ckuw 95.9 FM

Programming Workshop 3

Technical Operations

Programming Workshop 3: Technical Operation

Contents

The Audio Console

The technical operation of any studio is quite complicated.

This workshop is by no means a comprehensive guide; rather it is a quick overview of the equipment and some of the jargon used in radio.

Don't be intimidated by the machines in the room! Make sure you know what you're doing and how to operate the equipment properly.

Simple problems have stumped more than one programmer.
Remember, everything is labeled from left to right, top to bottom.

The Console: Sometimes referred to as the "Board" it directs where all the sounds go.

The most complicated piece of equipment to deal with here is the console itself.

The key to understanding how to use it is to look carefully at the controls. You may notice that they are divided into strips these are called **channels.**

Each one has similar buttons and similar functions so once you know how one works you know how they all work.

Here are some of the basic functions of the soundboard.

On/Off - Self-explanatory, some equipment (CD players, Tape players) will auto start when the channel is turned on and stop when

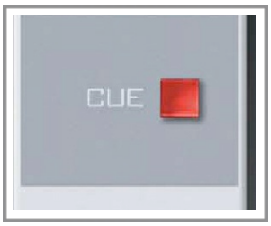
Fader - Faders are used to control the level of each input. The higher they are pushed up the higher the level of signal. One way to think of faders is like a floodgate, the more you open it the more signal flows through. In general your signal should 'peak' at 0 on the VU meters.

Source - Switches the channel to an alternative function.

Monitors - The large red speakers above the console are called monitors. Their level is adjusted by using the red knob on the right of the console.

Please keep your monitors at a reasonable level. The monitor source can be selected with the row of buttons on the right of the console.

CUE Switch - Switches the output of the channel to Cue buss. The cue circuit allows programmers to preview the signal from any channel on the board. This enables you to check music, and set up records without interrupting your broadcast. The cue circuit can be listened to through the cue monitor on the far left of the console.



Cue Monitor Control - Adjusts the audio volume in the cue buss.

Headphones - Headphones are one way to monitor your program and they are the only way to hear how you sound on the microphones.

For this reason you should always wear headphones when the microphones are on, otherwise you will have no idea how you sound good or bad.

Bringing in your own headphones is a very

Headphone Monitor
Audio volume for headphones.

Meter Source Select
Switches what the VU meter picks up.

VU Meters

VU meters measure “Volume Units.” They are one of the ways you can watch to ensure that the levels of your signals are not too high. Ideally, VU meters should peak around the “0″ mark; any signal pushing the needle into the red will be distorted.

Mic Technique and Proper Levels

Level vs. Volume

VIDEO: Watch levels video

The level of a signal is NOT the same as the volume.

Think of it this way: level is what the machines hear, while volume is what your ears hear.

It is possible to have a low level and a high volume, and a high level and low volume.

While it may be tempting to broadcast with very high levels, you will stress our equipment and your program will sound distorted.

Consistency is important so that our listeners do not have to constantly re-adjust their volume controls. We want them to hear our music and our voices. For this reason the equipment is calibrated to best performance at 0 VU.

Mic technique and proper levels

Studio Microphones

Studio microphones have a “cardioid” pick up pattern. That means they DO NOT pick up sounds behind or to the side of the microphone. For this reason positioning is very important, especially for guests who may not have experience with microphones. Don’t be afraid to carefully set up microphones before you start it will greatly improve your final product.

The Number one problem that volunteers have with equipment is with the microphones. Most problems stem from some simple mistakes and misunderstandings.

Why Headphones when you use microphones?

Remember that you must always wear headphones when using the mic. There is no exception to this if you wish to produce a professional sounding program. For this reason we recommend that you purchase a pair of headphones for yourself. Thereís no need to spend more than $50 and the difference in quality and professionalism will be appreciated by your listeners.

Headphones are critical because a microphone does not pick up sound the same way as a human ear.

There are a multitude of psychoacoustic effects that modify how we perceive everyday sounds, and these psychological effects are not replicated by microphones.

For this reason we need headphones to hear exactly what the microphone is picking up so that we can adjust our technique to compensate for the microphones shortcomings.

Basic Mic Technique

VIDEO: Watch Mic technique video

1. Assume a comfortable sitting (or standing) posture.

2. Position your microphone directly in front of your mouth no more than the width of your fist away from your lips. You may place the mic closer but not in contact with your lips. The distance you set will affect how clearly the mic will pick up your voice.

3. You should set the volume of your headphones high enough so that the only way you are hearing your voice is through the phones as opposed to reflections off the walls or directly through your skull (how we normally hear ourselves). Be careful not to set the volume so high that you will damage your hearing.

4. From this point you can adjust the microphones level on the console so that the loudness of you voice in your ears is comparable to that of the music you are playing. You can now be confident that you are being heard clearly and your listeners won't have to work harder to hear your program.

If you have trouble with sibilants and plosives like hissing and popping, very slightly tilt the microphone away from your face and talk across the mic, not into it. Remember that our microphones are directional and if you turn your head away from the mic this will drastically affect how well you can be heard.

Often times your guests wonít know proper microphone techniques. Itís critically important that you inform them of mic technique; remind them not to turn away from the mic and to speak clearly.

In general you want to find an ideal level for your mic that allows your listeners to hear you clearly but does not pick up background noise in the studio and office. You will want to experiment with the microphones to listen for this and learn how to correct it.

Types of Playback Devices and Levels

Playback Devices

VIDEO: Playback devices

Digital

Digital files are played through the PC channel on the on-air console.

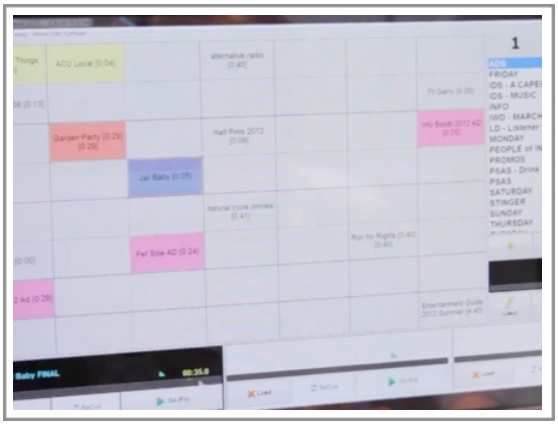
You can bring mp3s from home to play. Use the USB connector.

We also have a large digital collection full of new albums. You can explore these albums by clicking on the collection link on the desktop or check for them online at collection.ckuw.ca. Note that some digital files can be corrupted or distorted.

It's important to check your files before playing them on air.

Use our WinAmp player for playback. To load, just drag and drop the files into the playlist area. Now double click on the song you want to play. The player should continue to play each song in succession. Check the settings to make sure the player isnít set on shuffle or repeat.

Digital Cart System - DAC Cartwall



Cartwall is a software program that plays audio files through the computer's sound card. Cartwall is used to play ads, promos, stingers and station IDs. It's recommended that you use the players with the "collect" function. You click on the desired file once with the mouse and click on the blank/white player at the button of the screen. Once the file has been loaded into the player all you have to do is click on the play button.

CD Players

Some DJs prefer to use CD players to play their music. The CD player operates on the same principles as a home unit. Most of the extra features can be safely ignored, though they can come in handy. The “Play mode” button will change the “continuous” setting to “single” so the CD will automatically stop once the track is done. The other important button is “time” which you want on the “remain” setting in order to see how much time you have left on the track.

You can play tracks directly from the board instead of using the player.

Cassette Deck

The On air cassette deck is only slightly more complicated than a regular home model.

Like the CD players it will automatically play from the board.

Turntables

Turntables play vinyl records varying in size from 12 inch LPs to 7 inch 45s.

There are many types of record players with different types of motor drives that spin the records.

Older model turntables have three speed settings, 78, 45 and 33 and a third revolutions per minute or RPMs.

Set the speed to the correct setting. This will usually be marked on the record or its packaging.

Now gently place the tone arm, which contains the pick-up cartridge and stylus or needle on the record in the correct groove position. Now press play.

Remember that our turntables are expensive and delicate machines, so please treat them with care.

The professional DJ turntables have the ability to gradually adjust the playback speed, mostly used for “beat mixing” by club DJs.

There is a special mixer specifically for those interested in mixing. It is normally turned off so the players operate in the standard fashion. If you are going to be doing a lot of scratching, and ìturntablismî please bring in your own cartridges and styli, ours are for everyone and donít need the extra wear.

Digital MP3 Players

The I-pod player works like any docking station. It’s preferable not to rely on your I-pod for an entire show but for a few individual tracks. Sometimes it becomes difficult to stop and start a track for breaks and crossfade with this device. It’s also difficult to see what track is playing next.

Putting it all Together: Crossfading, Cueing, Phone Hybrid

Crossfading

VIDEO: Crossfading

The act of crossfading is relatively simple. Doing it well takes practice.

Crossfading is the process of seamlessly transitioning from one track to another.

Make sure the tracks you are crossfading relatively similar in volume, so the next track doesn't jump out at your audience.

1. Position the fader of your next song up about half so the level will carryover from the previous song.

2. Now gradually bring the fader which controls the level of the current song down while starting the next song.

3. If necessary, adjust the fader to the appropriate level for the current song so it is approaching zero DB on the VU meter.

The result should be a seamless connection of two songs.

If you're going to be talking over music during crossfading make sure you're wearing headphones to gauge how loud the music is. It's preferable not to talk over any singing or lyrics.

You may want to use one of the Cartwall station ids between the crossfade instead.

NOW YOU TRY IT!

1. With two CD songs.
2. With two CD songs and an ID.

Cueing

VIDEO: Cueing

The cue circuit allows programmers to preview the signal from any channel on the board. This enables you to check music, sound check for bands and set up records without interrupting your broadcast. The cue circuit can be listened to through the cue speaker on the far left of the console.

Cueing up a track for airplay

Before you begin make sure you have plenty of time before the song being broadcasted ends to preview other songs.

1. Start by turning down the monitor volume on the music being broadcasted.

2. Take your headphones off.

3. Now press the cue button the channel you wish to preview. Make sure the fader is completely down. If you have the fader up while previewing the song will mix into the song being broadcast.

4. Now turn up the cueing monitor.

5. Play the song from the play back device.

6. Once you've selected the song you wish to play. Turn off the cue.

7. Reset the song track and you're ready to go. Crossfade when the current track playing is finished.

Phone Hybrid

VIDEO: Phone Hybrid

A telephone hybrid is the device that packages all the functions needed to connect telephone lines to studio audio systems, providing electrical and physical interface between the Telco lines and studio equipment.

Using the Hybrid phone hybrid

1. Connect with your caller.

2. Once you have them on the line put the receiver down. Don't hang up.

3. Press the Telco button for line 1. When the light is green that means the signal has been captured. You are now able to speak to your caller through the microphone and listen to them through your headphones.

4. Put your headphones on and turn on your microphone.

5. Turn on the channel marked Telco and gradually bring the Telco fader up about halfway. Adjust the hybrid fader until the caller has a good level on the VU meter.

It's important to note that good quality telephone conversations for broadcast are largely dependent on the quality of the phone line. Encourage your caller to use a landline if possible. If they must use a cellphone encourage them to be in an area with good reception.

Troubleshooting

Sometimes equipment breaks or malfunctions. Remember that our studios are being used by over one hundred different people every week and that's more wear and tear than anywhere else in the city! Because of this it is inevitable that from time to time there will be problems with our equipment.

Obviously it can be very frustrating if equipment breaks during your show. When something breaks down or simply doesn't want to work, just relax and continue programming to the best of your abilities. Do not talk about the problem on the air. Listeners aren't interested in our internal operation and complaining or whining about equipment failure isn't fun to listen to.

DO NOT TRY to FIX THE PROBLEM YOURSELF. Let staff deal with it. Please report broken or malfunctioning equipment to the staff IMMEDIATELY and fill out a Fault Report if staff isn't around. If you can't find a solution to your problem and it prevents you from broadcasting, call the emergency pager.