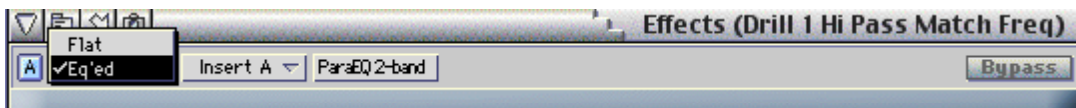


Audio Drills on Matching EQ Settings By Ear

Instructions:

These eleven drills will help train your ears to hear differences in the frequency, gain and bandwidth settings of equalizers. Each drill contains an equalized track and a 'flat', un-equalized track. You are to compare the tone quality of each by 'option-clicking' the tracks' Solo button. (This method allows you to hear one track while muting the other.) Once you hear tonal differences, adjust the frequency, gain or bandwidth of the Flat tracks' filter so it matches the sound of the equalized track.

The goal of the lesson is to have you identify EQ settings by ear alone. Most students will need to practice these drills for several days, if not weeks, before they are confident of their ability. Before you turn in your answers, see if you can make the adjustments by ear alone. If you still find it too difficult, you may 'peek' at the equalized tracks' settings by choosing Eq'd in the track menu of the Equalizer window.



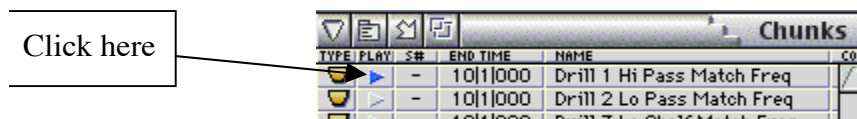
If you had to peek, please check the 'I peeked' box at the end of each question so we may gauge the effectiveness of this drill. But go ahead and put your best guess in the answer blank anyway.

****Important:** Always hold the Option key when you click the Solo Button. Otherwise, you will solo both tracks, making it impossible to tell them apart. If you accidentally close a window, press F1.**

Drill 1: Match the Cut Off Frequency of the High Pass filters.

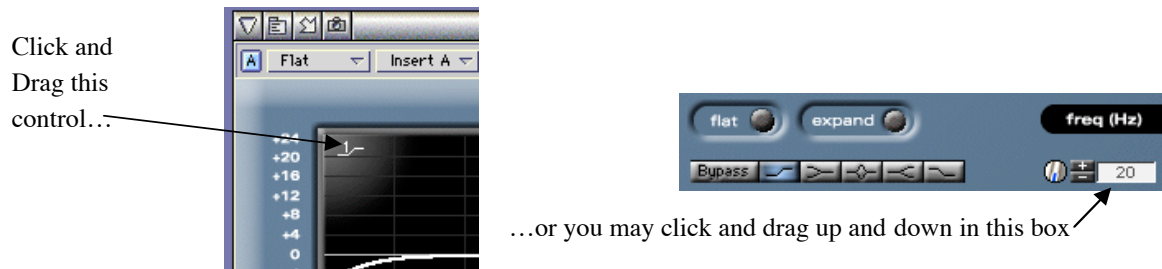
High pass filters attenuate low frequencies, so the Eq'd track will be lacking bass, kick drum and other low pitched instruments. Your goal is to make the two tracks sound identical by adjusting Filter #1's frequency control.

1. Play enable Drill 1 with the blue arrow in the Chunks window.



1. Press the space bar to start playback
1. Solo the Eq'd Track by option clicking its Solo button.
1. After a while, solo the 'Flat' track by option clicking its Solo button

1. Drag Filter #1's frequency control to the right until the Flat track's sound matches the Eq'd track's.



1. To check your work, option click the Eq'd track's Solo button. If it sounds different from the equalized Flat track, repeat steps 4, 5 and 6 until the tracks match.

Question: What Cut Off Frequency did you choose? _____ Hz. ___ (I had to peek.)

Drill 2: Match the Cut Off Frequency of the Low Pass filters.

Low pass filters attenuate high frequencies, so the Eq'd track's bright instruments, such as cymbals, hi-hat and snare, will sound dull. Your goal is to make the two tracks sound identical by adjusting Filter #1's frequency control.

1. Play enable Drill 2 with the blue arrow in the Chunks window.
1. Press the space bar to start playback.
1. Solo the Eq'd Track by option clicking its Solo button.
1. After a while, solo the 'Flat' track by option clicking its Solo button.
1. Drag Filter #1's frequency control to the left until the Flat track's sound matches the Eq'd track's.
1. To check your work, option click the Eq'd track's Solo button. If it sounds different from the equalized Flat track, repeat steps 4, 5 and 6 until the tracks match.

Question: What Cut Off Frequency did you choose? _____ Hz. ___ (I had to peek.)

Drill 3: Match the Turn Over Frequency of the Low Frequency Shelving filters.

Low frequency shelving filters are active circuits that can amplify or attenuate frequencies below a certain point. This point is the Turn Over Frequency. In Drill 3, the gain of the circuit is already set correctly, so you only need to adjust the frequency control. The Eq'd track will exaggerate low frequency instruments such as the bass, kick drum and guitar. Your goal is to make the two tracks sound identical by adjusting Filter #1's frequency control.

1. Play enable Drill 3 with the blue arrow in the Chunks window.
1. Press the space bar to start playback
1. Solo the Eq'd Track by option clicking its Solo button.
1. After a while, solo the 'Flat' track by option clicking its Solo button
5. Adjust Filter #1's frequency control until the Flat track's sound matches the Eq'd track's.
1. To check your work, option click the Eq'd track's Solo button. If it sounds different from the equalized Flat track, repeat steps 4, 5 and 6 until the tracks match.

Question: What Turn Over Frequency did you choose? _____ Hz. ___ (I had to peek.)

Drill 4: Match the Turn Over Frequency of the High Frequency Shelving filters.

High frequency shelving filters amplify or attenuate frequencies above a certain point. In Drill 4, the gain of the circuit is already set correctly, so you only need to adjust the frequency control. The Eq'd track will exaggerate high frequency sounds in the guitar, drums and cymbals. Your goal is to make the two tracks sound identical by adjusting Filter #1's frequency control.

1. Play enable Drill 4 with the blue arrow in the Chunks window.
1. Press the space bar to start playback.
1. Solo the Eq'd Track by option clicking its Solo button.
1. After a while, solo the 'Flat' track by option clicking its Solo button.
5. Adjust Filter #1's frequency control until the Flat track's sound matches the Eq'd track's.
1. To check your work, option click the Eq'd track's Solo button. If it sounds different from the equalized Flat track, repeat steps 4, 5 and 6 until the tracks match.

Question: What Turn Over Frequency did you choose? _____ Hz. __ (I had to peek.)

Peaking Filters:

Peaking filters are active circuits that can amplify or attenuate frequencies around a certain point and have adjustable center frequencies, bandwidths and gain. In drills 5, 6 and 7, adjust the filters' center frequencies to match the Eq'd track's tone. In drills 8 and 9, adjust the bandwidth to match the Eq'd track's tone. In drills 10 and 11, adjust the gain to match the Eq'd track's tone.

Drills 5, 6 7: Match the Center Frequency of the Peaking filters.

In these three examples, the gain and bandwidth are preset, so you can only need to adjust the center frequency control. The Eq'd track exaggerates sounds around a particular frequency range. Your goal is to make the two tracks sound identical by adjusting Filter #1's frequency control.

1. Play enable Drill 5, 6 or 7 with the blue arrow in the Chunks window.
1. Press the space bar to start playback
1. Solo the Eq'd Track by option clicking its Solo button.
1. After a while, solo the 'Flat' track by option clicking its Solo button
5. Adjust Filter #1's frequency control until the Flat track's sound matches the Eq track's.
1. To check your work, option click the Eq'd track's Solo button. If it sounds different from the equalized Flat track, repeat steps 4, 5 and 6 until the tracks match.

Question: What center frequency did you choose for Drill 5? _____ Hz. __ (I had to peek.)

Drill 6? _____ Hz. __ (I had to peek.)

Drill 7? _____ Hz. __ (I had to peek.)

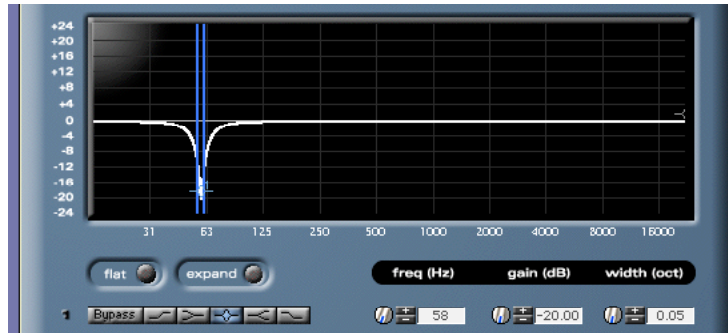
Drills 8 & 9: Match the Bandwidths of the Peaking filters.

In these two examples, the gain and center frequency are preset, so you can only need to adjust the bandwidth control. Listen carefully to the range of sounds the Eq'd track exaggerates. Your goal is to make the two tracks sound identical by adjusting Filter #1's Bandwidth control.

1. Play enable Drill 8 or 9 with the blue arrow in the Chunks window.
1. Press the space bar to start playback
1. Solo the Eq'd Track by option clicking its Solo button.
1. After a while, solo the 'Flat' track by option clicking its Solo button

5. Drag Filter #1's bandwidth control until the Flat track's sound matches the Eq track's.
6. To check your work, option click the Eq'd track's Solo button. If it sounds different from the

First, click Filter 1's adjustment point. Then click and drag and blue bandwidth lines across the graph until the sounds match.



You may also click and drag here to adjust the bandwidth

equalized Flat track, repeat steps 4, 5 and 6 until the tracks match.

Question: What bandwidth did you choose for: Drill 8? _____ Oct. ___ (I had to peek.)
 Drill 9? _____ Oct. ___ (I had to peek.)

Drills 10 & 11: Match the Gain of the Peaking filters.

In these two examples, the center frequency and bandwidth are preset, so you can only need to adjust the gain control. The Eq'd track exaggerates the center frequency only so much. Your goal is to make the two tracks sound identical by adjusting Filter #1's gain control.

1. Play enable Drill 10 or 11 with the blue arrow in the Chunks window.
2. Press the space bar to start playback
3. Solo the Eq'd Track by option clicking its Solo button.
4. After a while, solo the 'Flat' track by option clicking its Solo button
5. Drag Filter #1's gain control up and down until the Flat track's sound matches the Eq track's.
6. To check your work, option click the Eq'd track's Solo button. If it sounds different from the equalized Flat track, repeat steps 4, 5 and 6 until the tracks match.

Question: What gain did you choose for: Drill 10? _____ dB. ___ (I had to peek.)
 Drill 11? _____ dB. ___ (I had to peek.)