



SOUNDBOARD 101

(SOUND REINFORCEMENT)

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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

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Cables

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

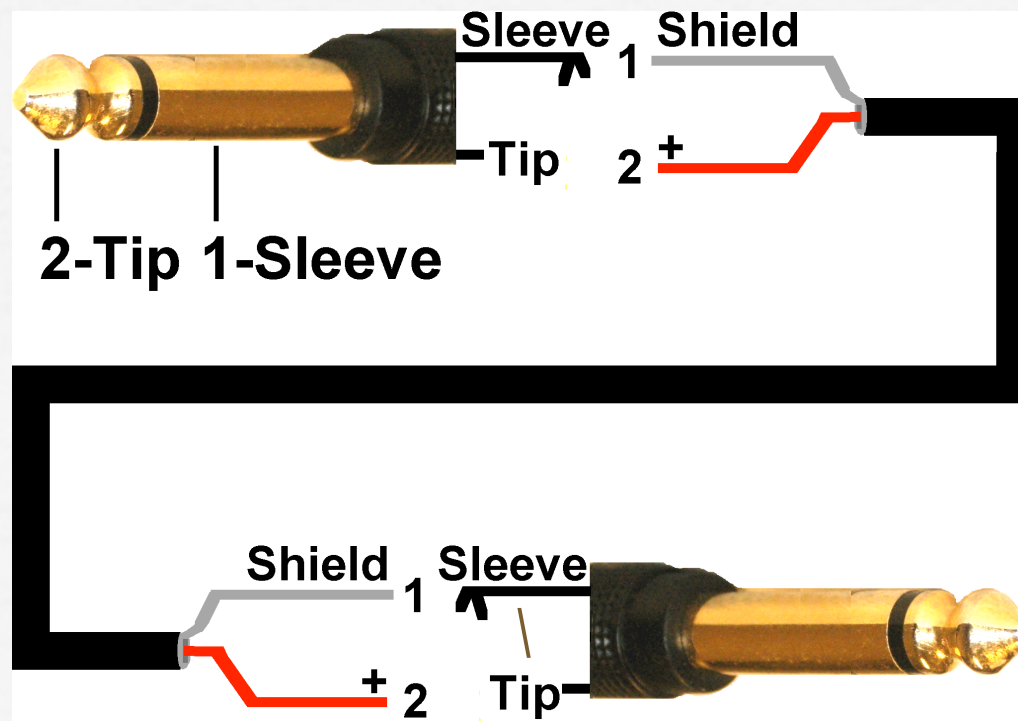
GEAR

Cables



GEAR

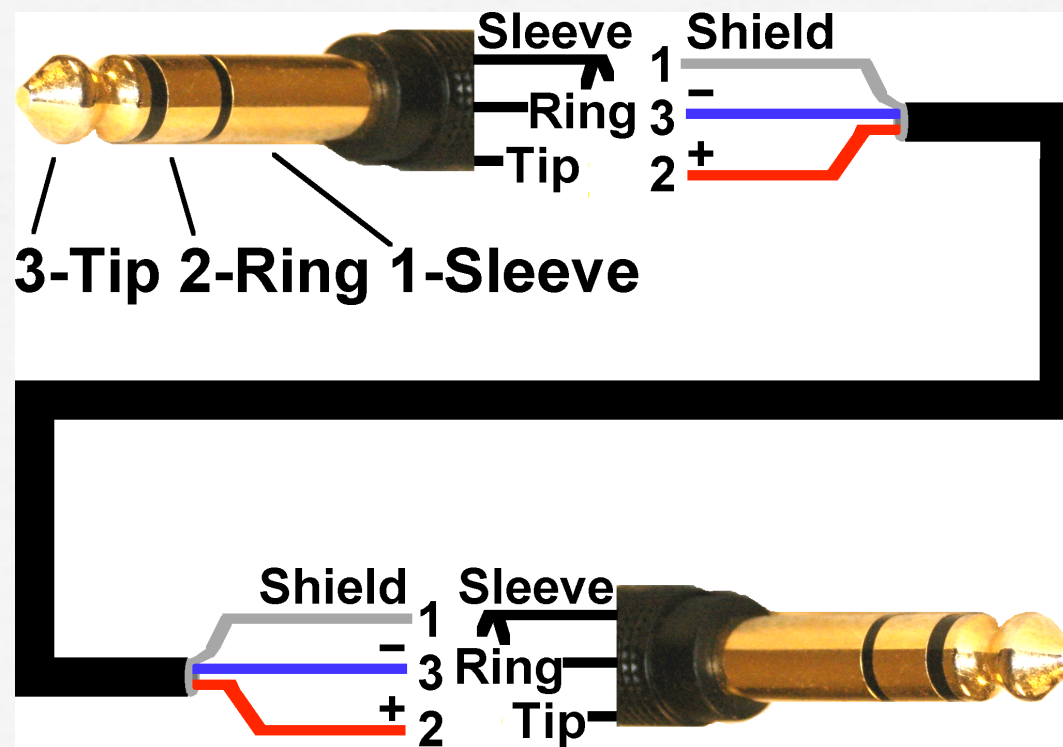
Cables



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

GEAR

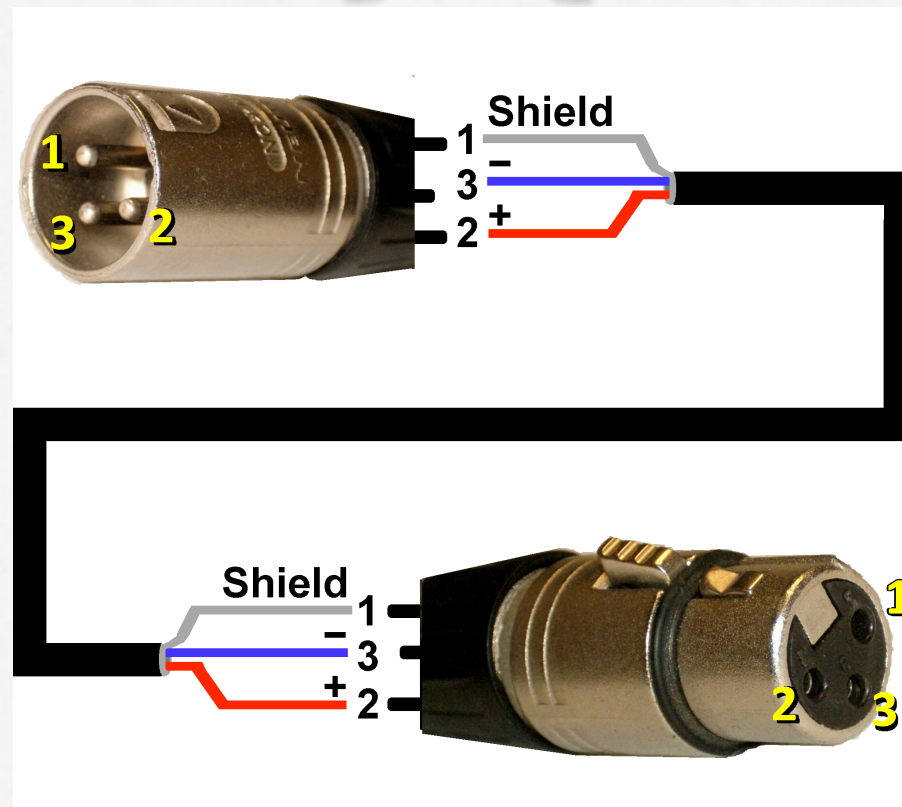
Cables



1/4" TRS for Balanced Lines and Stereo Equipment

GEAR

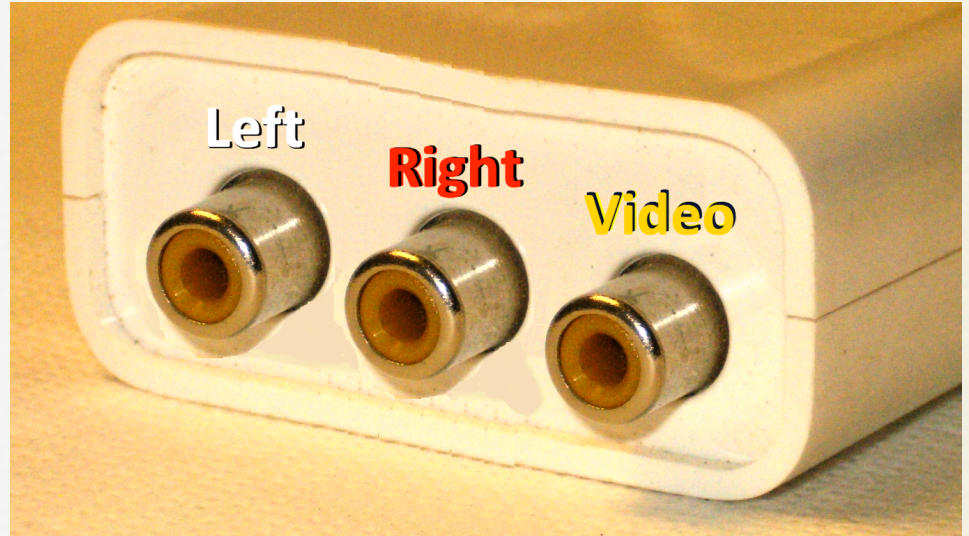
Cables



XLR for Microphones

GEAR

Cables



RCA Cables primarily for CD and DVD players, tape recorders

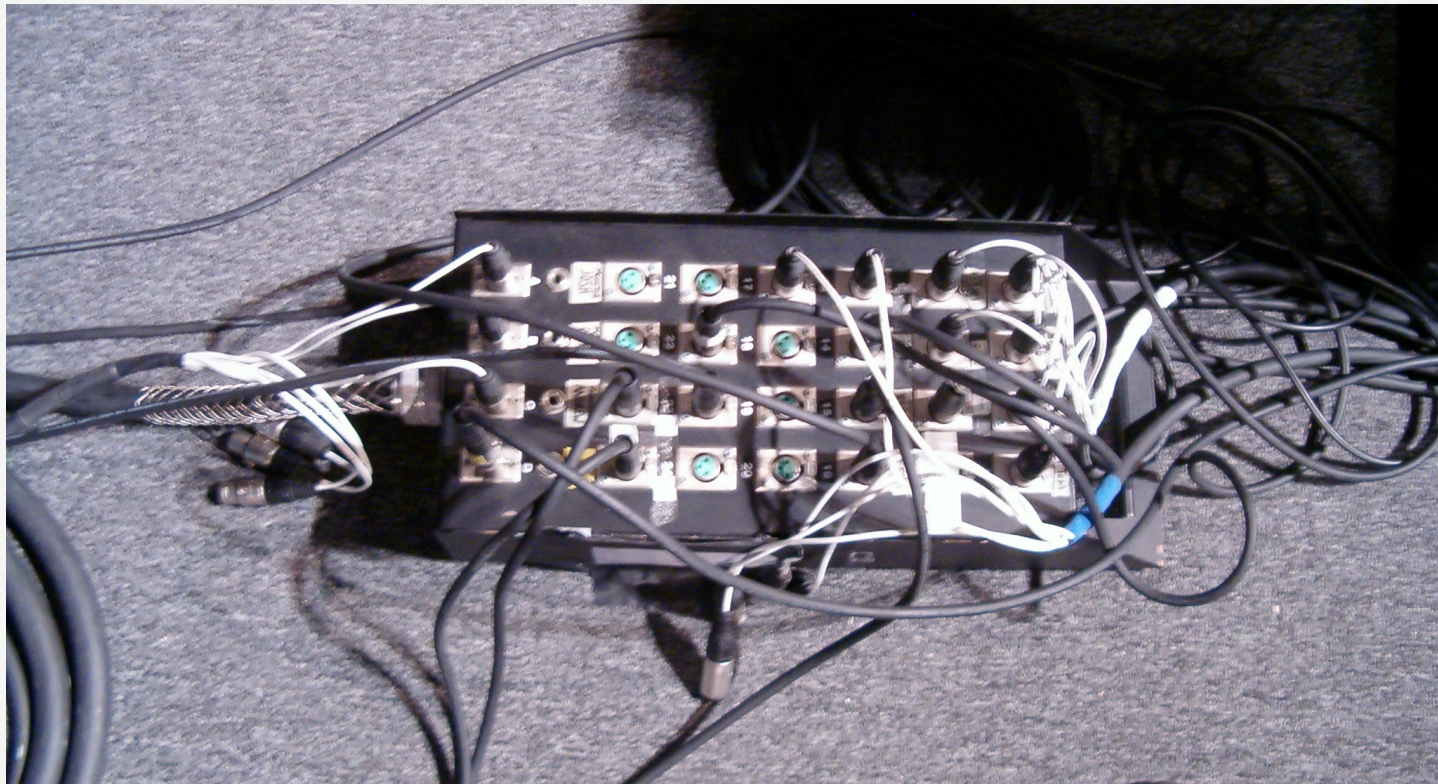
GEAR

Instruments/Direct Boxes



GEAR

Snake



GEAR

*Microphones
and Instruments*

Mixer

Amplifier

Speakers

Cables/Snake

Cables/Snake

Cables

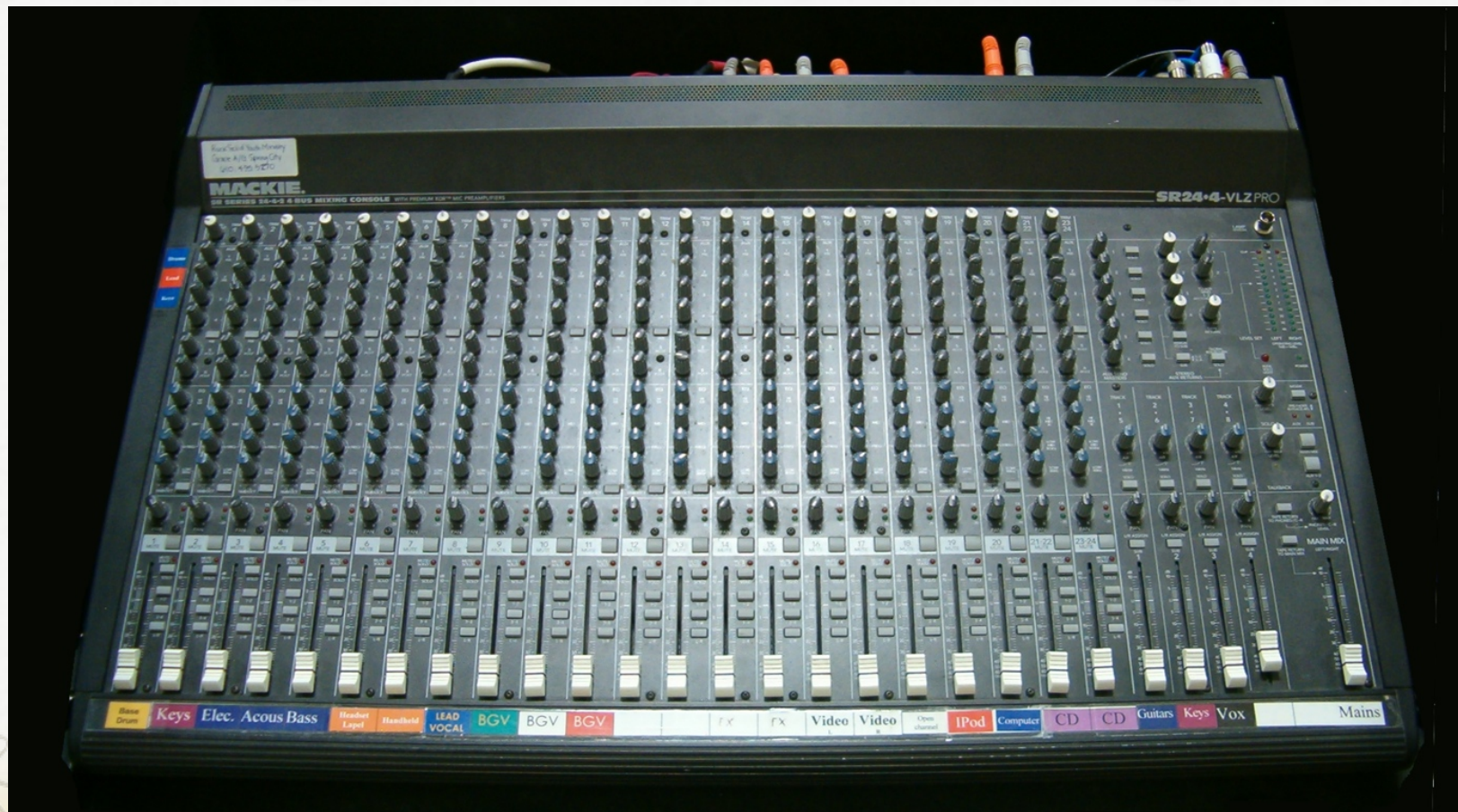
GEAR

Mixer - Allen and Heath iLive 112



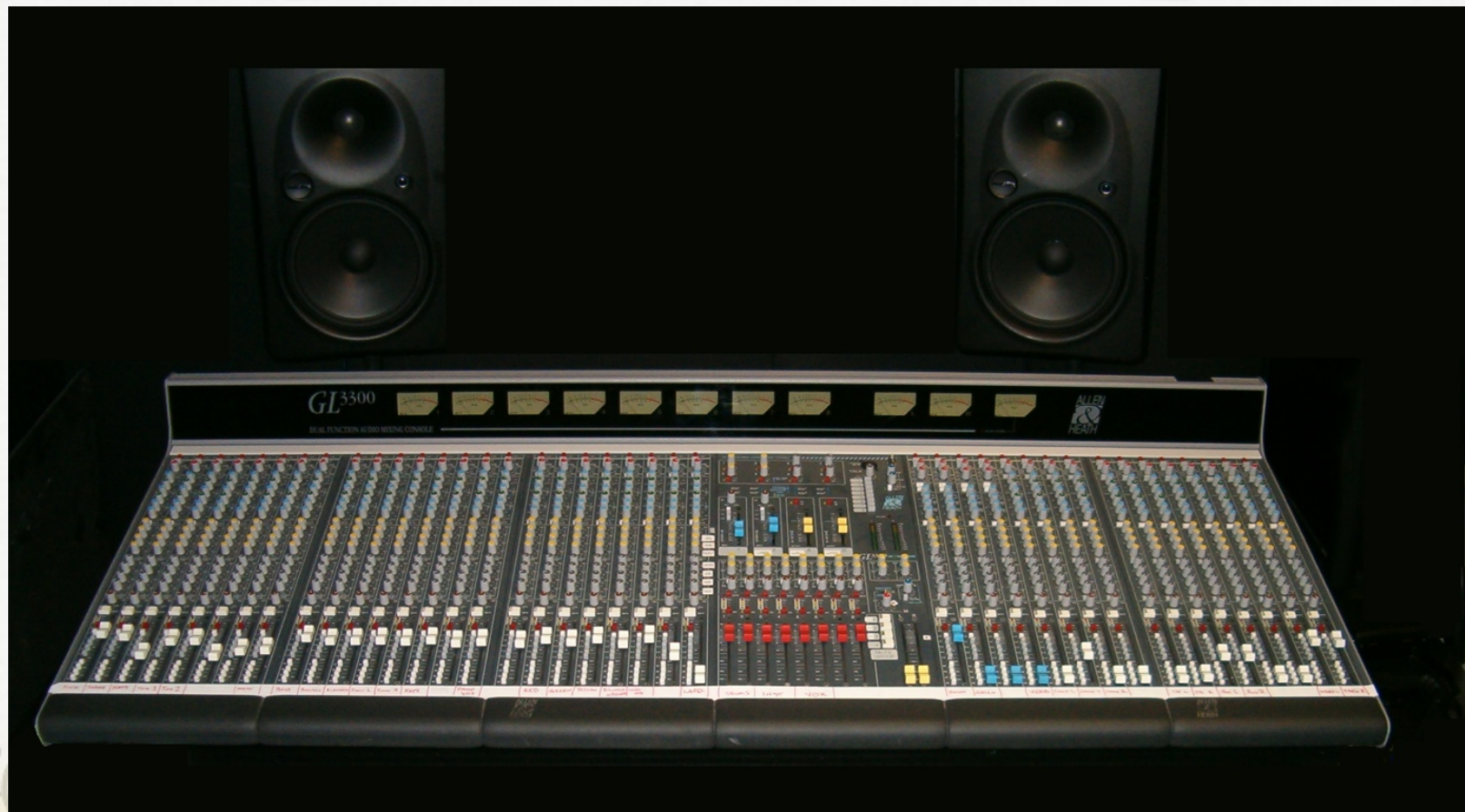
GEAR

Mixer - Mackie SR 24-4-VLZ Pro



GEAR

Mixer - Allen and Heath GL 3300



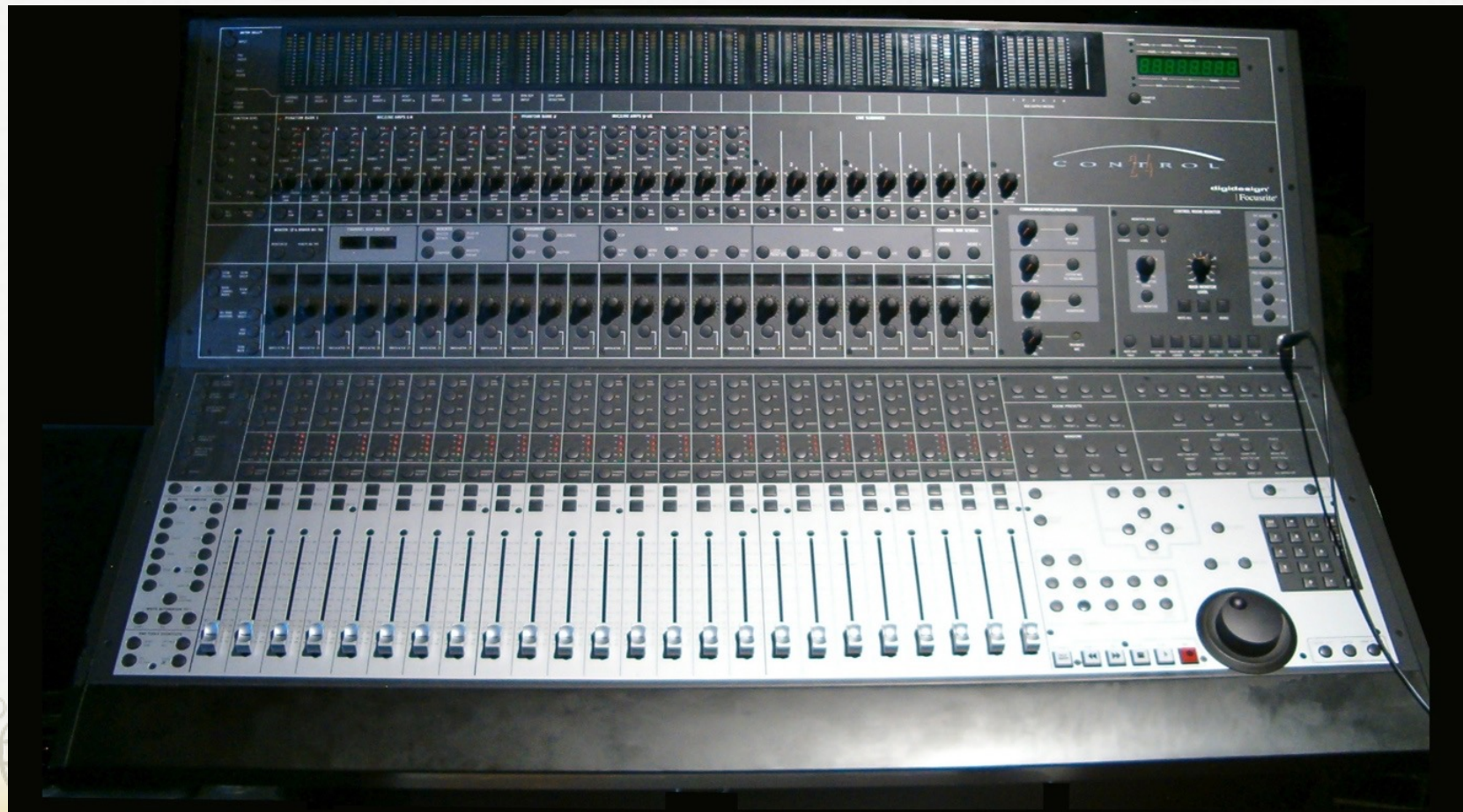
GEAR

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

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Mixer

Amplifier

Speakers

Cables/Snake

Cables/Snake

Cables

GEAR

Speakers



GEAR

*Microphones
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Mixer

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Cables/Snake

Cables/Snake

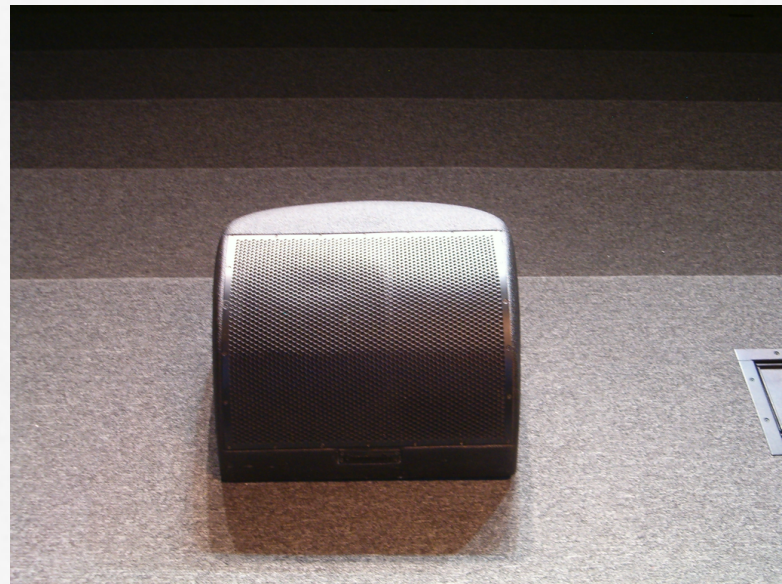
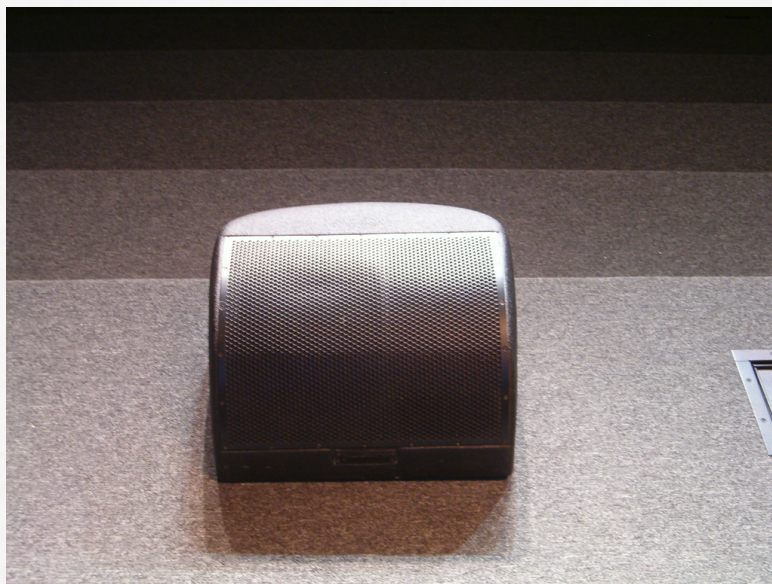
Cables

Amplifier

Monitors

GEAR

Monitor Speakers



GEAR

Powered Speakers



GEAR

Powered Speakers



GEAR

Powered Speakers



GEAR

In Ear Monitors



GEAR

In Ear Monitors



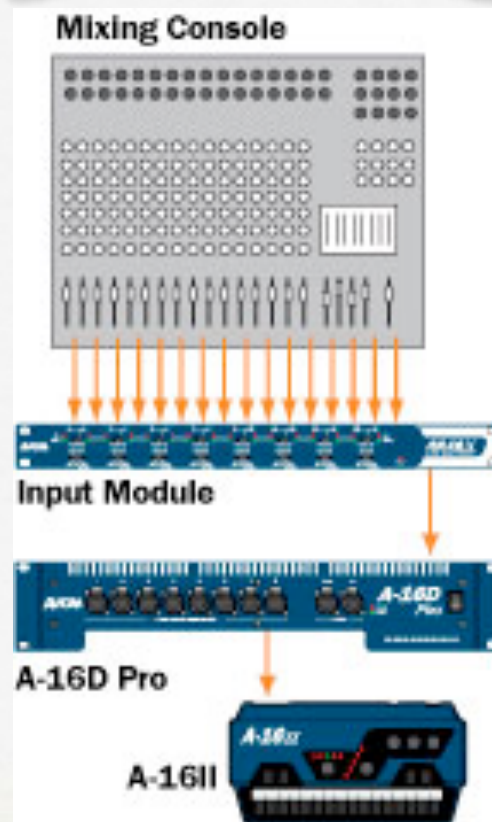
GEAR

In Ear Monitors



GEAR

In Ear Monitors



GEAR

*Microphones
and Instruments*

Mixer

Amplifier

Speakers

Cables/Snake

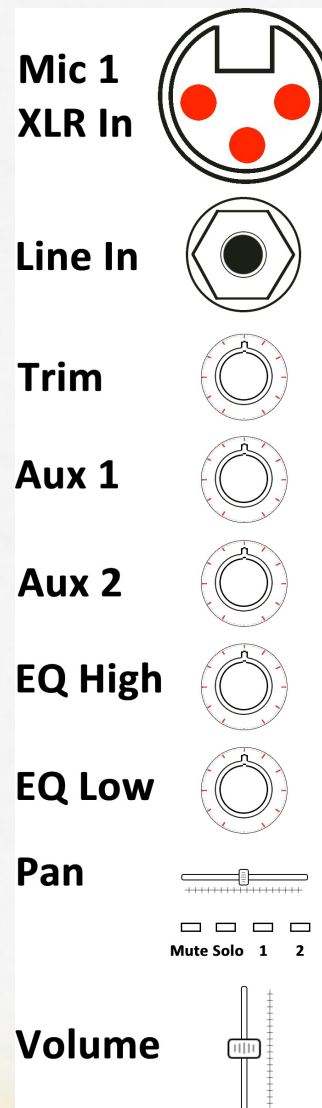
Cables/Snake

Cables

Amplifier

Monitors

MIXER - THE CHANNEL STRIP



MIXER - SUB MIXES

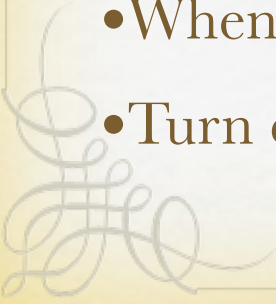
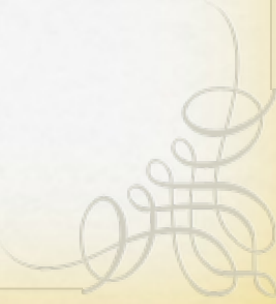


MIXING

- **Sound Levels**
 - Balance voices.
- **Equalization**
 - Tailor sounds fit together.
- **Panning**
 - Placing sounds in space.



TROUBLE SHOOTING SOUND TEAM CHECKLIST

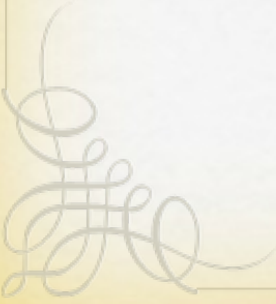
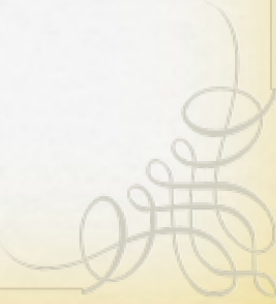
- Prior to Rehearsal - Buy batteries
 - Rehearsal - Attendance is required.
 - Arrive early to do any necessary setup.
 - Start with a plan (list of program).
 - Take notes on the program.
 - Follow the plan.
 - Watch the director for visual instructions (hand signs) if necessary.
 - When finished, debrief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

✱ 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.