

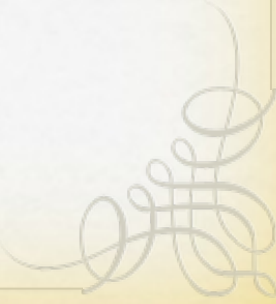
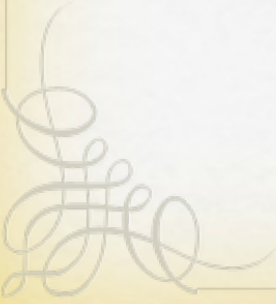


# SOUNDBOARD 101

(SOUND REINFORCEMENT)

by  
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TI:ME Conference  
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<http://floydrichmond.com/tnmea2015>



## AUDIO MIXING AND SOUND REINFORCEMENT

One area that is often overlooked in teacher education preparation, even in those where there are technology proficiency courses, is the area of sound reinforcement.

Whether it is for the purpose of recording, helping listeners to hear softer voices in a louder surrounding, playing tracks or accompaniments for solos or ensembles, or simply amplifying the master of ceremonies in a large concert hall, . . .

a knowledge of basic sound board operation is essential.



# GEAR

Sound Reinforcement is accomplished through a fairly standard combination of equipment.

*Microphones  
and Instruments*

*Mixer*

*Amplifier*

*Speakers*

*Cables/Snake*

*Cables/Snake*

*Cables*

# GEAR

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# GEAR

## *Microphones*



*Dynamic*



*Condenser*



# GEAR

## *Microphones*



*Wireless  
Microphone*



*Wireless  
Lapel  
Microphone*

# GEAR

*Wireless  
Receivers*





# GEAR

*Microphones  
and Instruments*

*Mixer*

*Amplifier*

*Speakers*

*Cables/Snake*

*Cables/Snake*

*Cables*



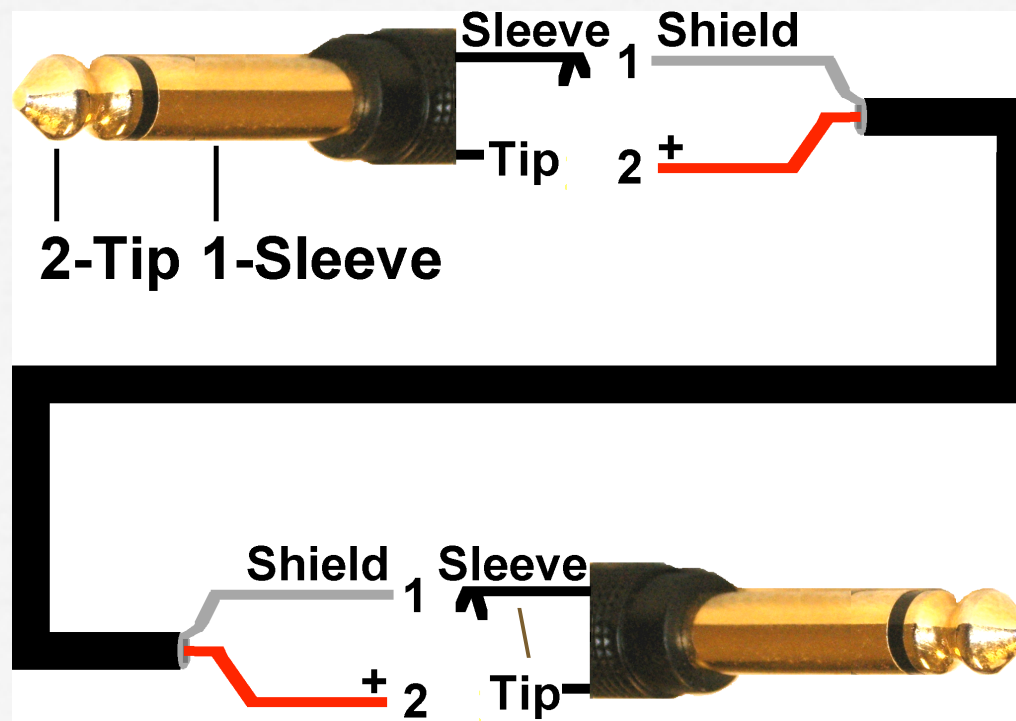
# GEAR

## *Cables*



# GEAR

## *Cables*

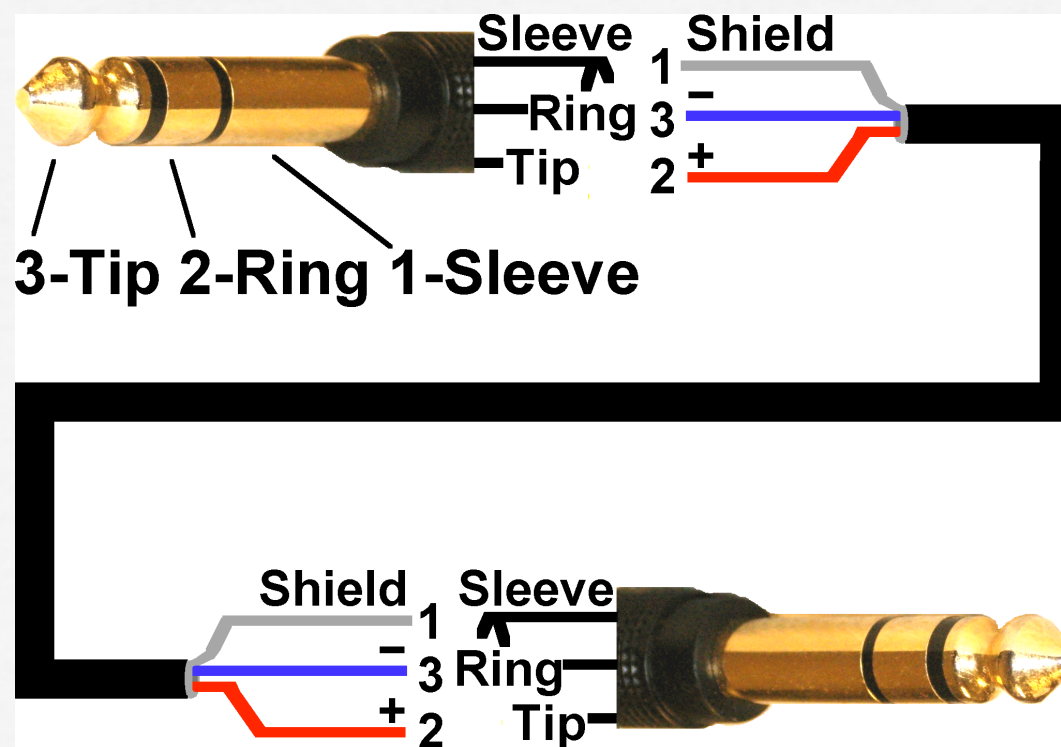


*1/4" TS for Instruments such as Guitar, Bass, Keys*



# GEAR

## Cables

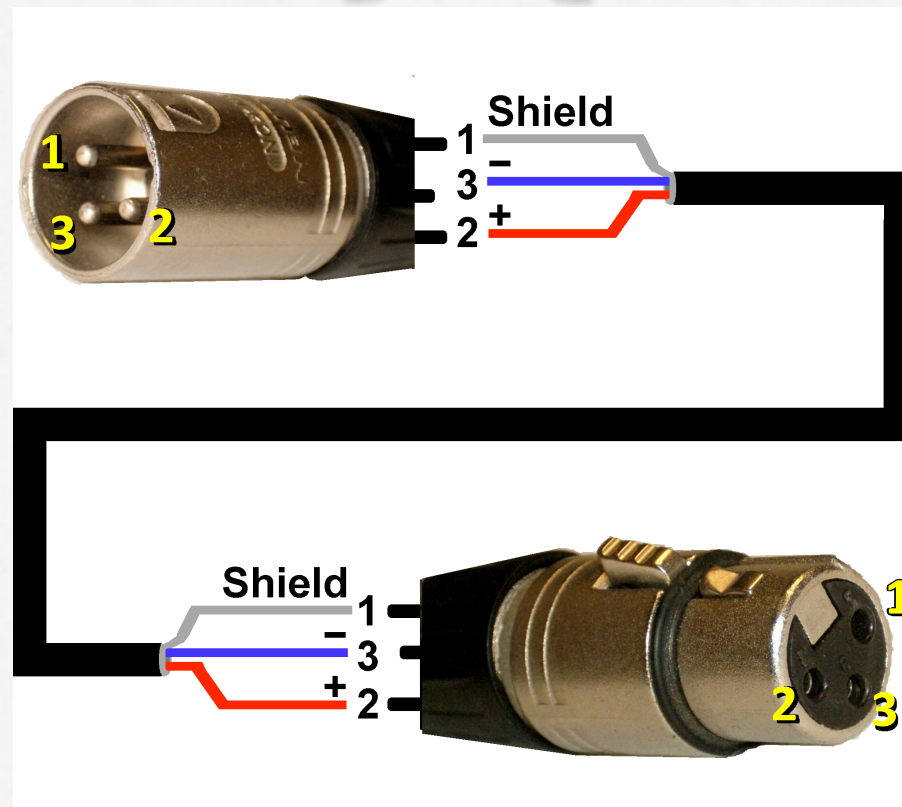


*1/4" TRS for Balanced Lines and Stereo Equipment*



# GEAR

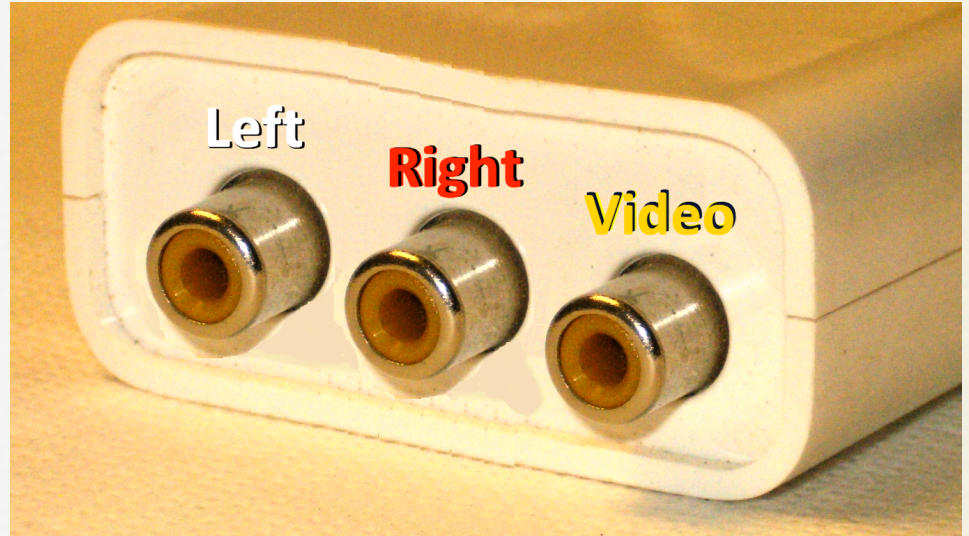
## *Cables*



*XLR for Microphones*

# GEAR

## *Cables*



*RCA Cables primarily for CD and DVD players, tape recorders*



# GEAR

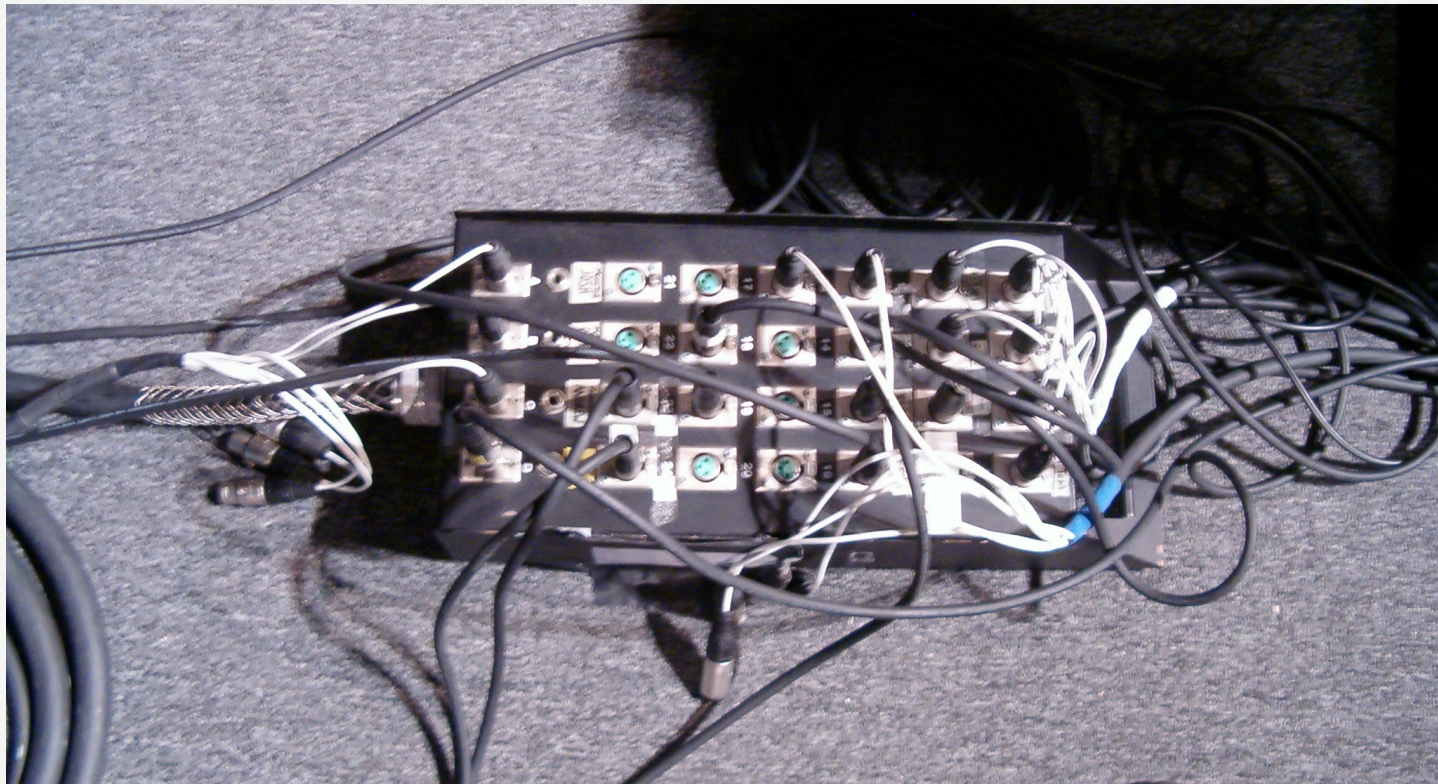
## *Instruments/Direct Boxes*





# GEAR

*Snake*





# GEAR

*Microphones  
and Instruments*

*Mixer*

*Amplifier*

*Speakers*

*Cables/Snake*

*Cables/Snake*

*Cables*



# GEAR

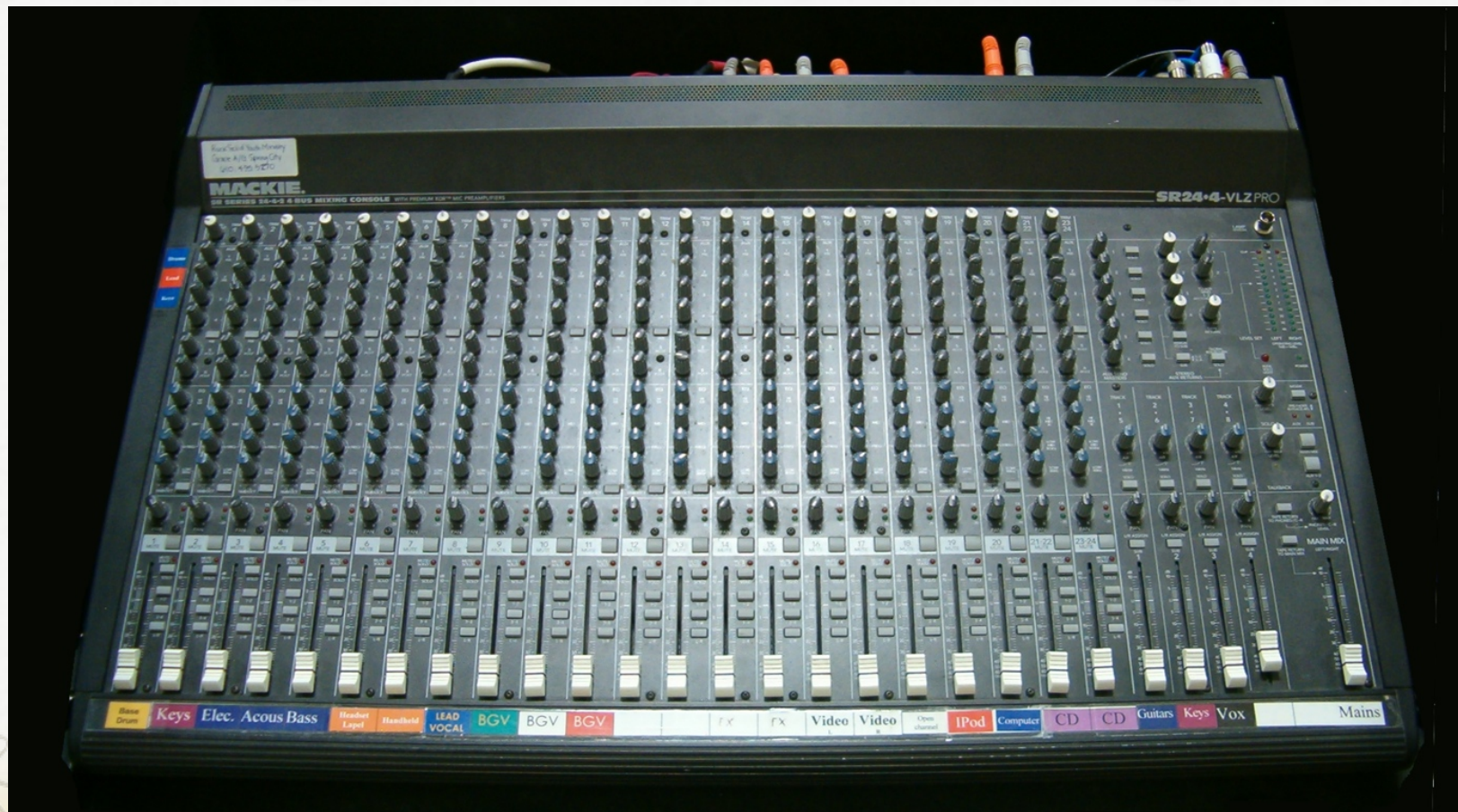
*Mixer - Allen and Heath iLive 112*





# GEAR

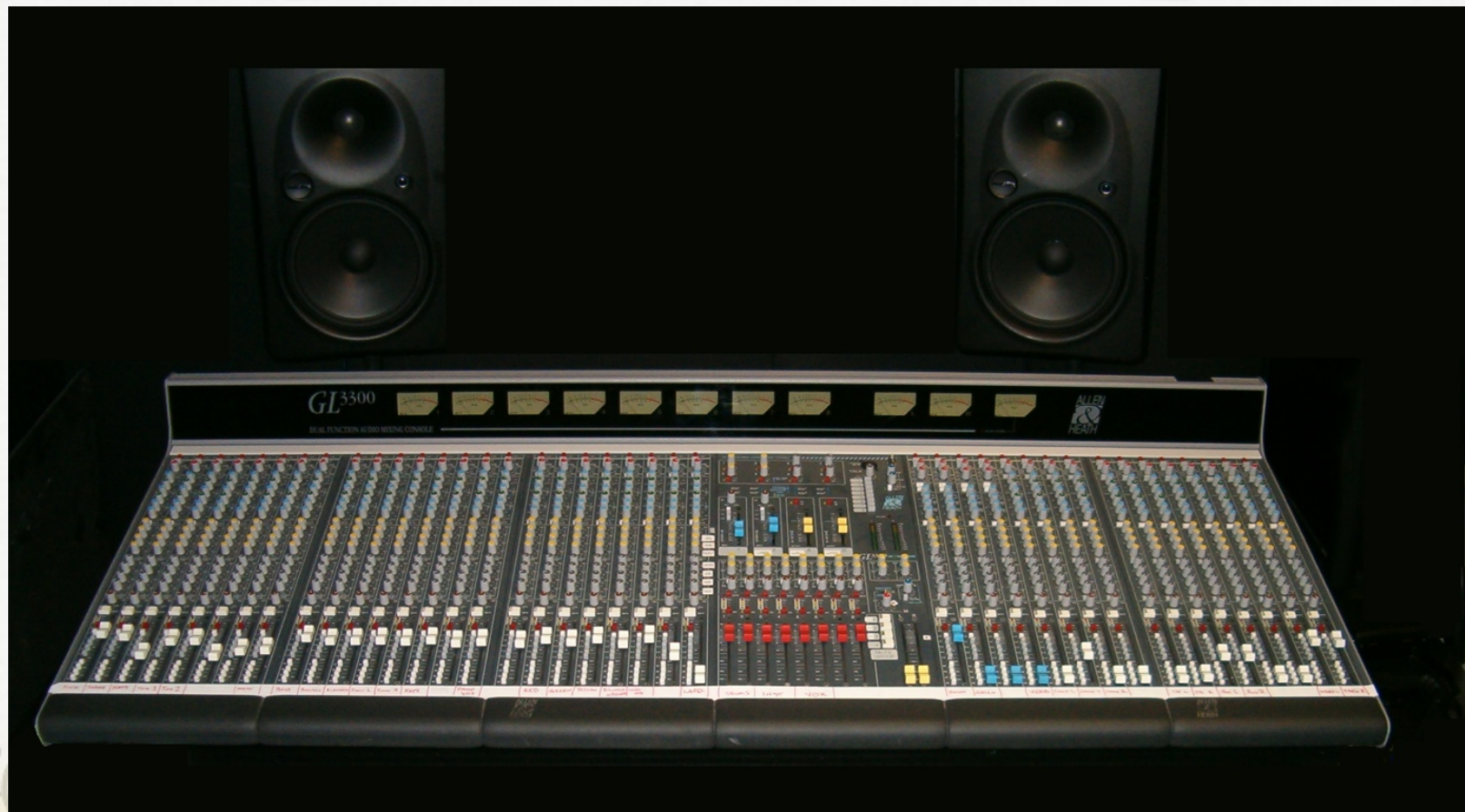
*Mixer - Mackie SR 24-4-VLZ Pro*





# GEAR

*Mixer - Allen and Heath GL 3300*





# GEAR

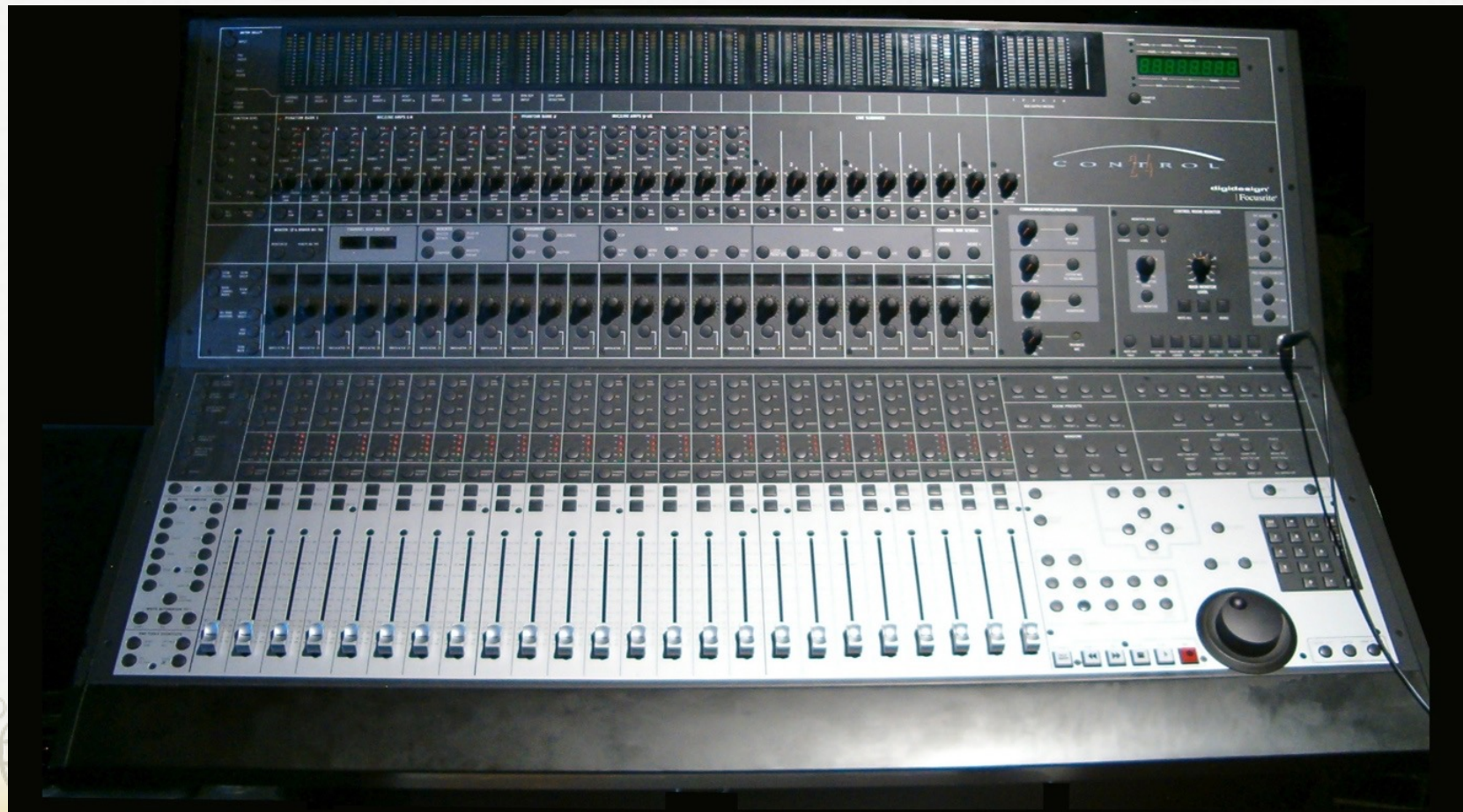
*Digital Mixer - Digidesign 8*





# GEAR

## *Digital Mixer - Digidesign Control 24*





# GEAR

*Digital Mixer - Presonus StudioLive 24.4.2.24*





# GEAR

*Microphones  
and Instruments*

*Mixer*

*Amplifier*

*Speakers*

*Cables/Snake*

*Cables/Snake*

*Cables*

# GEAR

*Powered Speakers  
(Amplifier and Speakers)*





# GEAR

*Amplifier*



# GEAR

*Microphones  
and Instruments*

*Mixer*

*Amplifier*

*Speakers*

*Cables/Snake*

*Cables/Snake*

*Cables*



# GEAR

## *Speakers*



# GEAR

*Microphones  
and Instruments*

*Mixer*

*Amplifier*

*Speakers*

*Cables/Snake*

*Cables/Snake*

*Cables*

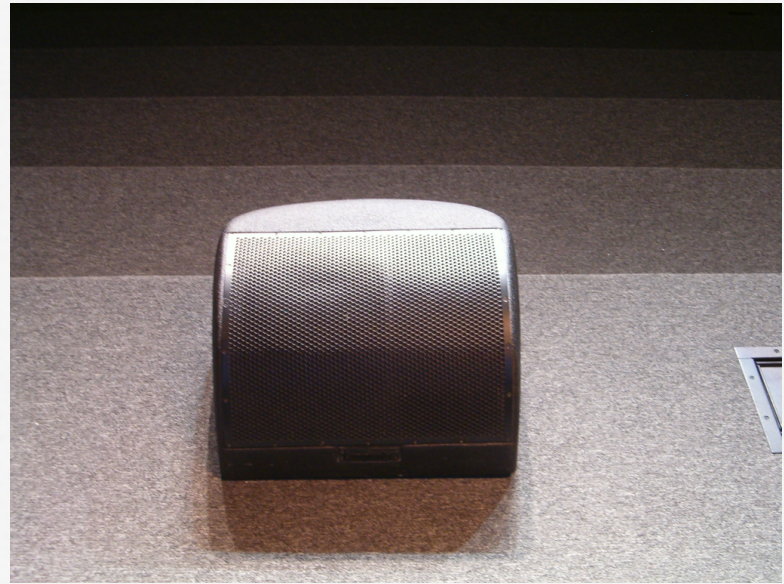
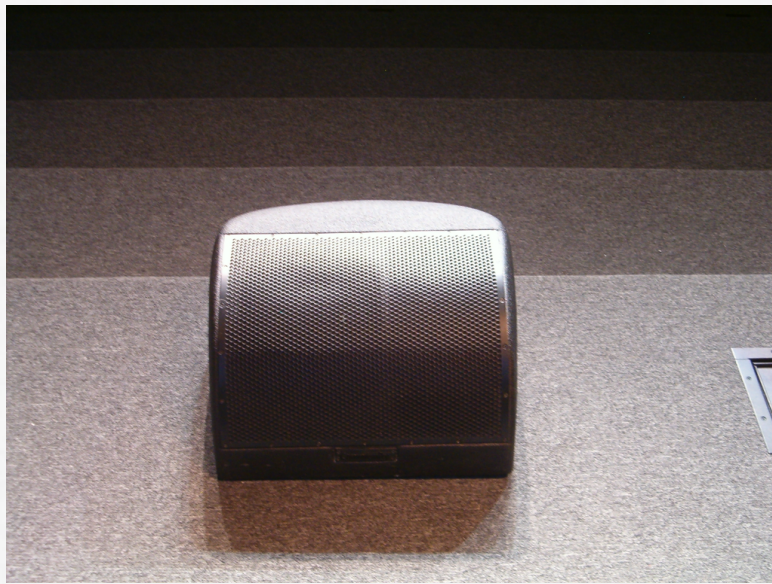
*Amplifier*

*Monitors*



# GEAR

## *Monitor Speakers*





# GEAR

## *Powered Speakers*





# GEAR

## *Powered Speakers*



# GEAR

## *Powered Speakers*





# GEAR

## *In Ear Monitors*



# GEAR

## *In Ear Monitors*





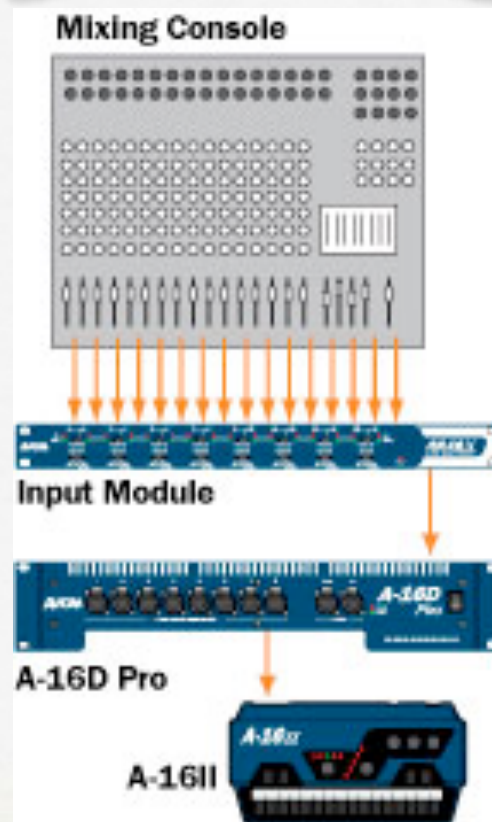
# GEAR

## *In Ear Monitors*



# GEAR

## *In Ear Monitors*





# GEAR

*Microphones  
and Instruments*

*Mixer*

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*Speakers*

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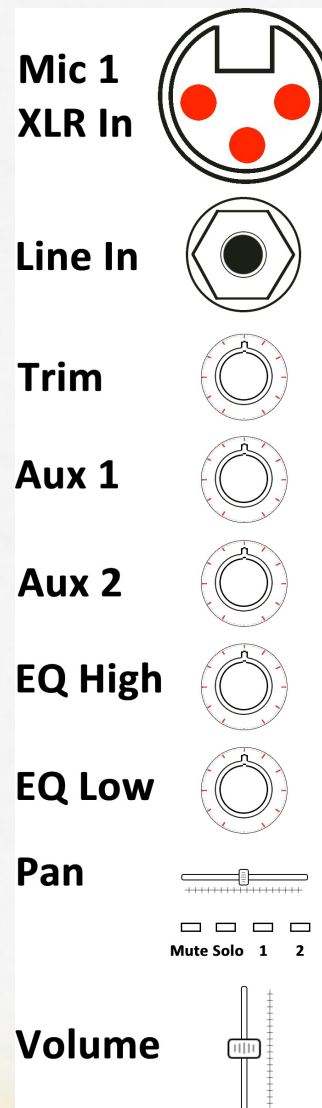
*Cables/Snake*

*Cables*

*Amplifier*

*Monitors*

# MIXER - THE CHANNEL STRIP





# MIXER - SUB MIXES



# MIXING

- **Sound Levels**

- Balance voices.

- **Equalization**

- Tailor sounds fit together.

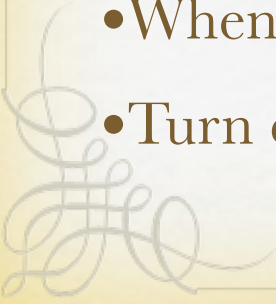
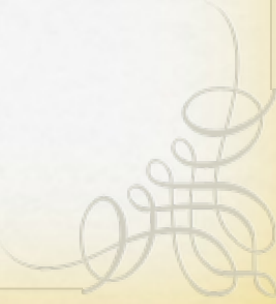
- **Panning**

- Placing sounds in space.





## TROUBLE SHOOTING SOUND TEAM CHECKLIST

- Prior to Rehearsal - Buy batteries
  - Rehearsal - Attendance is required.
  - Arrive early to do any necessary setup.
  - Start with a plan (list of program).
  - Take notes on the program.
  - Follow the plan.
  - Watch the director for visual instructions (hand signs) if necessary.
  - When finished, debrief with the director.
  - Turn everything off and put away everything.
- 
- 

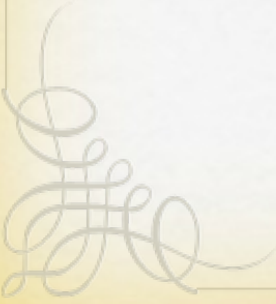
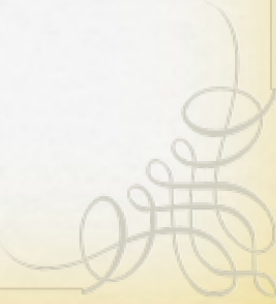
# TYPICAL CONCERT SOUND PLAN

- PROGRAM TITLE AND DATE
- Introduction
  - Mics for recording house sound.
  - Mic for amplifying the speaker doing the introduction - no reverb.
- Piece 1- choir with solo
  - Mics for recording house sound.
  - Mics for vocal soloist 1
- Piece 2 - men's quintet
  - Mics for recording house sound.
  - Mics 2 to 5 - reverb (tailored to each performer)
- Piece 3 - choir with recorded accompaniment
  - Mics for recording house sound.
  - Channels for playback of recorded accompaniment
- Etc.





# TROUBLESHOOTING

- Feedback
  - Hum
  - Wireless failure
- 
- 



# RECORDING

- ✱ Analog

- ✱ Digital





## WEB SITES

- ✱ <http://macprovideo.com>
- ✱ <http://www.yamaha.com>
- ✱ <http://www.shure.com>
- ✱ <http://www.youtube.com/watch?v=OJwDifYxE9c>
- ✱ <http://www.youtube.com/watch?v=Iocro0AK1WA>
- ✱ <http://www.youtube.com/watch?v=dCH-E24qzE4>



# SOUND REINFORCEMENT MANUFACTURERS - MIXERS

- \* Presonus
- \* Mackie
- \* Allen and Heath
- \* Peavey
- \* Yamaha
- \* Taft
- \* Carbin
- \* Avid
- \* Behringer
- \* Midas



# SOUND REINFORCEMENT MANUFACTURERS - MICROPHONES

✱ Shure

✱ AKG

✱ Sennheiser

✱ Cascades

✱ Electrovoice

✱ Earthworks

✱ Audix

✱ Rhode

✱ Neuman

✱ Blue

✱ Beyer

✱ Audio Technica



# SOUND REINFORCEMENT MANUFACTURERS - SPEAKERS

- ✱ Mackie
- ✱ M-Audio
- ✱ JBL
- ✱ Peavey
- ✱ Fender
- ✱ Fishman
- ✱ Bose
- ✱ Yamaha





# DEALERS

- ✱ Soundtree
- ✱ Sweetwater
- ✱ Musician's Friend
- ✱ Sam Ash
- ✱ Guitar Center
- ✱ Woodwind/Brasswind
- ✱ George's Music



# IPHONE

✱ Discuss iPhone apps



# LEARN MORE

- ✧ TI:ME Sessions at TN MEA/TI:ME Conference
- ✧ TI:ME Technology Boutique (Exhibit Hall)
- ✧ Books *Audio, Video, and Media in the Ministry* (Thomas Nelson Guide Series)
  - ✧ <http://www.amazon.com/>
- ✧ TI:ME Courses and Certification
  - ✧ <http://www.ti-me.org>
  - ✧ <http://vfcc.edu/musictechnology/>

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# VFCC RECORDING STUDIO









# THE SOUND TEAM

- **Music Director:** This individual works with other musicians and has the ultimate responsibility for requesting and insuring the desired mix of instruments and voices are obtained.
- **Sound Board Operator:** Typically this person sits at a sound board makes certain that microphones are active when needed, and off when they should be. This person also controls the mix of instruments and voices that are heard through the room's sound reinforcement system (amplifiers). This person also applies any special effects (reverb, etc.) to any channels needed, and helps insure that musicians can hear themselves.
- **Sound Tech:** This person places microphones as needed, and runs cables for recording or reinforcement.