

Class Notes - Repair/Regulation Class

April 30, 2021 Class 1

Books

Regulation Manual

Reblitz - https://store.howtotunepianos.com/?page_id=16

Tools

<http://mrtuner.com/basicpianorepairtoolspianophile.htm>

Search for part number here:

<http://www.pianophile.com/catalogue/public/catalogue-Recherche.cfm>

To buy:

1. Send me the part number
2. Buy from Schaff America. <https://istore.schaffpiano.com/ecommerce/login.html>
If you don't have an account, contact them and they will set it up for you.
3. Buy from Pianophile if you're in Canada. <https://www.pianophile.com/>
4. Using the part number and picture, you can go to any supply store and order if you are not in the US or Canada.

Online Piano Technology Tools Stores

US:

<https://schaffpiano.com>, Sells to techs. Web store is a bit clunky.

<https://www.howardpianoindustries.com/>, Sells to the public. Good customer service.

<http://www.pianoteksupply.com/>, Monthly newsletter.

<https://www.alliedpiano.com/>, Good for Dampchaser units

<https://technicians.wesselnickelandgross.com/>, High end parts

UK: <https://www.fletcher-newman.co.uk/>

Germany: <https://www.pianoteile.com/unsecure/login.aspx?language=en>

Italy: <https://ftppianoforti.com/en/>

Send me a link to other stores and I'll add it here.

If you need to be a technician to buy from any of these stores and you don't have an account, let me know. I'll reach out to them and tell them you are studying with me.

Expectations:

The classes will be recorded

Have a practice piano you can take apart, one that it's OK if it's not working temporarily.

You will send in videos of exercises that I will assign.

If there is some difficulty determining if you have developed a skill, we will need to investigate the possibility of getting a local technician to come and confirm that skill.

You will pass a series of evaluations - written, video, in-person - and become certified as a piano technician.

I have to decide what that certification will look like:

Example (Suggestions, in flux):

You must be certified as a tuner first.

aPTu - aural piano tuner

ePTu - electronic piano tuner

æPTu - aural/electronic tuner

After that:

aPTe - aural piano tuner certified in repair and regulation

ePTe - electronic piano tuner in repair and regulation

æPTe - aural/electronic tuner in repair and regulation

Class

I will call you.

The class may start 5 minutes late.

The class recordings will stay in the Skype feed for 30 days.

May 7, 2021 Class 2

Upright action parts

Principles of work levels

May 14, 2021 Class 3

Started Regulation Triangle video. Stopped 8:26

Jack, Aftertouch, introduction to the method

Left off at no lost motion for the grand.

May 21, 2021 Class 4

Lost motion review

May 28, 2021 Class 5 (Short Class)

Various questions about pianos, pins, etc

June 4th Class 6

Hammer traveling. Part 1

June 11th, 2021 Class 7

Hammer traveling. Part 2

June 18th, 2021 Class 8

Drop

Next: Rep spring strength

June 25, 2021 Class 9

Get to a grand or grand action model.

Reduce drop on one hammer until let off can't be seen in the hammer. (The hammer keeps rising) You can see the jack trip, but the hammer keeps rising.

Weaken a rep lever spring. Play the key a few times in different ways. Strong, soft, repeating, etc. And then let go and look at the hammer height. You should see that sometimes it rests below all the others.

Reset drop and spring strength.

July 2, 2021 Class 10

Regulation Triangle video, 9:04

Talked about why drop can't be after let off.

July 9, 2021 Class 11

Knuckles

Next class. Start reg video at 9:04

July 16, 2021 Class 12

Key Height

Get or make key height blocks. 5/8" to 1" in 16ths increments. Four each.

Next class: Key Level

July 23, 2021 Class 13 - Not recorded

Key height review and Key Level

Next class: Key Dip

July 30, 2021 Class 14

Key Dip

August 6, 2021 Class 15

0:00 Regulation Triangle - Variable and non variable settings

7:00 Regulation Triangle - Preliminary steps

19:23 Regulation Triangle - Sample measurements

25:05 Regulation Triangle - Do the dance

25:53 Regulation Triangle - Let off

32:21 Back to doing the dance

37:11 Regulation Triangle - Measuring after touch from hammer travel

52:30 Regulation Triangle - Limits of measuring after touch from jack travel on an upright

August 13, 2021 - Class 16

Present: David

Started "How to use aftertouch feeler gauges to measure Aftertouch"

Homework: Look at grand. Internalize "The grand has no aftertouch".

Next week: Finish

August 20, 2021 - Class 17

How to use feeler gauges to measure Aftertouch and Let Off

Homework:

Measure your aftertouch on ten keys. Use 0.040" gauge.

Make a chart:

Mark each key as: too much, not enough, or just right.

Ways of measuring aftertouch:

Look at the hammer butt/jack. Look for clearance of a couple of pieces of paper thickness.

Look for jack to be halfway in rep lever window.

Look for hammer to rise after drop to let off line, but not higher.

Feel it in your finger, feel the hammer hit the string with having to bottom out.

Sep 3, 2021 - Class 19

Review hammer travel and aftertouch

Watch more of the Regulation Triangle.

Talked a very little about down weight and up weight

Next week: Regulation Triangle examples

August 27, 2021 - Class 18

0:00 Variability of Let Off

1:55 Aftertouch from hammer travel after drop

39:21 Review of ways to measure after touch

42:21 After touch is measured. Now what?

Homework:

Hand in aftertouch measurements

Next week:

Finish Regulation Triangle.

Class 19 ?

Sep 10, 2021 - Class 20

Regulation examples

Homework:

Analyze samples on your piano.

Use this table.

Note: _____	Too Much	Ok	Not Enough
Let-Off			
Blow Distance			
Key Dip			
Aftertouch			
	Woo Hoo	No Dance	Bummer
Dance			
Solution:			

Sep 17, 2021 - Class 21

Methods of measuring Aftertouch

1. Feeler gauges
2. Hammer travel (grand - after let off travel = $1/16''$, must not end above let off, closer than $1/16''$ to string)
(Upright - can give an idea of aftertouch if there is minimal center pin friction but knowing how much is too much etc can be difficult because of varying friction.)
3. By feel
4. Jack travel (Grand - jack ends halfway between the back of the rep level window and the knuckle.)
(Upright - on jack end look for a space of about a couple of sheets of paper between the hammer butt)

Another example: excessive Let-Off

Remember:

When Let-Off and Key-Dip are not correct, fix those first.

Let-Off must be $1/8''$ (upright) not $1/4''$!

Key-Dip should be $3/8''$ but is still OK at $7/16''$, even more. And can be OK at less than $3/8''$.

Let-Off is more sensitive so should be fix when Key-Dip maybe can be left.

Then, Blow Distance fixes Aftertouch. You may have to go back and forth between Let-Off and Blow Distance because adjusting Let-Off may stop it from happening.

Next class: How to set Blow Distance, Let-Off, Key-Dip.

Sep 24, 2021 - Class 22

Setting lost motion

The Willis lost motion reducing rod

Oct 1, 2021 - Class 23

0:00 Variable and non variable settings - Lost Motion

Oct 8, 2021 - Class 24

Primary and Secondary settings are more accurately called Direct and Indirect settings.

Finished up lost motion.

Did blow, dip, and let off.

Need to finish let off.

Oct 15, 2021 - Class 25

Dampers - installing basics

Different styles of technician

Finished Let Off

Started on Modified Regulation Steps

Next week will continue.

Oct 15, 2021 - Class 25

Dampers - installing basics

Different styles of technician

Finished Let Off

Started on Modified Regulation Steps

Next week will continue.

Oct 21, 2021 - Special Class with Eileen and Lucas - Class 25.1

Eileen is rebuilding a piano. We talk about:

Wheels

Restringing/Rescaling

Repinning center pins

Repairing soundboard cracks

Replacing hammer springs

Oct 22, 2021 - Class 26

Continued Modified Reblitz Regulation Steps

Aligning hammers using heat (Step 4)

Oct 29, 2021 - Class 27

Damper pedal rod and dowel - designs and fixes

Nov 4, 2021 - Class 28

Next week do step 8. Set the hammer stroke.

Nov 11, 2021 - Class 29

Steps 9 - 16

Next week start at step 17/18/19 - dampers.

Nov 18, 2021 - Class 30

Did 17/18 (Missed recording. Do a review next class)

Next class 19 - spoons

Nov 25, 2021 - Class 31

No class

Dec 2, 2021 - Class 32

Basic Voicing intro

Dec 9, 2021 - Class 33

Tried to redo 17/18. Lost keynote. Did spoons

Dec 16, 2021 - Class 34

Modified Upright 19/20/21

In 2 weeks: Start grand regulation

Jan 6, 2021 - Class 35

Bedding the key frame and guide bolts

Jan 13, 2022 - Class 36

Modified Grand Regulation up to step 8 incl.

Jan 20, 2022 - Class 37

Bird cage actions

Step 9 - Aligning whippen to knuckle

Jan 27, 2022 - Class 38

Damper timing case study

Step 10a - jack to knuckle

Next week - jack in window

Feb 3, 2022 - Class 39

Step 10b - Adjusting jack in rep lever window

Started step 11 - rep lever height.

Feb 10, 2022 - Class 40

Rep lever height Step 11

Feb 17, 2022 - Class 41

Started step 14

Feb 24, 2022 - Class 42

Talked about setting samples. Set up a table.

Mar 3, 2022 - Class 43

Finished rep springs

Next week. Grand action tables and show spring tool

Mar 10, 2022 - Class 44

Finished up rep springs

Started grand dampers. Need to upload Vimeo videos to website and send links.

Mar 17, 2022 - Class 45

Grand action regulating tables and jigs.

Finished dampers #19

Mar 24, 2022 - Class 46

Bending damper wires

Damper stop rail

March 31, 2022 - Class 47

Steps 20/21 - sostenuto

Apr. 7, 2022 - Class 48

Hammer line

April 14, 2022 - Class 49

Removing and aligning keyslip

Needling and voicing

April 21, 2022 - Class 50

Different types of hard, bright hammers.

Hammer filing.

April 28, 2022 - Class 51

Hammer shank repairs

May 5 - Class 52

???

May 12 - Class 53

Voicing the bright hammer

Mending and replacing shanks part 1

11:30 - 19:55 Removing the case sides

Broken shanks (continues 19:55)

May 19 - Class 54

Mending shanks part 2

Replacing hammer heads

Saving money on tools 21:04 - 23:05

May 26 - Class 55

Tilters

Mending hammer shanks questions

Pin block jack supports

Loose tuning pins part 1

June 2 - Class 56

Loose tuning pins part 2

Hiring other technicians

June 9, 2022 - Class 57

Soundboard Repair part 1

June 16, 2022 - Class 58

Soundboard repair part 2

Traveling shanks and brass butt plates

June 30, 2022 - Class 59

Regulation case study - breaking let off screws

Bending shanks

July 7, 2022 - Class 60

Flanges - testing and removing pins

July 28, 2022 - Class 61

Replacing and repairing strings - Introduction

Splicing strings

Aug 4, 2022 - Class 62

Repair/Replace strings options

Dealing with customers

Hitch pin loop

Aug 25, 2022 Class 63

Tying a string knot

Single hitch pin strings example Sept 2, 2022 Class 64

Universal string replacement

Measuring bass strings

Coil height and the coil table

Sept 8 - Class 65

How to recreate the coil table

Sept 22 - Class 66

Coil table finish

Key tops - Introduction

Sept 29 - Class 67

Repairing broken key

Key tops

- cleaning ivories

- ivory chips

- replacing ivory key top

Oct 6 - Class 68

1:15 Question - loose hammer heads

1:45 Key tops - Review: how to pick the right ivory key top

18:00 Key tops - removing ivory

27:00 Key tops - removing key fronts

29:45 Key tops - replacing ivory with plastic, part 1

Oct 14 - Class 69

2:00 Key tops - replacing ivory with plastic, part 2

12:05 Key bushings, easing (too tight)

34:25 Key bushings, fitting (too loose)

Oct 21 - Class 70

0:00 Review easing and tightening key bushings

2:00 Removing key bushings

24:15 Picking the right size caul

32:05 Gluing the felt (Balance rail hole)

Nov 11 - Class 71

0:00 Review

3:18 Front rail bushing

13:56 A review of key bushing techniques on the internet

18:54 Using tweezers to size and loosen tight key bushings

23:50 Questions