

Setting the A-440 Aurally

1. Match A4 on the piano with your A-440 pitch source
2. Compare the beat rate of F2:A4 and F2:fork/other pitch source; they should be the same.

The Details

1. Pitch Source—tuning fork: Check the fork's accuracy with an accurate electronic device. File the end of a tine to effectively shorten it and raise the pitch. File at the bottom of the "U" to lengthen the fork and lower the pitch... Filing will change the temperature of the fork, and that will affect the pitch, so let the fork cool before you check the pitch again. Tuning Basics, Part I, by Mary Cushing Smith, Volume 47. Issue 7 July 2004

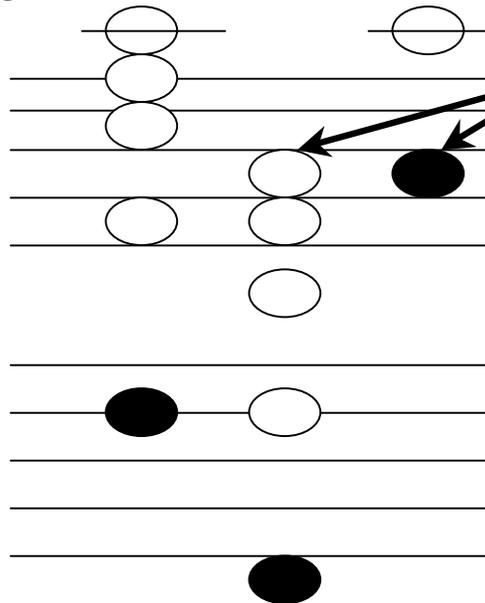
A. "Grounding" the fork. Forks are not loud, so many technicians "ground" the fork by touching it lightly/carefully to some part of the piano (bridge, keybed, stretcher) to make the sound louder. The pitch of the fork is most accurate when held in the air close to the ear. Grounding the fork lowers the pitch ever so slightly. Some technicians press the base of the fork against the bone right behind the ear. Some technicians actually hold the fork in their teeth.

B. Taking care of your tuning fork. The temperature of the fork affects the pitch, so try to keep the fork at room temperature. Warmer is higher. Don't leave your fork out in a hot or cold car, for example. If your fork is correct it should feel slightly cool when touched to the back of your hand. In addition, handle the fork carefully. Don't drop it. Don't strike it against a hard object. Hit the fork on your knee to get the fork going.

C. Not all forks are created equal. Be sure your fork is stable. Steel forks generally are more accurate. Some forks can vary widely with just minute temperature changes.

2. Pitch Source—electronic A: Many metronomes have a setting which generates an audible tone at 4-440 hz. Smartphones can be used by linking to a web site that is an A-440 tone. But there is a caveat. Only audible sources are acceptable for use taking the PTG tuning exam. The key factor is that the examinee is using the source aurally, not reading the pitch from a screen or set of lights. The source must not only be an audible source, but if that same device is also capable of being used as an electronic tuning device (ETD), then an examiner must be in the room while the A is being set. And after that A is set, the device must not be used for anything further. In other words, ANY source is acceptable for the exam as long as it is not used as a visual source. A beat rater, or a watch/phone used only as a timer is also acceptable. Examiners will check the source at the test, but the examinee is in charge of insuring the accuracy of the source and knowing whether it complies with exam requirements. If in doubt, check with a Certified Tuning Examiner well before the test is taken. Examiners are instructed to follow this exam standard: "All visual aids will be removed from the exam room."

3. F2 is a more accurate test note than F3.



Coincidental Partial at A-440

Notice that F2 has a coincidental partial with A-440. When F2:A-440 are played together, the beat occurs at A-440. F3 does not have a partial at A-440. But the fifth partial of F3 does match the second partial of A-440. Therefore when F3:A-440 are played together, the beat occurs at A5. Using this as a test will leave the A-440 a little low. That's not to say that F3 can't be used as a test note. Just use it carefully.

4. Rough tuning the test note—F2 and/or F3. For the F2:A-440 or the F3:A-440 tests to work, you need to rough tune the F so that a comfortable beat speed exists. Both of the test intervals must be wide, and the beat speed should be approximately 6 to 8 beats per second. Absolute accuracy is not necessary at this point. The final placement of F will become apparent as the temperament is tuned.

5. Temperature and strings. Stage lights, the sun, air movement, etc., can radically alter a string's pitch and do so very quickly. Just touching a string can warm it up enough to raise the pitch.

6. Other aural checks. The 7th partial of B2 is A4. This is a usable test note. The B2 has to be moved until there's a comfortable beat speed between the B2 and source pitch of A-440. Then the B2/A4 on the piano should beat the same as B2/440 source.

7. Muting felt. For exam purposes the outside strings of A are both muted off with felt and you are required to leave the muting felt in place until a later part of the test.