

## Music 192A Studio Exercise 2

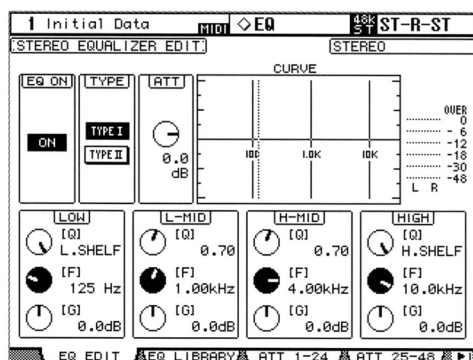
Goals: to learn about equalization, panning, and level setting in the creation of a mix and to learn how the recorders and console work. (You can find a web page detailing the operation of the studio at <http://ccrma.stanford.edu/guides/studios/recstudiomanual.html>) There are three songs available to work on: “What You Gonna Do” by Strange Attractors, “Black and Blue” by an ‘80s band I had with my wife Linda that never settled on a name and “Left Side” by Unknown Vintage. Each has a track of drums already mixed that will require some equalization to balance with the rest of the tracks. You can use low frequency equalization to pull up the kick, mids to bring out the snare, and highs to bring out the cymbals, but there are limits as you will discover. The rhythm instruments may also be equalized if necessary and panned to create a sense of stereo. We usually hear the main instruments placed in the middle of a mix (vocals, drums, bass, solos), but there’s no law about that! Turn on the DA-78A. The tracks are as follows:

5:00 Black and Blue (Linda Kadis 1984) 10:00 What You Gonna Do? (Strange Attractors 1994) 20:00 Left Side (2006)

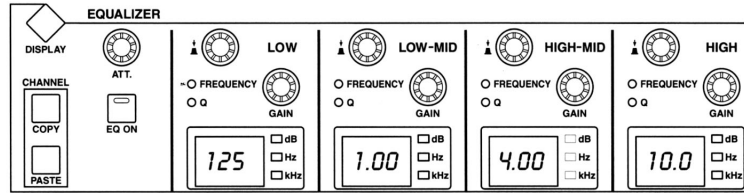
1. Keyboards	1. Lead Vocal	1. Piano L
2. Lead Vocal	2. Backing Vocals	2. Piano R
3. Backing Vocal	3. Keyboards	3. Bass
4. Rhythm Guitar L	4. Rhythm Guitar	4. Sax
5. Rhythm Guitar R	5. Lead Guitar	5. Trumpet
6. Bass	6. Bass	6. --
7. Drums	7. Drums	7. Drums L
8. Guitar Solo	8. —	8. Drums R

(If you encounter a mixer function you don’t understand, please ask for help from the instructor or TA or look it up in the Yamaha DM2000 manual.) First, make sure the track ON buttons are lit, STEREO is selected in the Monitor Section and the Control Room Level is turned up a bit. (You may also want to listen on the near-field monitors (SMALL) to hear what your mix sounds like on speakers similar to an average stereo.) We will start by listening only to the drums on track 7 (input channel 55 [TD 7].) Bring up only that fader (55) and turn down all the others.

With channel 55 selected, press the Equalizer display button. The display will change to show the equalizer for the selected channel:



The display shows the current settings for the equalizer parameters on the selected channel. To change the settings, use the controls for the Equalizer section:



Pushing the upper knob in toggles its functions between center frequency and Q (quality factor). The GAIN knob selects the amount of boost or cut. The Q control determines the width of the frequency band, but for the LOW and HIGH bands can also be used to select high-pass/low-pass and shelving filter types.

Set the low section to shelf with a corner frequency of 100 Hz and create a high shelf at 6 kHz. Turn the gain of these sections up and down while the drums play and see how you can affect the levels of the cymbals and kick with the equalizer. Since tailoring of EQ is an important way of separating elements in a mix, see how much boost and cut you can use without changing the drums overall sound too much. You can also try a mid-frequency boost to bring out the snap of the snare: try a mid EQ boost at around 1000 Hz and a Q of 12.1. Sweep the frequency to hear what changing the center frequency does to the sound. Remember the settings and then bring up the bass on track 6 (channel 54) and play with the equalizer settings to make the bass and drums fit together. (You can isolate the track by pushing the Solo button.) Since the goal is to make them sound complimentary to each other, decide which should have the lower part of the spectrum and which should take the higher part, as they may fight if they share the same frequency space.

Once you get the drums and bass adjusted, add in the two guitar tracks and the keyboards. They may not require as much EQ adjustment as the bass and drums, partly because they can be separated in space by panning them into different positions. Start with the guitars and pan one to the right and one to the left. Panning is the placement of the sound from left output to right output, so the sound appears to come from a place somewhere between the two loudspeakers. The small potentiometers just above the channel strips will pan the signal when the ENCODER MODE section PAN button is selected. Adjust the levels so both can be heard. Then you can add in some keyboards, panning them to the center. You can now adjust the levels of the instruments to create a balanced sound. The vocals can be added in once the instruments are mixed. You will probably want to play with EQ and levels again once all of the elements of the mix are present. Your overall goal is to make each part audible without “stepping on” the other parts. This can be done with a combination of panning placement, EQ adjustment, and level. Of course, you can “ride the faders” to change levels as the mix plays, but be careful not to make dramatic changes that will be distracting to the listener. In a later exercise, we will add compression and effects to the mix and investigate the wonderful world of automation.

When you are satisfied with the mix, record it to a CD-R (3 minutes or so is enough for the longer song). The CD recorder is digitally connected to the stereo output of the console through the Waves L2 limiter (put the L2 in bypass mode for now), so you only need to turn it on and put in a blank CD-R. Be sure the CD recorder is set to “coaxial” input using the Input button and that “digital direct” is turned on (push the button twice if it isn’t set to “on”). The record level will be determined by the master fader on the console. You can monitor the CD recorder via the 2 Track B button in the control room section of the console. (You will need to turn off the Master L-R monitoring so you don’t hear the mix twice.) Put the CD recorder in record mode by pushing the Record button. It will then initialize the CD and go into Pause mode with record-ready: to actually record you then push the Play button (not the Pause button). Only once the recorder is in rec/pause mode will it produce a signal at its output. When you are satisfied with the level, hit “play” to begin recording. Push “stop” when you’re done and the machine will write a temporary table of contents entry and then wait for another recording to be started. When you are finished recording on the CD-R, it must be finalized in order to be playable on a standard CD player. If you use CD-RW discs, the finalization can be undone and more added to the disc. With CD-R discs, this cannot be done and the disc is not able to record more after it is finalized.