Grandwork™ Regulation Protocol

A Linear Method of Regulating Grand Pianos by Christopher Brown, RPT

STEP # - **PIANO/BENCH** - **(TIME IN HRS)** - PROCEDURE - **GRANDWORK™ TOOL**

DAY 1

- **1** **P** **(0.75)** Assess / Propose
- **2** **P** **(0.50)** Tighten Hammer Screws / Confirm String Marks / Position Action / Record Offset
- **3** **P** **(2.00)** Spring Out / Bed Keyframe / Fine Fit Topstack and Cheekblocks / Ease Keys
- **4** **P** **(0.50)** Spring In / Validate Fit / Shim Spring as Needed / Assemble Action
- **5** **P** **(0.75)** Compress Compressibles / Rough In Key Level and Hammerline
- **6** **P** **(1.00)** Pre-Lift and Settle Wire / Pitch
- **7** **P** **(1.00)** Take Letoff, Dip, and Kissing Samples / Measure and Record Frontrail Crown
- **8** **B** **(0.75)** Bench Setup: Fix Position / Bed to Dip Samples (Non-Deluxe: Use Glider Studs)
- **9** **B** **(0.75)** Set Up Strike (Kissing Samples with Letoff Validation) / Record for All Sections **RR, SHG**

DAY 2

- **B** Record Strike-Hammer Center Measurements for Custom Bore **RR, SHG**
- **10** **B** **(0.75)** Run Full Regulation Samples: Measure, Validate, Solve **–** New vs Old **RR, SHG**
- **B** Replace / Restore / Prep Parts and Materials
- **11** **B** **(0.75)** Square / Space Keys (Including Refinements During Step 12)
- **12** **B** **(1.50)** Level Keys (Naturals and Sharps Together – 2 passes) **KS / QKL**
- **13** **B** **(0.75)** Dip Keys (Naturals to WNG Dip Tool, Sharps to Naturals) **QKL**
- **14** **B** **(0.50)** Record Scale / Adjust Position for Offset (See Step 2) **RR**
- **15** **B** **(1.00)** Hammers Off / File Flared Hammers (See Step 18) / Pin / Hammers On **HF, RR**
- **16** **B** **(1.50)** Set Up Squaring Platform / Travel Hammershanks to Vertical **RR, SP, ST**
- **B** Hang New Hammers **SP, HH, RR**
- **17** **B** **(0.75)** Square Hammers / Space to Scale **SP, HS, RR**
- **18** **B** **(0.50)** Gang File Straight-Bored Sections (File Flared Also If By Hand) **SP, RR, SHG**

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DAY 3

- **19** B (0.50) Square / Space Whippens
- **20** B (0.50) Square / Space Backchecks
- **21** B (0.50) Regulate Backchecks (Naturals as High as Possible / Sharps to Naturals) **RR, SHG**
- **22** B (0.75) Regulate Whippen Springs **RR**
- **23** B (0.50) Regulate Jack Positions (Samples and Straightedge)
- **24** B (0.50) Regulate Repetition Heights (Winking) **RR**
- **25** B (0.50) Regulate Hammerline **RR**
- **26** B (0.50) Regulate Letoff **RR**
- **27** B (0.50) Regulate Drop **RR**
- **28** B (0.50) Regulate Aftertouch (Made Even by Dip) **RR**
- B Weighoff / Key Level and Hammerline Touch-up **RR**
- **29** P (0.50) Action to Piano, Validate, Fine Space (Non-Deluxe Re-Bed to Dip with Glider Studs)
- P Back Action, Dampers, Trapwork, and Lyre Assembly / Installation
- **30** P (0.75) Regulate Dampers to Keys
- **31** P (0.50) Regulate Tray to Dampers (Sustain)
- **32** P (0.25) Regulate Liberty Rail (Underlever Upstop Rail)
- **33** P (0.50) Regulate Sostenuto
- **34** P (0.25) Regulate Soft Pedal

DAY 4

- **35** P (3.00) Mate Strings to Hammers / Pitch
- **36** P (2.50) Mating Touch-Up / Tune
- **37** P (2.50) Play / Voice / Mating Touch-Up / Tuning Touch-Up

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P	In the piano	**ST**	Grandwork™ Shank Traveler
B	On the bench	**HS**	Grandwork™ Hammer Square
RR	Grandwork™ Regulating Rack	**HF**	Grandwork™ Hammer Filing Jig
SHG	Grandwork™ String Height Gauge	**HH**	Grandwork™ Hammer Hanging Jig
SP	Grandwork™ Squaring Platform	**KS**	Grandwork™ Key Steps

QKL Quick Key Leveler (Leveler Company)

Grandwork™ Regulation Protocol: Notes

Items in black text belong to a full regulation. Items in purple text go beyond. The former work takes 32-40 hours to complete, depending on the condition of the action; the latter can add up to 90 hours or more (for a complete rebuild). When work time must be less than 32 hours, this protocol can help determine the essentials and keep them in best order.

Often there can be pinning work needed, the replacement or resuscitation of materials, or repairs that cannot be left out. These add time to the job and should be acknowledged as extras. Replacement of parts is work beyond a full regulation, adding time and cost. The linear regulation protocol does not change these needs or associated expenses, but it can prevent the hazard of miscalculations that unnecessarily add cost.

The initial assessment and proposal are crucial to getting the cost/value/profit right but should be contingent upon outcomes of the full regulation sampling. Even when an action appears to be straightforward, with parts and materials in good shape, there should be an opening to accommodate details that cannot be known ahead of time. This protocol helps anticipate and accommodate what is the actual (not just assessed) state of the piano, a factor that should be recognized as beyond the control or responsibility of the technician.

For sizable work, a written proposal (signed and sealed with a substantial deposit) is sensible. Enough detail should be included to protect both customer and technician.

With Grandwork™ tools, these steps (executed in the order listed) provide simplicity, accuracy, and a successful outcome. The hazards of accumulated error, rework, and surprises are minimized. And TPR (tone, power, and repetition) will be optimized. Particularly important is hammer verticality, both in travel and at strike. Strings fit to hammers that are vertical and well-filed will be parallel to the keybed, providing incrementally consistent soft-pedaling and regulation integrity.

C.B.

