

# Re z So und

An overview of the sound program at The Rez.  
February 2013

The central goal of the sound program is to take the words being spoken or the music being played and amplifying it in a way that facilitates worship. The unfortunate reality is that the greatest compliment we can get is that no one noticed there even was a sound program.

So to that end, below outlines the top level ins and outs of the sound system. How it works and how to identify and correct problems as they occur. This is a slightly technical overview, and the conspicuously absent component is what and how you hear what the system is producing. That's the experience part, and I hope this will be a starting point and occasional reference.

## Mixing

The goal of the mix is to take each of the signals coming into the board and adjust their respective volume resulting in a balanced sound.

It's important to listen and try and identify each of the inputs, and be sure they can be heard, and that there is balance between them.

One instrument should not overpower all the others.

Microphones should be mixed such that the lead vocal is slightly louder than the support vocals.

The mix needs to work within a maximum volume limit. There is a decibel meter on the board and the rough guide is that the total, mixed, sound output should not exceed 85dB.

## The Route of the Sound

The board is just a mixer of input signals.

The board can only work with the signals sent to it.

The board main sends go through a separate EQ before going to the amplifiers. The settings for this is listed in Appendix C.

The amplifiers power the speakers with the signal the mixer sends. They are located in the Wardens office and need to be turned on at the beginning of each service.

There are 2 categories of input:

1. the 'snake' – a 16 input box at the foot of the pulpit that then routes those inputs back to the board.
2. directly from their source into the board: the RF (Radio Frequency) mics and the AV for example.

### The Snake

Vocal mic's for the band: there are 5 of them and all of them are Sure 58's. These microphones only really work when the sound source is very close to the mic. Consider it an ice cream cone, not to eat it, but to provide a visual reference as to how close to the mic the singer should be to get a good input for the board. The mic's are labelled 1–5, so if someone is using a mic have them indicate which number it is, and you can then adjust them properly. Finding the signal can often be the lions share of the battle!

Lead mic: this mic has the most sensitive mic we have. It NEEDS the foam sock on it to prevent popping, and it also needs the Phantom Power unit located behind the board.

P i a n o m i c : we now have a piano mic and it sits in the middle of the back side of the piano where the sound is produced.

G u i t a r m i c a n d b a s s : electric guitars rely on their amplifier to create a big chunk of the tone, so instead of plugging directly into the system, their amplifiers are mic'ed. This applies to the electric guitars and the bass.

note: with amplifiers playing 'live' you don't have control over their volume. The musicians will use them as a monitor, but occasionally they are set too loud, and you may need to discreetly ask them to turn them down, giving you more control over the mix, rather than increasing the volume of everyone else to balance it.

G u i t a r D I b o x e s : Some instruments require a Direct Input (DI) box to translate their signal output for a sound board. Acoustic guitars are often like this as are some violins and other instruments with built in pick ups. The DI box (red) has 4 buttons on it. For the ones we have here, all the buttons need to be out to get the right signal.

The k e y b o a r d uses a 1/4" plug and plugs into an adaptor on the snake to convert it to an XLR input.

The d r u m s are no longer mic'ed. They used to have screens up to contain their sound as they can be quite loud. We have recently opted to remove the screens, providing a clearer sound, but requiring a softer touch from the drummer. If you feel the need to be put back in place, they are stored somewhere in the church.

## DIRECT

R F m i c ' s : we have 2. They are both worn over the ear, and it is crucial the the wearer locate the mic properly. If the mic is pointing away from the mouth, the pickup is weak and getting enough volume out of it can often result in feedback. They are also very sensitive to battery levels. The EV units beside the board indicate which one is on, and what their battery level is.

The antenna on the back should always be set at 45deg from one another and never have a power cord running over them as it will cause interference.

If the mic is not turned on, but the system is on and the slider is up, occasionally the receiver 'hunts' for a signal and results in a loud sharp hiss pop. The only way to really prevent this from happening is to keep the slider down and maintain awareness of the wearer, being ready to turn it up when they are about to speak.

AV : the computer at the front of the church is connected directly into the board.

C D p l a y e r : the CD player is connected directly into the board.

other: occasionally (Christmas pageants for example) there is a requirement to plug another input into the board - iPods etc. They can be fed directly into any available channel on the back of the board and then managed in the same way all other inputs are.

The b o a r d :

Going from top to bottom - from input to mains output.

trim: first input volume - this is the one you adjust to keep the slider at U. If this is too high and the slider low it will result in distortion

se n d s : any signal going out of the board that is NOT the main. Monitors and recording devices. We only have 2 monitor channels currently. This allows for a different mix to each channel.

E Q : fancy bass & treble - for the most part these are set (see appendix B). On this board there are 4 controls. The upper one is treble the lower bass, and the centre 2 work together - the upper middle is level and the lower middle change the frequency the upper one is adjusting. It's a little tricky to adjust, so best stay with the 2 outers until you get a feel for it.

pan: Never used unless the channel is to be assigned to a single submaster (we rarely do this)

fader: controls the output level to the mains

assignments: clustered as 1-2 and 3-4 with a L-R below. 1-2 assigns the fader to submasters 1&2 and 3-4 assigns to 3&4. The L-R assigns directly to the mains. The RF and lectern mics are assigned this way.

Submasters: clusters faders to bring levels up and down together. For example, we have the musicians on subs 1&2 and the singers on 3&4. When a song is finished, bring the faders down to eliminate hum.

main output: Brings the main output down, BUT NOT the monitors

mute: disables the channel.

solo: selects the single channel for playback through the headphones. This is used to identify feedback and the EQ channel.

During the service :

1. Try to be at the church by 9:30ish
2. During morning rehearsal keep the mains volume down as the folks from the 9:30 service are trying to have coffee.
3. Keep your eyes on what's going on
4. Mute the channels not in use.
5. Ensure the assignment of the submasters
6. Do a quick check of all the mics before the service
7. Check the battery levels in the wireless mic's.
8. If someone with a wireless mic goes to the lectern, be sure to turn the lectern mic down as the mics together may cause feedback.
9. Keep sliders down until you know how loud the signal will be, and slowly increase to the correct level.
10. Try and get the sliders to U (unity) and adjust the volume with the Trim.
11. For the most part there will be no need to adjust the EQ. Appendix A lists the determined settings for the RF and lectern mics as well as the main output equalizer.
12. Locate the monitors to those who need them and ask what they most need to hear.
13. Then adjust the monitor levels accordingly.
14. Keep an eye on who is doing what at the beginning.
15. Try and keep the RF mics down during singing and communion.
16. Once a song is finished pull all the masters down to prevent inadvertent knocks to a mic as well as system hum.
17. If someone gets up to use one of the vocal mics, be sure to pull the subs back up temporarily.

18. Record the sermon with the digital recorder. John Amanatides or Jordan Pinches will collect the sd card.
19. Find out about any video or audio clips and start them low when they come on –the computer sends very irregular signal strengths.

## Common Problems

This is a first cut and is NOT exhaustive. When other examples come up, they will be added to the list.

### No sound

1. check signal into the board with the light on the channel and a solo with the headphones
2. check all cords are connected
3. check submaster assignments
4. check the submaster isolation button is up.
5. try another input source to verify if the problem is the channel or the input.

### Low signal, or monitor only output

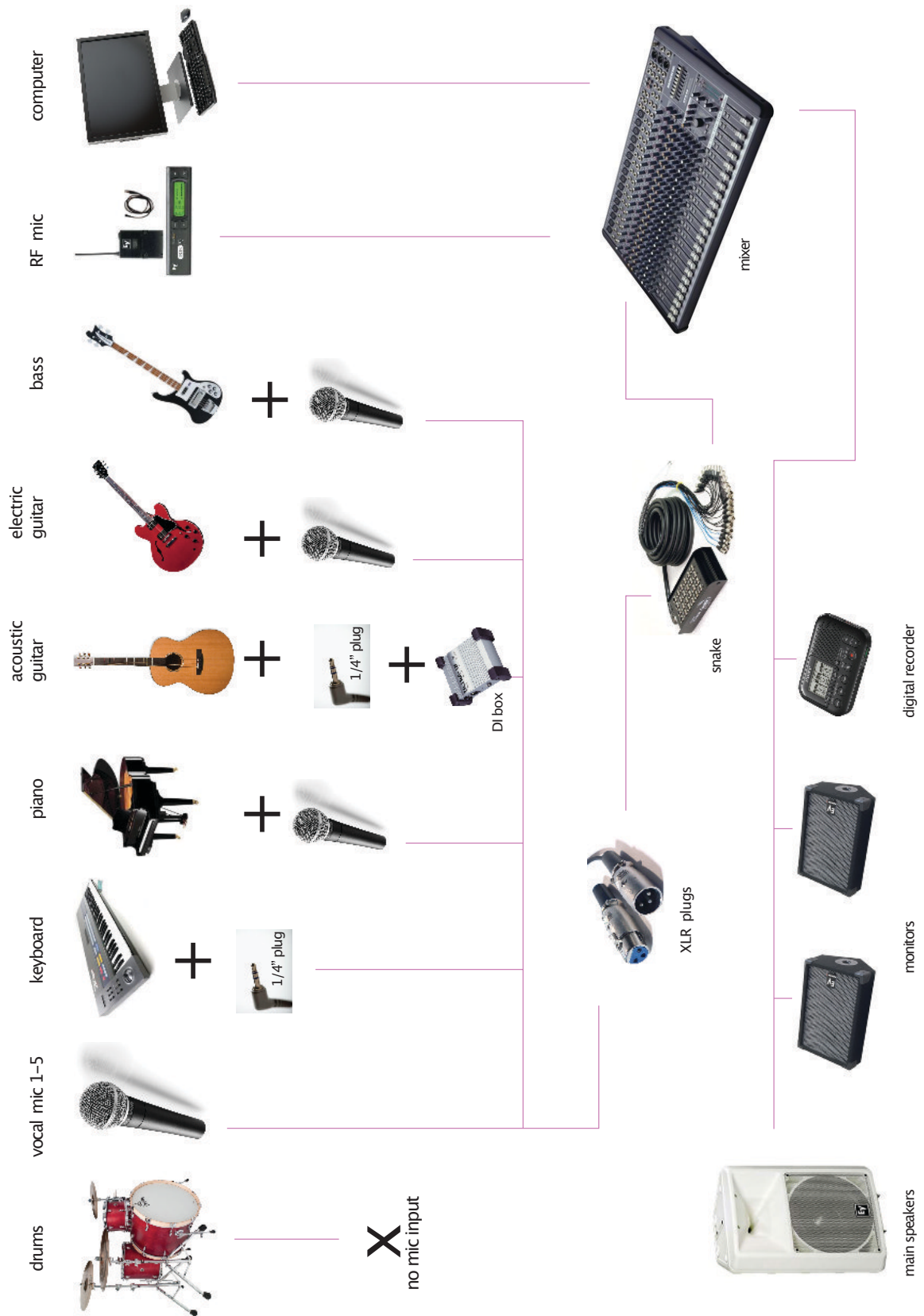
1. guitar volume is too low.
2. voice is too far from a mic
3. sometimes monitors are so loud, or the submasters are down that the only sound audible is through monitors –try and avoid this.

### feedback

1. a mic is in front of a speaker
2. the trim is too high –the channel is being pushed too hard (this could be due to someone not being close enough to the mic and it's trying too hard to pick up a signal).
3. EQ –feedback is frequency based –you can sometimes identify the frequency, adjust the EQ to reduce that frequency and then get more volume out of the channel.

## Appendix A – system overview

### Sound Map at The Rez January 2013

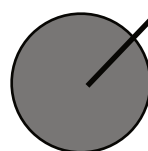
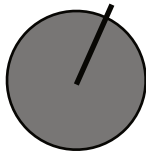
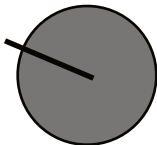
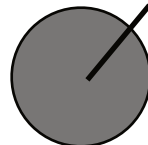
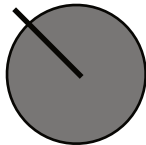
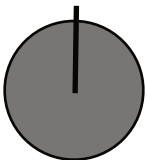
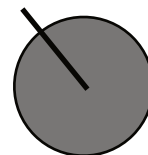
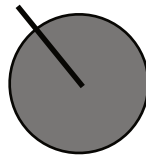
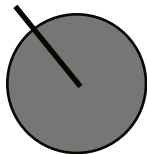
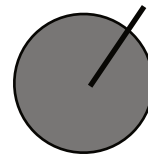
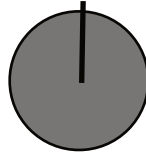
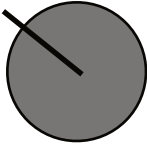


Appendix B – RF & lecture EQ rough baseline settings

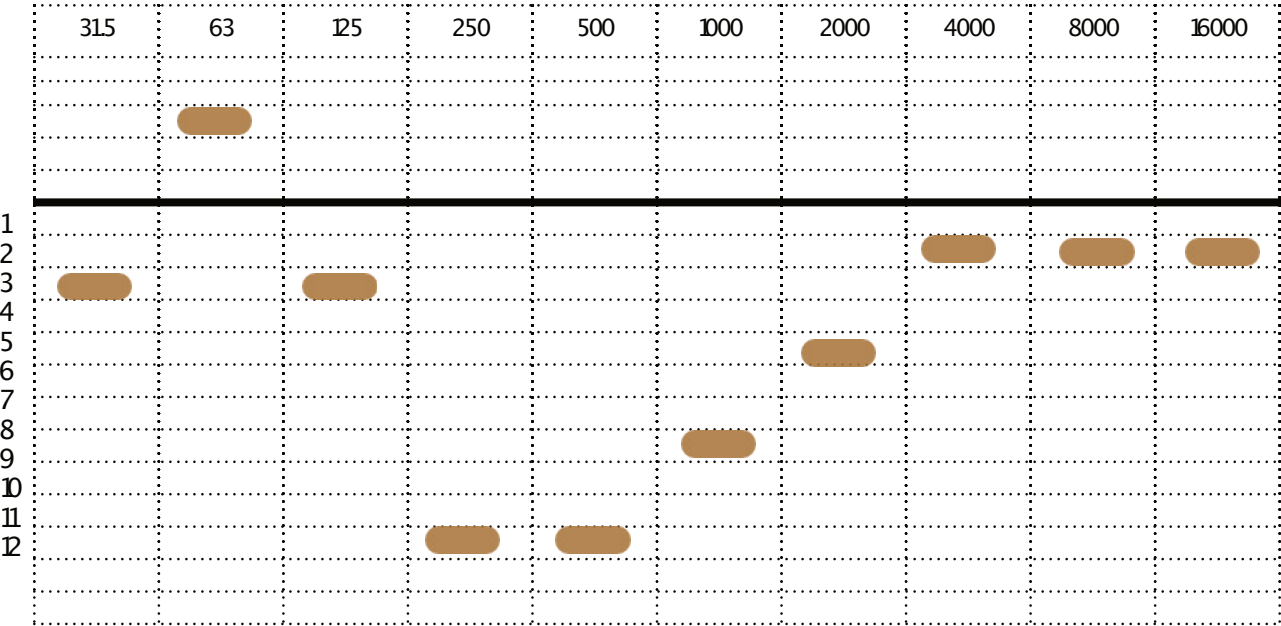
LECTERN

RF1

RF2



Appendix C – main EQ settings



## Appendix D – from Duke Viperman

Dear Audio Technicians,

### **Prelude**

In the beginning, God said let there be light. Light (visual) is not the first thing of creation. The word is first. The link between God and his creation is always his word.

But if we can't hear—we have a problem.

That's your sacred trust –to ensure that we can hear here –with all the technical limitations and different opinions that involved

And its complicated – more an art than a science.

This is also a very complicated acoustic space.

I am arranging for an inspection of our space by someone from a hard of hearing society to give us their free professional suggestions.

I'll let Lee know when that is booked.

### **Practice**

Indeed, you are welcome to come just about any evening by arrangement to work the system on your own.

Bring a friend with a kazoo and see how it all works.

Or have someone dust off that old red Rickenbacker under the bed and jam while you adjust. Why not!

Try—in spite of all that follows –to enjoy yourself –stay loose, have fun out there, and care for everyone!

When the musicians start to practice about 9:30 am people are also gathered behind you for coffee who want to hear each other.

The slider volume to the mains during practice should never be set above half –and turned up only at 10:30 when the crowd absorbs sound.

Voice over instruments any day! Do whatever you can so we can hear the words of the singers of preachers OVER the instruments.

Vocal harmonies are a foretaste of heaven. Hear here!

Guitarists need to know early on if their guitar amps they use as their own monitors are overpowering the mains.

How can you tell? Turn off the volume to the mains. If the guitar amps are still too loud you know who to kindly ask to turn them down

You can always turn them up through the mains. Guitarists are always glad to accommodate. they just don't know to turn them down without being told.

It would be helpful if the audio technicians would suit the clergy leaders up with their appropriate mikes before the service starts.

Check please to see that the batteries are good for the day.

One of the remote mikes is iffy –we are working on that.

The musicians are going to try to finish practice by 10:15, I wish them good luck with that.

Then silence –we'll see.

You are a vital part of the band and the worship team—and are welcome to join the band & clergy for opening prayers if possible.

You could then coach them based on what you observed during practice.

and to be among the first at communion when all the others circle the table.

### **Opening**

Ontario regulations are that decibel limit in public gatherings should be no more than 80–85 db's max.

If we need a better db indicator –go ahead and buy it.

Find a new Marj Ockwell. A senior with years of church experience used to sit two pews in front of Ken Wiebe and had official permission to turn around and

either tug on her left ear = I CAN'T HEAR!!! or clap her hand over her ears = TOO LOUD, DUDE

In fact having a hard-of-hearing old rocker like me near the board would be a real advantage!

What you hear with your good ears, may not be at all what others hear. Sigh.



Moving mikes around mid service is really distracting. There are two empty receptacles in the audio snake. Lets buy the mikes and stands we need and leave the lectern mike where it is throughout the service.

When someone cannot be heard, we have a problem.

Would you all brainstorm how we all might work together on a Sunday am to communicate problems during the service while we might still be able to fix them?

As an old rocker I am very accustomed to keeping one eye glued on the sound guys. Find a way to let me know wazzup!

The least distracting is to send someone down the north aisle with a message something like, "I CAN'T HEAR YOU!"

But if we need the technology we could try texting. :-)

Lee will have more to say about recording, mike placement, technical balancing, EQs, etc.

### **Closing**

The frustrating thing is -you know you have done a FANTASTIC job if no one complains! However, I try to thank you each week because what you do REALLY IS IMPORTANT.

Leave the system on for the Koreans and go take a nap.

And thanks once again.

Duke Vipperman