- Letoff

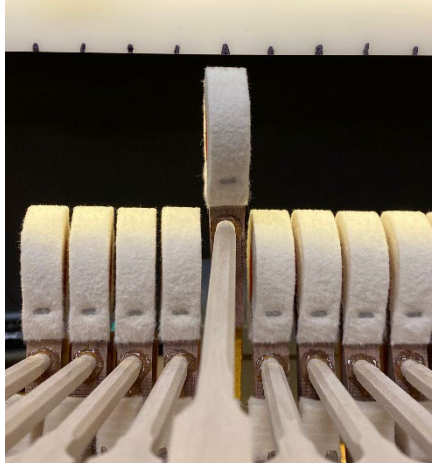


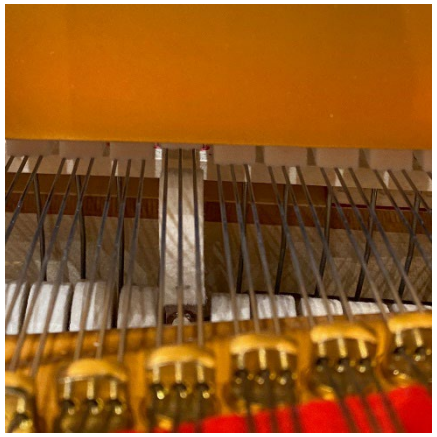


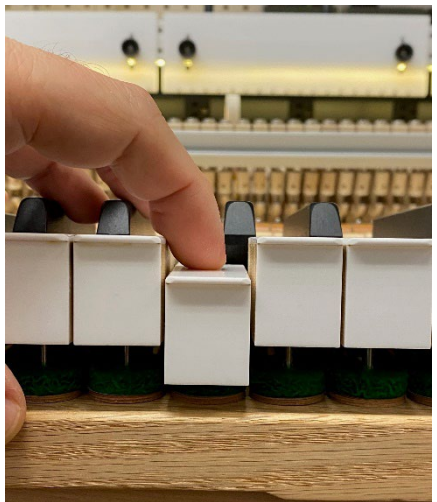


Action

- Drop

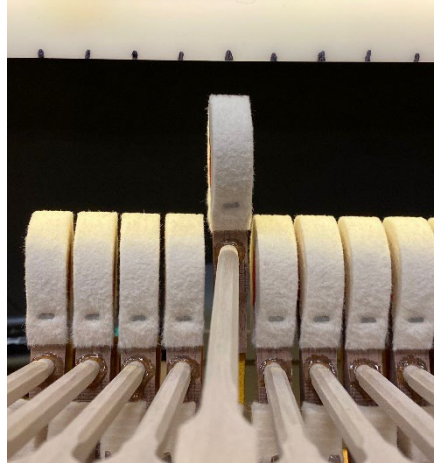


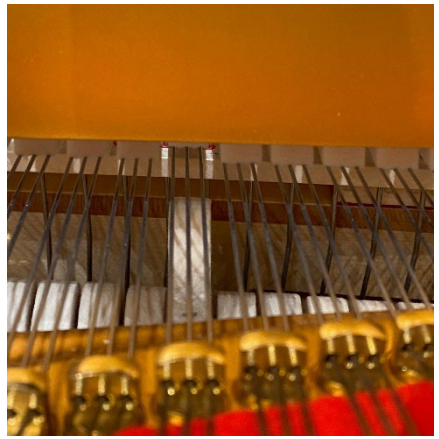


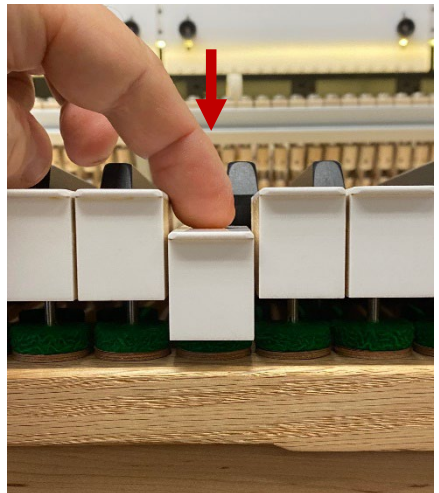


Action

- Back-checked

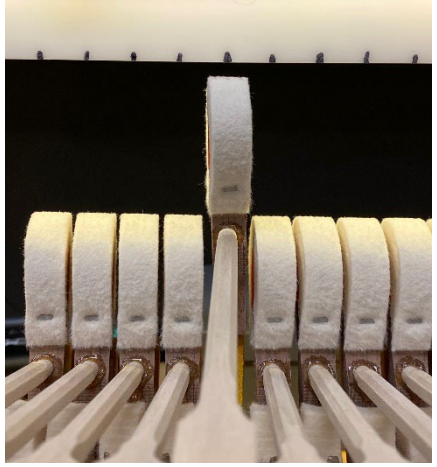


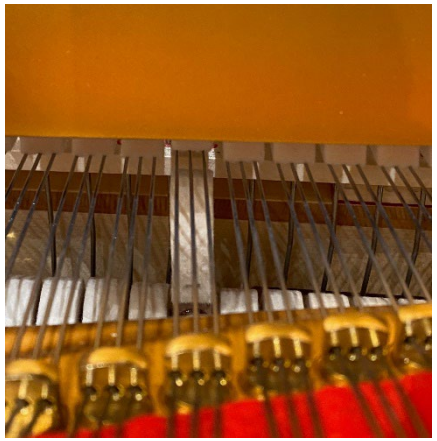


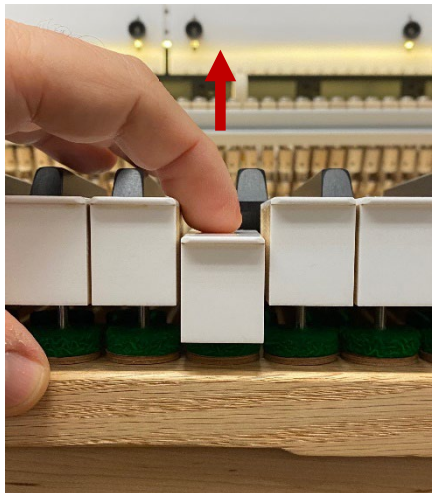


Action

- Rise from backchecked (repetition spring)

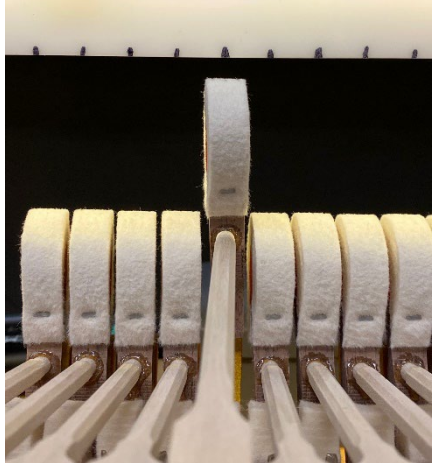


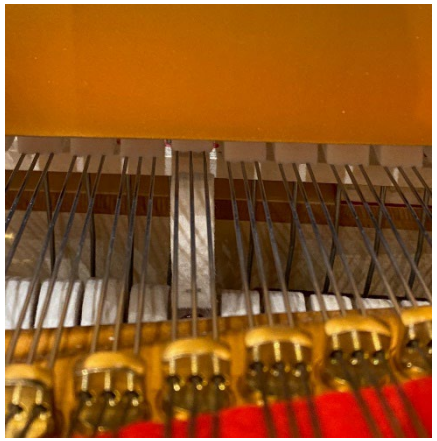


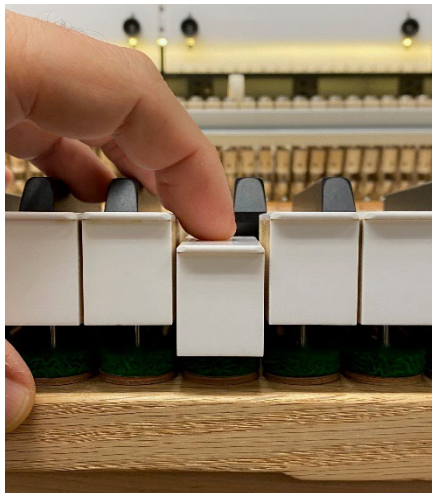


Action

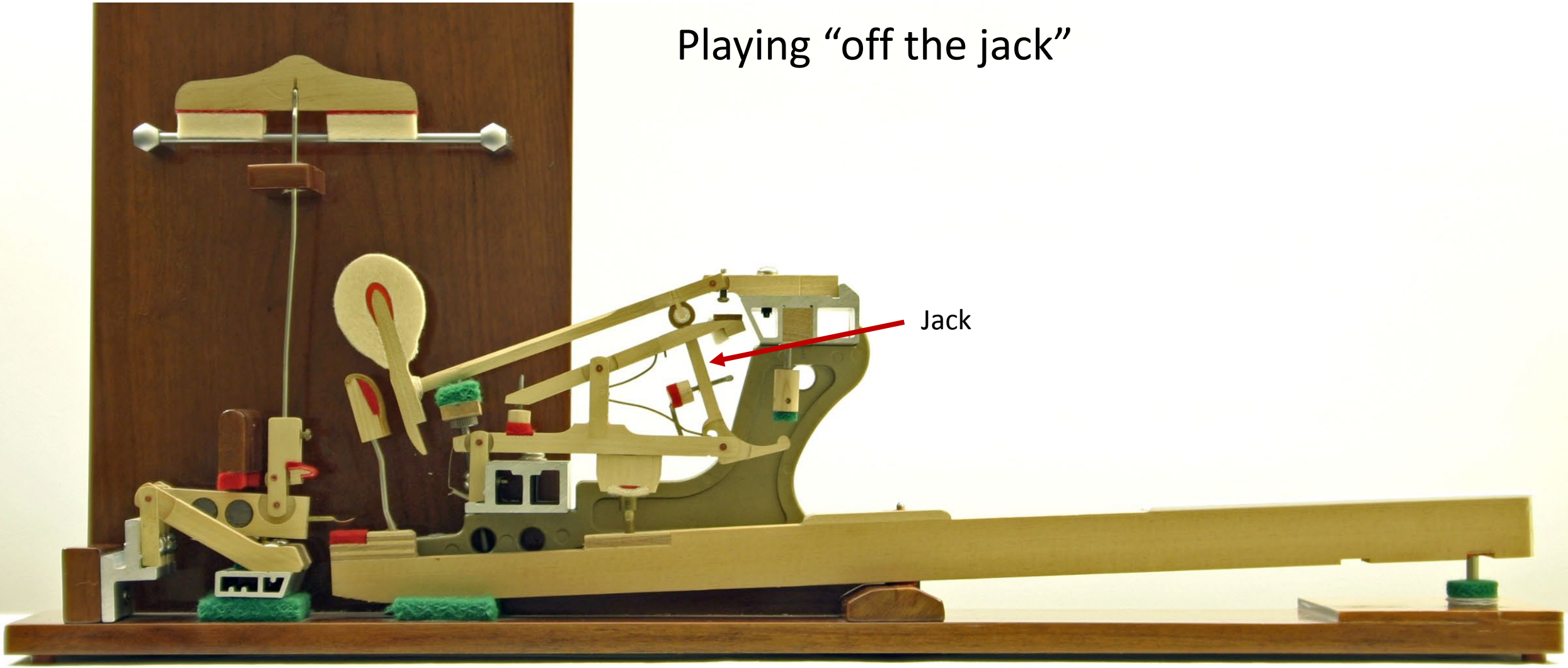
- Playing “off the jack”
  - Keep pedal depressed
  - Press key to escapement bump
  - Push key down







Playing “off the jack”



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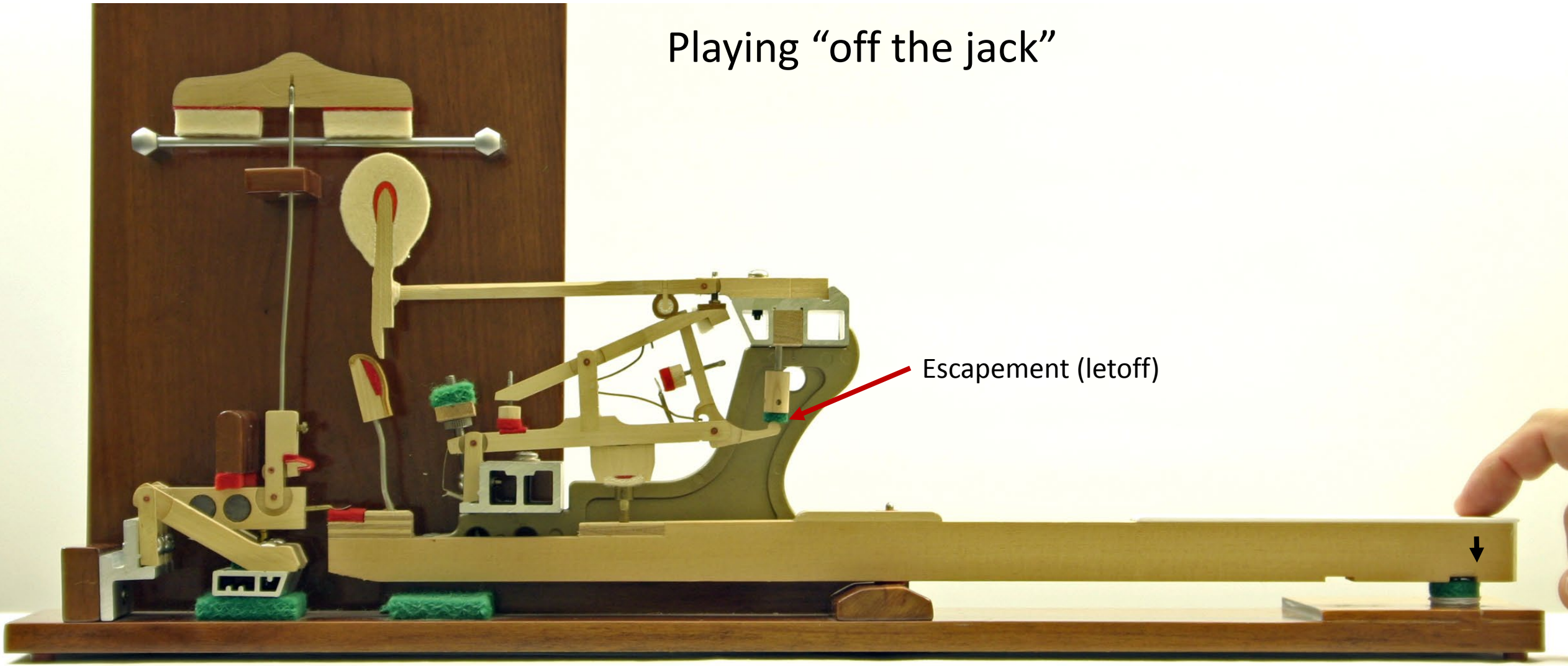


Touch

- Downweight
  10 nickels
  (44-52 g)

Keep the pedal down

Help the key go down
first 2-3 mm

Touch

- Upweight
  5 nickels
  (20-28 g)

Keep the pedal down

The key doesn’t have to go all the way up

Touch

- Why discrepancy?
- Friction!

Touch

- Too much friction (high downweight, low upweight):
  - Added resistance
  - Sluggishness (slow key return, poor repetition)
- Not enough friction (low downweight, high upweight):
  - Feels flyaway
  - No control
  - Feels like electronic keyboards

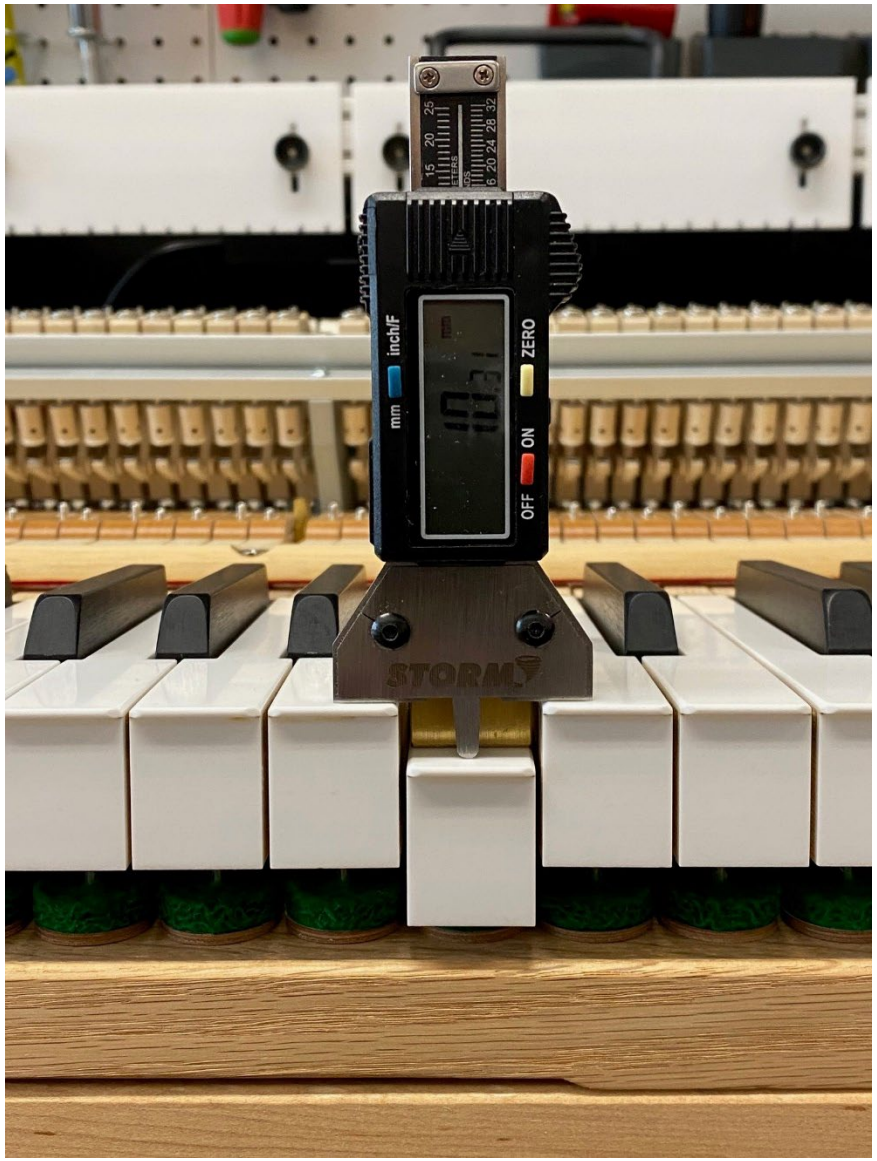
Touch

- Static balancing (affects *pp*)
  - Resistance to force

- Inertia (affects *ff*, repetition)
  - Resistance to acceleration
  - Heavy hammers: greater inertia

Touch

- Key dip
  (9.8 – 10.4 mm)
- Sharps height
  (12.2 – 12.7 mm)
- Sharps dip
  (1 – 3 mm above naturals)



Touch

- Excessive key dip
  - Fingers move a greater distance
  - Distance is doubled:
    0.1 mm extra dip = 0.1 mm taller sharps
  - Fatigue—feels like heavier action

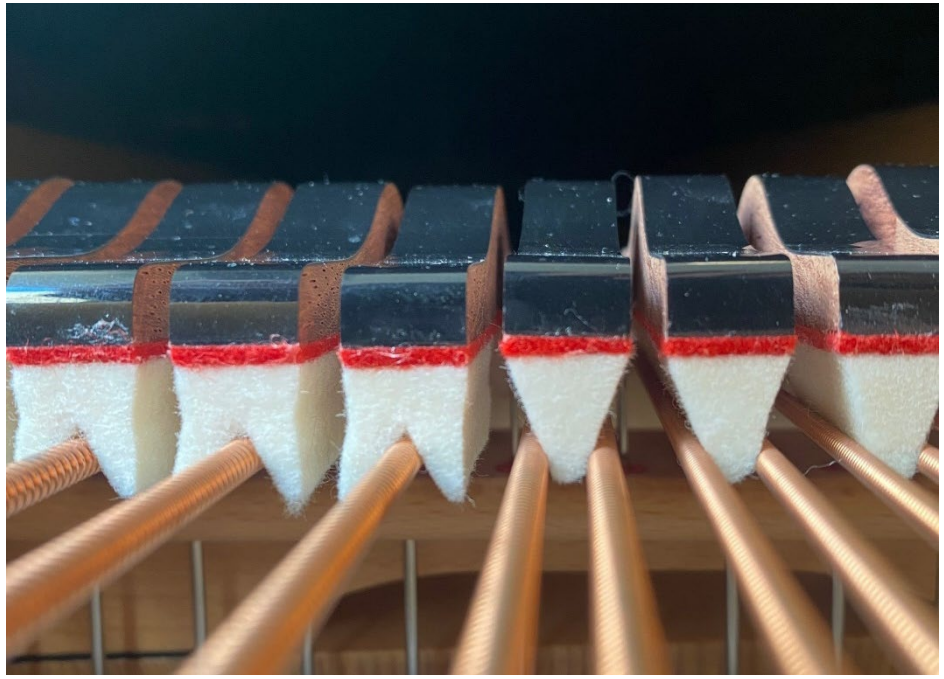
Tone

- Volume, brightness, power, projection
- Sustain, bloom
  - Pluck vs. hammer
- Room acoustics
- Old piano sound

Dampers

- Noise (whoosh)
- Effect on touch
  - Bass: up to 35 grams
  - Treble: 0 grams (no dampers!)
- Timing to key
  - Late damper lift: dry, light
  - Early damper lift: juicy, heavier
- Timing to pedal
- Upstop rail adjustment

  Sharp key and pedal depressed: damper moves up a small distance



Pedals

- Damper (right)
  - Lost motion (5-8 mm)
  - Depth of motion
  - Noises
- Sostenuto (middle)
  - No lost motion, no clanking
- Una corda or shift pedal (left)
  - No lost motion
  - Smooth shift
  - Full return
  - Slapping noise on return

Pedal height

(floor to top of pedal: recommended 50-70 mm)

2010 Hamburg D: 52 mm

1981 NY L: 96 mm
(larger replacement casters)

Strings

- Breaking
- Replacing
- Bass strings (rattles?)
- Rust
- Going out of tune
  - Tuning pins slipping?
  - String slipping?

Noises

- Clicks
  - Before impact (key, damper)
  - On impact (hammer, key frame)
  - After impact (backcheck, action parts)
  - After release (action parts)
- Clatter (debris, looseness)
- Rattles, buzzes
  - Fallboard lip
  - Hinges
  - Lid prop
  - In the room?

https://dierksphoto.com/photo/less-than-grand-piano-14903/

Prepared piano

- Degrease your hands
  (alcohol wipes, cotton gloves, nitrile gloves)
- Careful with dampers!
- Use blue tape for labels
- Mark nodes with Sharpie
  (cleanup with alcohol)
- No steel for sliding or plucking!
  Rulers, credit cards, brass bars OK. Chisels are NOT!
- Bass strings (copper winding is soft)
- Bowing strings (no rosin on bass strings!)
- Screws, bolts (Cage)
  Keep damper pedal depressed!

https://www.secondinversion.org/2016/05/11/concert-preview-john-cage-sonatas-and-interludes-qa-with-jesse-myers/

Q&A

Thank you!

Download handout at:
`http://pianosinsideout.com/Classes.html#CanYouFixThis`

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