

# Preparing for the PTG Tuning Test

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Everything from test requirements to using aural techniques for everyday tuning. Really.

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# Am I Ready?

## Review the needs...

1. Pitch Source (Fork or 'Tone Generator')
2. Hammer Techniques - Tips and Heads
3. Temperament Steps & Checks
4. Unison Tuning - Stability
5. Ability to BREATHE!

## Tuning Fork Accuracy

Steel forks are more stable. Aluminum forks are big, and friendly looking, but change very quickly in most settings. Forks can be tuned. Grind the tips evenly to raise the pitch and use a rat-tail file to lengthen them by filing between the tines. Keep your fork in a pocket, and always keep them in the same pocket after you've gotten it tuned. (And we had Joe Garrett on hand to tune forks, too.)

## Getting Ready

1. **Pass the Written Test** at 80% or better.
2. Get your **re-classification form signed**.
3. **Notify test center** of your intent to test and get a test date confirmed with the CTE or Exam Chair.
4. **Send payment** to the Home Office and get your Exam Fee Voucher for the test.

## Pre-Screening

- Have you tuned a hundred pianos?
- Are you comfortable tuning grands?
- Have you worked with a mentor or tutor to prepare for the exam?
- Have you practiced using a tuning fork?
- Do you know your temperament?
- Do you **know** your checks and steps?

## Biggest Problems

- Not comfortable using a tuning fork
- Not REALLY familiar with temperament
- Not getting good stability on pins
- Failure to BREATHE

## Day of the Test

1. Re-classification Form?
2. Membership card/number?
3. Home Office Fee Voucher?
4. Tuning Fork?
5. Tuning Hammer; Tips, Heads, and Wrench?

## Tuning Exam Time Limits

### Part 1:

45 minutes total time

Pitch setting deducts from time, too.

Tuning Temperament & Midrange (C3 to B4)

Scored for: Pitch, Temperament, & Midrange

### Part 2:

60 minutes to complete the piano tuning (C1 to B7)

30 minutes for unison tuning

Scored for: Bass, Treble, High Treble, Stability, and Unisons

## Pacing Yourself

### Part 1 - 24 Wires!

Tuning Pitch: 1 wire... .

Tuning C3 to B4: 24 wires, including A4

45 minutes = Almost 2 minutes each!

### Part 2 – 84 Strings!

That's right. With all those outside tenor-treble strings muted, and tuning only one string per bichord in the bass, you're only tuning 84 strings on the piano. And, if you are comfortable with your midrange, only 60 strings are left. Easy.

### Pitch: 5-minute time limit (Tune A4 - single string only)

But use as little time as you need, because it deducts from the time limit for total Part 1. If you can tune A4 in 2 minutes, you have 43 minutes for tuning C3 to B4. So let the examiners know as soon as you are done. The 45-minute clock starts ticking when you are setting the pitch. Remember that!

## Test Notes:

- Only the F2 to A4 (the 17th) properly compares the fork and the fundamental partial of A4 that is actually scored. Other checks, such as F1, B1, and D3 can be used to get close, but are relying on other partial comparisons and errors can creep in.
- Always use the F2 for your final check.

Be comfortable using that tuning fork.  
Practice thoroughly and often.

## Blew the Pitch?

1. Don't Panic! You're going to get a second chance. Honest.

Exam Instructions Form #7: "If you do not receive a passing score on Pitch at this time, A4 will be de-tuned, and will be rescored after Step 2 (completion of C3 to B4)."

2. At the end of your midrange tuning:

Carefully re-check and tune the A4. Do not re-tune A3 or any other strings. Accept a small error, as the pitch will be averaged across the temperament, and an octave 'error' from A3 to A4 isn't as critical pointwise as pitch. A4 must be within about  $\frac{3}{4}$  bps for an 80% passing score. **Checking A4 should be the last thing you do before setting the hammer down**, folks.

## Temperament Tuning

- Know your steps.
- Use your anchors.
- Check your major intervals.

## Biggest Mistakes?

1. Not setting the pitch accurately & solidly on A3.
2. Working the thirds and blowing the fifths.
3. Panic Attack!

Trying to re-tune the whole piano in 10 minutes or less rarely works (but did for me!). Do as I say, and not as I do. Please.

## Anchors? What anchors?

When tuning; anchors are the notes that you don't change. Anchors are the notes that you bend other notes around to make the temperament work. A3 is your first anchor within the temperament! Usually, the D4 is also a very stable note, once tuned, you don't tend to mess with it. Anchors are the stable features in the slippery world of intervals and tuning. Know which notes are anchors, and which are not, when deciding how to 'correct' a problem.

The best temperament tests are the ones that **you** can hear and use.

Chromatic (continuous) thirds, fourths, fifths, sixths.  
Contiguous thirds; starting F3/A3 and F#3/A#3  
Out-In M6th/M3rd; with the third slightly slower  
Example; F3/D4 at 7.93bps and G3/B3 at 7.81 bps  
It's just a 'hint' or 'tick' slower, not quite the same.

Linked Intervals; Lower 4th to upper 5th same beat.  
Example; F3/Bb3 & Bb3/F4 are .80bps

More linked intervals (also called 'Complimentary Intervals'):  
m3/M6; F3-Ab3 and Ab3-F4 are 9.42bps  
m6/M3; F3-Db4 and Db4-F4 are 10.99bps  
Octaves are also 'complimentary' or linked

## **4<sup>th</sup> and 5ths Temperament**

All the Best Tuners I Have Ever Seen...

1. Learned this first.
2. Built their hammer technique on tuning with it.
3. Are most comfortable tuning 4ths and 5ths.
1. (... thirds and sixths tempt 'flagpoling')
4. Often slap a quick modified 'Braid-White' and then refine the tuning with other temperaments.

4th up/5th down/4th up/5th down/octave/5th down  
4th up/5th down/4th up/5th down/4th up/4th up.  
Done.

## **Chroma vs Aural**

### **Chroma**

1. Wire by wire
2. A0 to C8
3. Unison by machine
4. No aural checks

### **Aural**

1. Temperament and out
2. Center first
3. Unison by ear
4. All aural checks

A Brave New World! No aural, no chroma, just tuners at work...

## Combining the Best...

- Aural tuning compares partials.
- Most machines are averaging partial readings.
- Use the machine to read with 'aural' methods

## Tuning Outside the Temperament

### Octaves

Tuners, outside the temperament, should always play the octave (or double-octave) as they tune, and be comparing the coincident partials. Set your ETD to follow that pattern. Zero the note tuned from, at the correct partial, and you'll always be 'aurally sound'.

- Midrange/Tenor; 4:2 4:1 (and yes, 2:1)
- Bass; 6:3 8:2
- Low Bass; 8:4 10:5 12:6
- Treble; 4:2 4:1
- High Treble; 2:1

### Ascending Beat Rates

- Tuners are always listening to beat rates as they ascend or descend across the keyboard. Parallel, or continuous, intervals work well.
- Build the habit of checking the beat rates as you tune the piano. You will quickly learn to identify problems that 'chroma'tuners don't even listen for.
- Know where the machine is taking you. Be a tuner and not a 'chromatuner'.

### Like What?

#### **In the center:**

Major thirds, Major 4th, Major 5th , Major 6th, & Major 10th

#### **In the treble:**

Major 10th, Octave 10th, Octave and double

#### **In the bass:**

Minor 3rds, Minor 6ths, Major 6ths, Major 10th, Octave 10th, Octave Minor 7th and Double Octave 5ths

# Scoring and Verification

## Part One

1. Pitch - No verification. Right or wrong.  
Must be 1 cent or less = 1/4bps for perfect.  
All scores are rounded up; 1.1= 2 points  
You get a +/- 1 cent margin of error  
1.1 – 1.0 = 0.1 rounds up to 1-point  
3.0 – 1.0 = 2.0 = 2-points  
Conversion is Points X 10 = Score  
Error allowed for passing is 3.0 cents
2. Temperament - The temperament octave you choose is averaged against the Master Tuning.  
A small variation on A3 won't hurt the temperament score at all. BREATHE!  
0.0 – 0.9 No points  
1.0 – 1.9 = 1 point 2 – 2.9 = 2 points etc...  
Conversion is Points X 2.5 = Score  
8 x 2.5 = 20 points = 80% passing score

## Verification

After the tuning is recorded and scored against the Master Tuning; the points are 'verified'.

You can decline to verify the notes and points.

However, this is a great place to learn! Always take the time to hear the notes, and see how it might be compared to others. Also, notes where the examiners disagree are 'thrown out'! So, always stand by your tuning, and verify the notes.

3. Midrange- C3 to B4 will also be scored for stability in Part Two. Be solid.  
0.0 – 0.9 = No points  
1.0 – 1.9 = 1 point 2.0 – 2.9 = 2 points etc...  
Conversion is; 100% - Points x 1.5 = Score  
13 points x 1.5 = 19.5 100 – 19.5 = 80.5  
80.5 rounds up to 81% Score  
**All decimal values are rounded up on Exam Scores!**

## Part Two

"Complete the tuning from C1 to B7 in 60 minutes"

1. The score form stays in the room. You can check and correct errors in the midrange/temperament for aural tuning. Or, simply tune the whole piano again by machine or ear.
2. Firmly suggest you tune the whole piano, not just the edges. Trust me on this.

3. The temperament is re-read and averaged for pitch adjustment to the Master Tuning, but not re-scored.
  
4. Bass - Octaves 1 & 2 = C1 to B2  
 Octave One Scoring is different from Octave Two  
 Octave 1; 0.0 – 5.9 = No points 6.0 – 11.9 = 1 point  
 Octave 2; 0.0 – 2.9 = No points 3.0 – 5.9 = 1 point  
 Conversion is;  $100\% - \text{Points} \times 1.5 = \text{Score}$   
 $13\text{points} \times 1.5 = 19.5$   $100 - 19.5 = 80.5$  score  
 80.5 rounds up to 81% Score
  
5. Treble - Octaves 5 & 6 = C5 to B6  
 Octave Five Scoring is different from Octave Six  
 Octave 5; 0.0 to 1.9 = No points 2.0 to 3.9 = 1 point  
 Octave 6; 0.0 to 2.9 = No points 3.0 to 5.9 = 1 point  
 Conversion is  $100 - \text{points} = \text{Score}$  (No multiplier!)  
 Very generous error factor. If you have aural skills at all polished you will be able to pass these sections.  
 Points is points.
  
6. Treble- Octave 7 = C7 to B7  
 Octave Seven Scoring  
 0.0 to 5.9 = No points  
 6.0 to 11.9 = 1 point  
 12.0 to 17.9 = 2 points  
 Conversion is  $100 - \text{points} = \text{Score}$  (No multiplier!)  
 Very generous error factor. If you have aural skills at all polished you will be able to pass these sections.  
 Points is points.

## Stability

7. C3 to B7 are now 'thumped' for stability of your tuning. Center strings are zeroed on ETD. Each string is thumped 3 times and then checked for deviation.  
 From this point, do not change the center string!  
 No aural verification; just zero, thump, and check.  
 0.0 to 0.9 = No points 1.0 to anything! = 1 point  
 Conversion is;  $100\% - \text{Points} \times 4 = \text{Score}$   
 $5\text{ points} \times 4 = 20$   $100 - 20 = 80\%$  score

## Unisons

Tune unisons from C3 to B4 (Midrange) 30 Minutes

Tune outside strings to center string.

Remember that the center string has been whacked, and is fairly stable now! The instructions state 'outside strings to the center', for this reason.



Difference Measured on the following:

Left to Center

Right to Center

Left to Right

0.0 to 0.9 = No points 1.0 to 1.9 = 1 point

Conversion is  $100 - \text{points} \times 2 = \text{Score}$

10 points  $\times 2 = 20$   $100 - 20 = 80\%$

## Important Stuff

Always finish the test.

If you fail Part One, but pass Part Two, you can retake the Part One for a  $\frac{1}{2}$ -fee within 1 year.

So, blowing the pitch, or even failing the midrange and temperament, should not stop you from finishing the test.

Just Do It!

(... and you learn how the whole thing works, too!)

In a Nutshell

1. Pitch: Points  $\times 10$
2. Temperament: Points  $\times 2.5$
3. Midrange: Points  $\times 1.5$
4. Bass: Points is points!
5. Treble: Points is points!
6. High Treble: Points is points!
7. Stability: Points  $\times 4$
8. Unisons: Points  $\times 2$