

SOUND AND MEDIA CALVARY ASSEMBLY OF GOD



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UNIVERSITY OF VALLEY FORGE

CALVARY ASSEMBLY OF GOD
POTTSTOWN, PENNSYLVANIA
MAY 20, 2016

[HTTP://FLOYDRICHMOND.COM/CALVARY2016/](http://floydrichmond.com/calvary2016/)

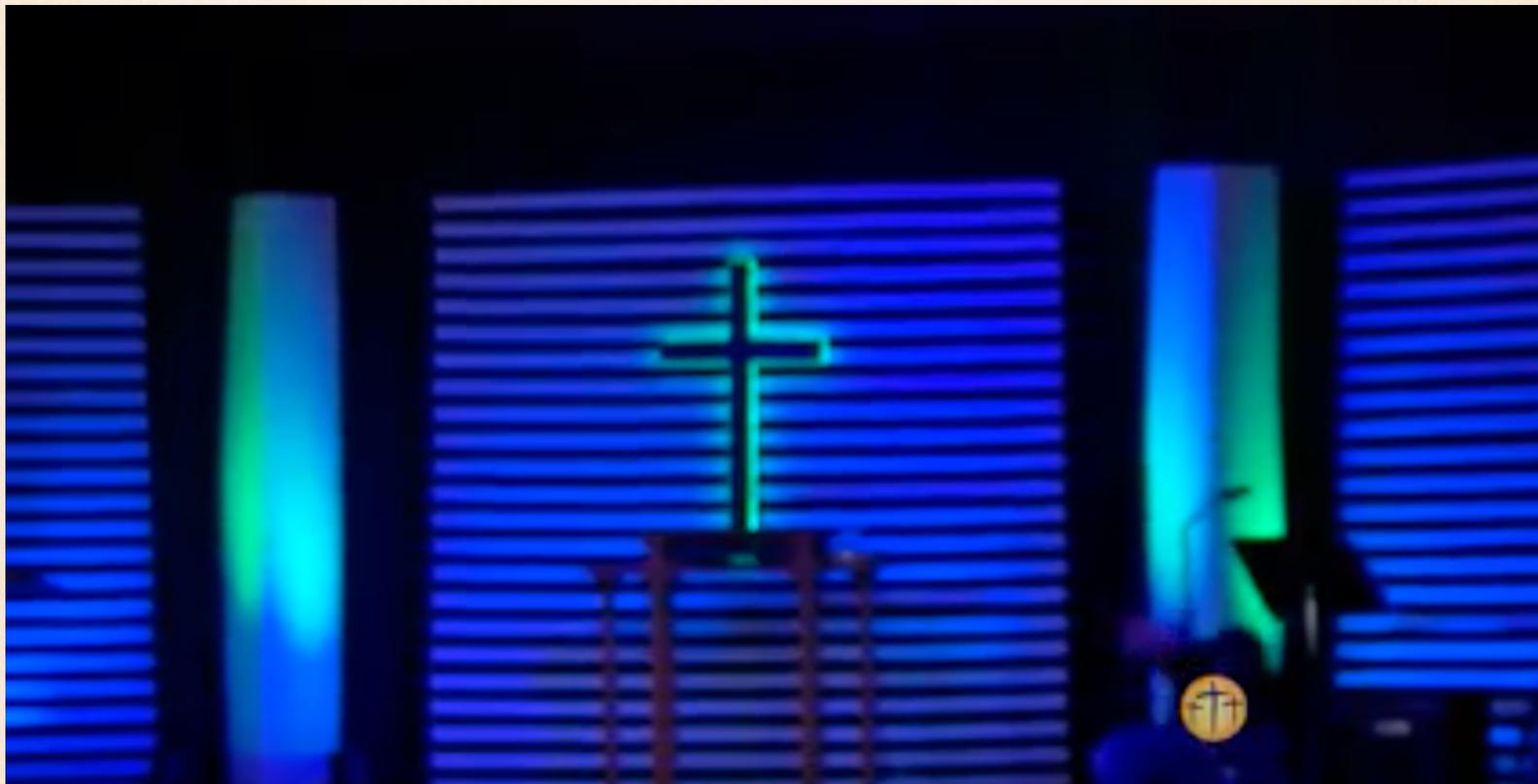
CALVARY ASSEMBLY OF GOD

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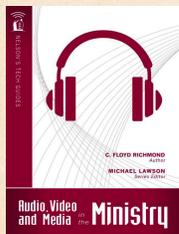
CALVARY ASSEMBLY OF GOD

POTTSTOWN, PA

Dear Media Team Member,

Welcome to our team. Your work in the media ministry at our church is greatly appreciated and will make a significant difference in the quality of our church's worship and the scope of our ministry.

Today's church members are often media-centric. They attend movies, watch hundreds of channels on television, spend hours on the Internet, and download music and video to their phones and other personal media devices. With this increased exposure to media comes an expectation that the quality of music and media that they encounter in churches and worship will be exemplary. The goal of the media team is to meet those expectations, to deepen the worship experience, and to broaden the ministry of our church. In this effort we partner with our pastors, music ministers, and other ministries within the church. In many ways our role is one of service and support. In this we are following the example set by Christ (Philippians 2: 5-8). Also, lest anyone forget, there is no member of the body of Christ that does not perform an essential function (1 Corinthians 12:12-27). Your unique contributions are essential to our worship and other services, and to our outreach as a whole. Thank you for your ministry and service.



Excerpt from book,
Audio, Video and Media in the Ministry

WHAT DO WE WANT TO TALK ABOUT?

- ❖ Overview of Sound
 - ❖ Achieving a good balance
 - ❖ Blending sub and mains
- ❖ Overview of Lighting
- ❖ Overview of Presentation Graphics
- ❖ Overview of Recording - Audio/Video/
Broadcast

GEAR AT CALVARY

◆ **SOUND**

- ◆ Peavy 32FX Board
- ◆ Behringer iNUKE 3000W Amplifier
- ◆ Mackie Power Amplifier
- ◆ BBE EQA231 Dual Channel 31 Band Equalizer
- ◆ Lexicon MX200 Stereo Reverb/Effects Processor
- ◆ Peavy PR15 speakers
- ◆ Subwoofer Cabinet

◆ **LIGHTS**

- ◆ 19 lights total
 - ◆ 4 regular par 64s
 - ◆ 15 led fixtures
- ◆ 2 additional regular par 64s

BROADCAST

- ❖ Sunday's Sermon: <https://youtu.be/gTC2qwoyP3Q>
- ❖ Go to 5 minutes.
- ❖ What do you hear?
 - ❖ Does it sound this way in church also, or just in the broadcast?
Noise/hum?
 - ❖ Microphone noise?
 - ❖ Wiring Issues?
 - ❖ Clipping?
 - ❖ Cutting out?
 - ❖ Wireless Issues (channel)?
 - ❖ Location issues with transmitter/receiver?
 - ❖ Compressor/Limiter?

GEAR AT CALVARY

◆ **PRESENTATION SOFTWARE**

◆ Easy Worship

EASY WORSHIP

- ❖ YouTube Intro - Previous Version - Quick and easy - ok, not so quick (45 min) - but definitely easy:
<https://www.youtube.com/watch?v=NRrRjCp6H58>
- ❖ Manual: <https://www.easyworship.com/help/EasyWorship6Manual.pdf>

EASY WORSHIP

OVERVIEW

The screenshot displays the EasyWorship software interface, titled "EasyWorship - Your Church - Default". The interface is divided into several main sections:

- Schedule Area (2):** A large empty blue area on the left side of the interface.
- Preview Area (3):** A central area showing the lyrics for the song "A Heart Like Thine". It includes a Chorus, Verse 1, and Verse 2. Below the lyrics is a "Preview Output" section displaying a slide with the lyrics: "Come to my soul, blessed Jesus. Hear me, O Savior divine. Open the fountain and cleanse me. Give me a heart a heart like Thine." The slide is labeled "Slide 1 of 5".
- Live Area (4):** A large empty blue area on the right side of the interface.
- Live Output:** A section below the Live Area showing a dark slide, labeled "Slide 1 of 1".
- Resource Area (1):** A bottom section containing a list of songs. It includes a search bar and a table of song details.

The top menu bar includes "File", "Edit", "Live", "Profiles", "View", and "Help". The top toolbar contains icons for "New", "Open", "Save", "Web", "Go Live", "Alerts", "Logo", "Black", "Clear", and "Live".

Songs	Scriptures	Media	Presentations	Themes
A Heart Like Thine				
SONGS				
All Songs				
COLLECTIONS				
MY COLLECTIONS				
A Heart Like Thine	Title	Author	Copyright	
A Heart Like Thine	A Heart Like Thine	Judson Van DeVenter	Public Domain	
A Mighty Fortress Is Our God	A Mighty Fortress Is Our God	Hans Leo Hassler Martin Luther	Public Domain	
A New Name In Glory	A New Name In Glory	C. Austin Miles	Public Domain	
A Robe Of White	A Robe Of White	Haldor Lillenas	Public Domain	
Abide With Me	Abide With Me	Henry F. Lyte William H. Monk	Public Domain	
Alas And Did My Savior Bleed	Alas And Did My Savior Bleed	Hugh Wilson Isaac Watts	Public Domain	
All Creatures Of Our God And King	All Creatures Of Our God And King	St. Francis of Assisi William Henry Draper	Public Domain	

1 of 223 songs

EASY WORSHIP

SCHEDULE AREA

The screenshot displays the EasyWorship software interface, specifically the Schedule Area. The window title is "EasyWorship - Your Church - Default". The menu bar includes "File", "Edit", "Live", "Profiles", "View", and "Help". The toolbar contains icons for "New", "Open", "Save", "Web", "Go Live", "Alerts", "Logo", "Black", "Clear", and "Live".

The main workspace is divided into several sections:

- Schedule - UNTITLED:** A list of items including "A Heart Like Thine" (with notes), "Chorus 1", "Verse 1", "Verse 2", "Verse 3", "Verse 4", "Genesis 1:12 (KJV)" (with notes), and "Matthew 17:5 (KJV)" (with notes). A grey arrow points from the "Genesis 1:12 (KJV)" item to the "Live Output" section.
- Preview - A Heart Like Thine:** A preview window showing the lyrics for "A Heart Like Thine":
1 **Chorus 1**
Come to my soul, blessed Jesus.
Hear me, O Savior divine.
Open the fountain and cleanse me.
Give me a heart a heart like Thine.
2 **Verse 1**
Give me a love that knows no ill.
Give me the grace to do Thy will.
Pardon and cleanse this soul of mine.
Give me a heart like Thine.
3 **Verse 2**
Only a joy, a few brief years,
Open mine eyes that I may see.
Pillow my head upon Thy breast.
- Live - Genesis 1:12 (KJV):** A preview window showing the text for "Genesis 1:12 (KJV)":
12 And the earth brought forth grass, [and] herb yielding seed after his kind, and the tree yielding fruit, whose seed [was] in itself, after his kind: and God saw that [it was] good.
- Preview Output:** A video player showing a slide with the lyrics: "Come to my soul, blessed Jesus. Hear me, O Savior divine. Open the fountain and cleanse me. Give me a heart a heart like Thine." It is labeled "Slide 1 of 5".
- Live Output:** A video player showing a slide with the text: "12 And the earth brought forth grass, [and] herb yielding seed after his kind, and the tree yielding fruit, whose seed [was] in itself, after his kind: and God saw that [it was] good. Genesis 1:12 (KJV)". It is labeled "Slide 1 of 1".

At the bottom, there is a "Media" section with a search bar "Search Any Field" and a grid of media thumbnails. The thumbnails are labeled with titles: "Hidden- Wat...", "Highway", "Leaves", "Light Rays Cr...", "Lime Light", "Love of a Fat...", "Morning Dew", "Morning Light", and others. The status bar at the bottom indicates "1 of 59 items".

Lighting

Typical setup:

- Analog and/or DMX lighting controller (computer, iPad, board, console, foot switch, etc.) and traditional and/or intelligent fixtures
- iPad/Computer
 - USB to DMX interface
 - DMX software
 - VNC or iPad app matching the software

Lighting Terms

TERMS

- **DMX** - language sent between computers and/or lighting boards to light fixtures to control them.
- **Fixture** - one lighting unit (can, spot, intelligent device, etc.). Can be selected on a board, and controlled using the board's controls (dimmers, etc.). Can be connected to or used with similar devices to cover large areas.
- **Scene** - the settings of several lighting fixtures. Can be programmed on a board, and recalled as needed.
- **Chase** - a sequence of scenes. Can be programmed on a board, and recalled as needed.
- **Intelligent lighting** - a lighting fixture with a unique set of automated and controllable behaviors.
- **Behavior** - anything an intelligent fixture can do - change colors, change direction, create patterns,
- **PAR** - Parabolic Aluminum Reflector - traditional lighting fixture, measured in 1/8 inches. 64 = eight inches.

Lighting

Analog Systems

- Each light fixture is wired into a specific controller on a board.
- Operating a dimmer for that fixture turns it up or down.
- A master dimmer may turn all lights up or down.
- Usually these are spots, or single color lights.

Digital Systems

- Each light fixture is wired in series and assigned to a specific controller on a board.
- Operating the assigned dimmer for that fixture turns it up or down.
- A master dimmer may turn all lights up or down.
- Each fixture, depending on its level of intelligence, may contain numerous behaviors, which can be executed from the board.
- Color is one of many behaviors of intelligent lighting.

Lighting

Programming a Lighting Board (GOOD LUCK):
<https://www.youtube.com/watch?v=eymp8JuYXSQ>

Programming a Chauvet DMX Lighting Board:
<https://youtu.be/dJQAZsNwcv4>
https://youtu.be/nVbVI4s_pQ4

Programming a Chauvet using MIDI:
<https://youtu.be/TIQPGW-gHGE>

What is DMX?

- DMX512 - Digital Multiplex for 512 pieces of information
- Standard for digital network control of lighting.
- 512 channels, value of 0-255 on any channel
- Daisy-chain "master" (Computer, Light Board, MIDI Controller, Intelligent Lights) and multiple "slave" devices (Intelligent lights) using DMX cables.
- Traditional fixtures, LEDs, movers, scanners, fog machines, hazers, effects, etc.

MIDI

- Some DMX interfaces have MIDI inputs.
- Some boards and intelligent light fixtures can be programmed to respond to MIDI triggers.
- The MIDI source can be a keyboard, or a click track played with any DAW software.
- MIDI can accomplish complex tasks in a single moment beyond the scope of human operation.
- However, it can be tedious and complicated to program.
- Best use of MIDI is to use an existing audio track and to record (and later edit) live lighting instructions from a MIDI keyboard using DAW software.

Distributors

- Sweetwater
- Musician's Friend
- stagelightingstore.com
- americandj.com



Lighting and Special Effects

by

C. Floyd Richmond

University of Valley Forge



Lighting and Special Effects

One element that is often overlooked in concerts and performances is the application of lighting to enhance the program. Greater attention is typically given to lighting for musicals and dramas but programs can often be enhanced with simple lighting and a little planning.

Lighting can be used to set a mood for the program and special activities and can have a great impact. The lighting team also typically handles special effects such as bubbles, fog, and snow.

The History of Lighting











Modern Lighting

- Effective lighting is becoming an expectation of contemporary audiences.





The Lighting Team

- **Lighting Board Operator:** Typically this person sits at a lighting board and controls when and how the various lights which are wired to the board are used.
- **Lighting Board Programmer:** This person may configure the board to work with existing lights in the space.
- **Lighting Designer:** This individual works with other directors to design the lighting that will be used.
- **Lighting Set Builder:** Many lighting ideas require special placement of lights, and reflective surfaces. At times there will be teams who are charged with setting the lighting, and/or building sets for the lighting.

Typical Concert Lighting Plan

It doesn't take a lot to get started . . .

- Lights are at or near full for the entry of the audience into the auditorium.
- A few minutes before the program, the lights are dimmed and raised again a couple of times.
- When the program begins, lights are dimmed and a movable spotlight follows the director on stage. Musicians have sufficient lighting to see their parts. There is different lighting on stage and in the audience.
- During each announcement between songs, a spotlight is directed to the speaker.
- At intermission, or close of the program, the lights go dim before going to full again. If there is an intermission, this cycle repeats.

Making It Work

Ideally, there will be a system of lights wired into a control board which can be operated by an individual.

Lighting Board



Making It Work

The use of moving spotlights will require additional personnel, and as productions increase in complexity, the personnel required to execute the lighting plan will increase.

Planning

- Review the concert with the person in charge of lighting well in advance of the program.
- Lighting may sometimes require special placement of fixtures, wiring enhancements, or the building of lighting “sets.”
- In some cases, additional equipment (extra spots) may need to be rented or special supplies purchased (different color filters for the various lights).

Lighting Checklist

- Prior to the rehearsal, all lighting fixtures should be wired and placed as desired for the program. Setup may take some time so this team will need plenty of advanced notice.
- With lighting teams, rehearsal will be extremely important. Any dress rehearsal, or other rehearsals immediately before a production should include the lighting team. These rehearsals are opportunities for the lighting team to practice the effects that have been planned, and to take note of any special circumstances. In almost every case, rehearsal reveals new insights on how the lighting plan must be executed.
- If the lighting plan includes making adjustments to the placement of lighting fixtures during the performance, then special attention must be given to this.
- After the production, power down any equipment as necessary and permit it to cool before moving it. Put away any equipment as necessary.

Lighting

- After the production, power down any equipment as necessary and permit it to cool before moving it. Put away any equipment as necessary.

Lighting Gear

- Some of the commonly used tools of lighting are stage lights, trusses, racks, light boards, special lighting, spotlights, and effects such as fog, snow, and bubble machines.

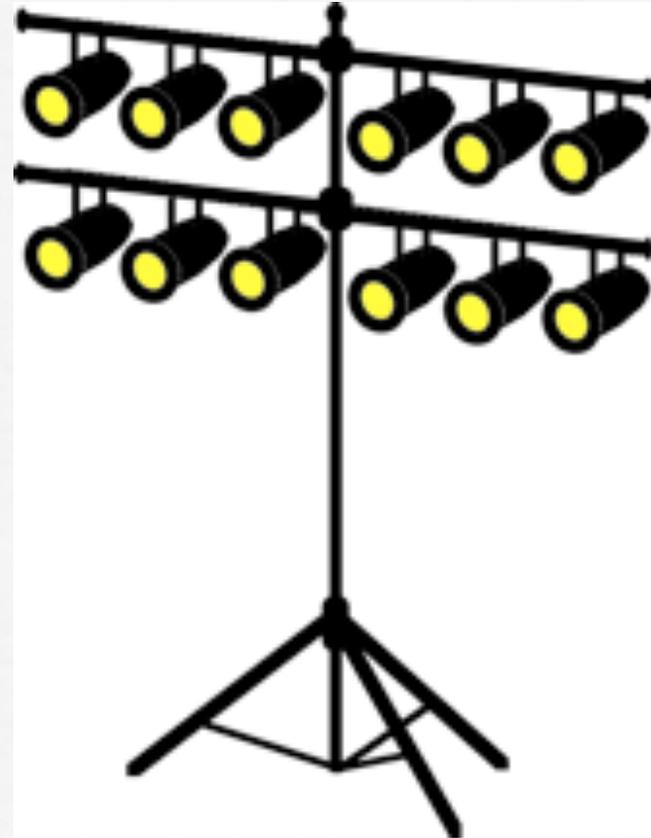
Lighting Gear

- Permanently mounted lighting cans.



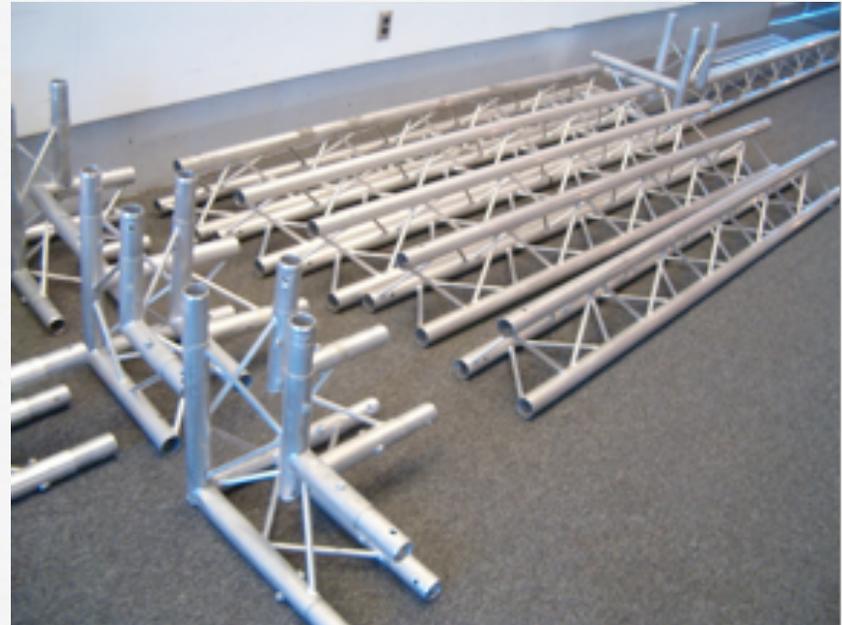
Lighting Gear

- Temporary or movable lighting stand with cans.



Lighting Gear

- Trusses for building temporary lighting sets.



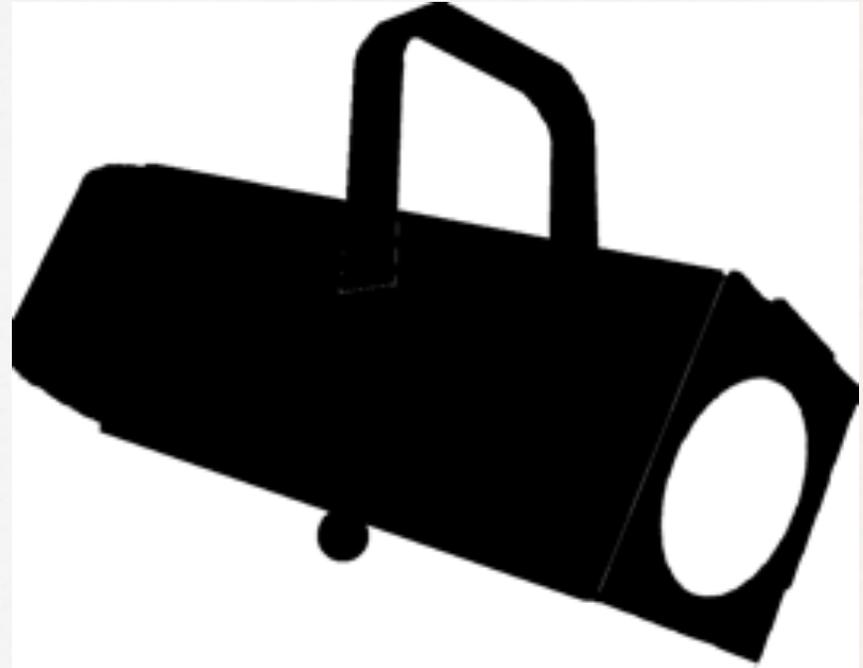
Spot Lights

- A manually operated, movable spotlight



Spot Lights

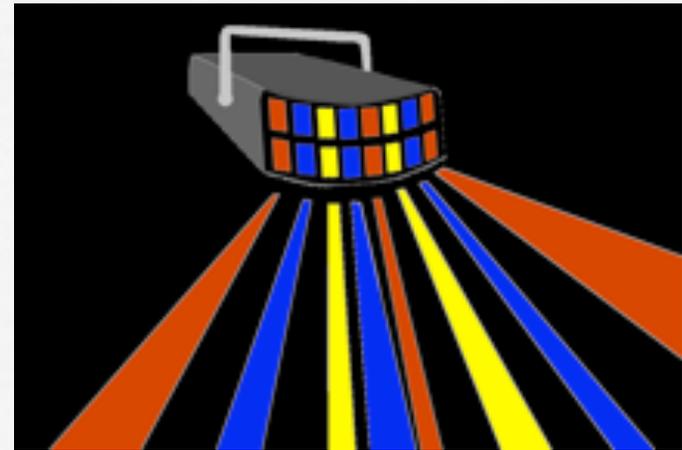
- A truss-mounted fixed spotlight.



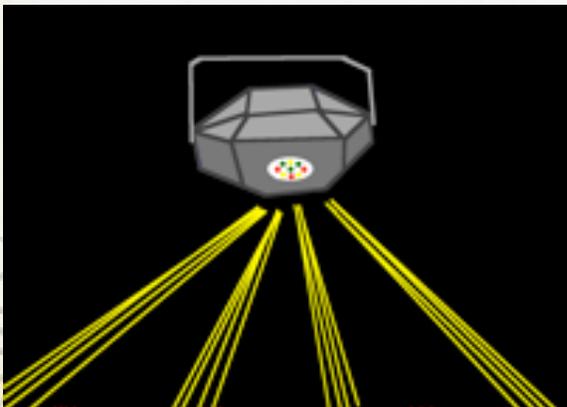
Intelligent Lights

- Behaviors - Many lighting fixtures execute specific patterns at random or on command.
- A microphone may monitor the music and the fixture may respond with different effects depending on the music.
- Intelligent fixtures may be controlled by DMX lighting boards and/or computers.

LEDs



Lasers



Intelligent Lights

- While many lighting fixtures depend on color and level changes for effect, some have an extensible range of motion in the fixture, permitting additional options.

Movable Heads

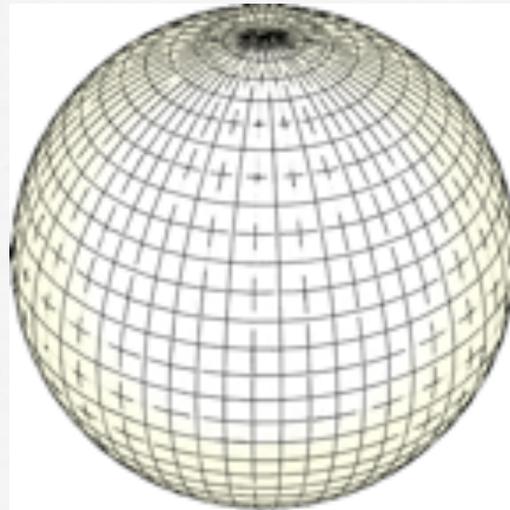


Intelligent Lights

- Show YouTube Demonstrations!

Intelligent Lights

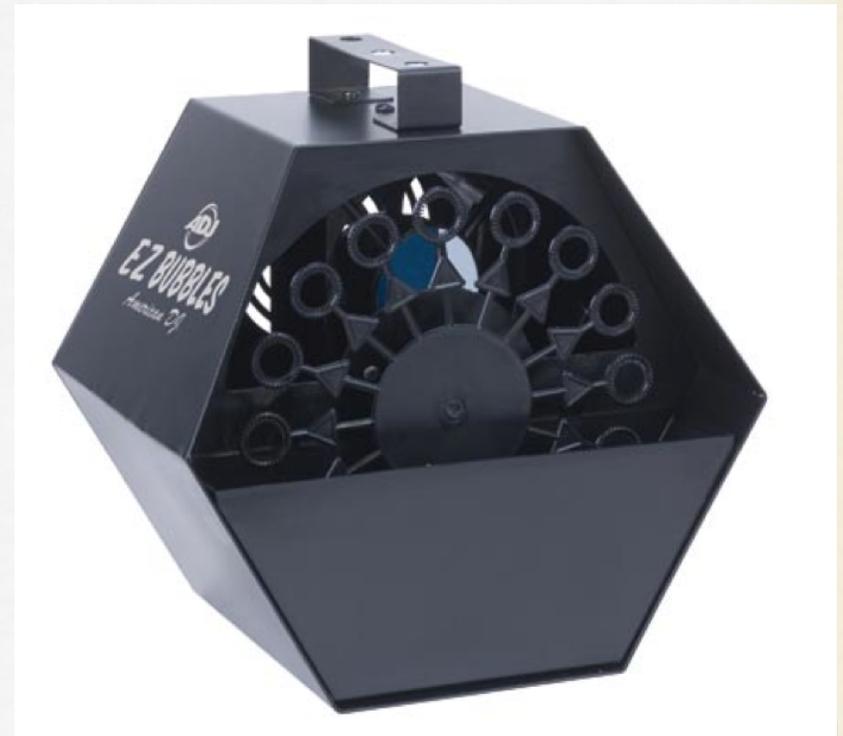
Disco Balls



Special Effects

- These machines produce bubbles with a rotating wand and fan.

Bubble Machine



DODGE



Special Effects

- Fog, Snow, Bubbles
- Each of these machines produces output which is generally harmless (bubbles and snow yield soapy water, etc.). All of them, however, do produce some moisture, so delicate musical instruments and other things which might be harmed by moisture may need to be placed out of the way. As a precaution, any individual with breathing difficulties or phobias of enclosures may also need to be directed to a space away from the effects.

Fog Machine







Lighting Communicates

Having a creative lighting team who can associate lighting options with action in the drama is invaluable. Some basic ideas are given in the tables below, but, again, a creative team will brainstorm much more.



Lighting Communicates

Full Light

- Brightness of day
- Community
- Large groups
- Energy

Dim lights

- Intimacy
- Quiet
- Reflection
- Romance

Dark to Light

- The program begins
- Sunrise
- Hope is rising
- A character has achieved enlightenment
- It's the beginning

Light To Dark

- The program ends
- Sunset
- Hope is lost
- A character is facing difficult times
- It's the end

Lighting Communicates

Colored Lights (depending on context)

- Red – anger, passion, love, blushing
- Blue – cool, dark, night, quiet (not loud), soft (not hard), blues, depression
- Yellow – brightness, hope, awakening,
- Green – springtime, hope, envy, jealousy



Black Lights

See YouTube Demonstration

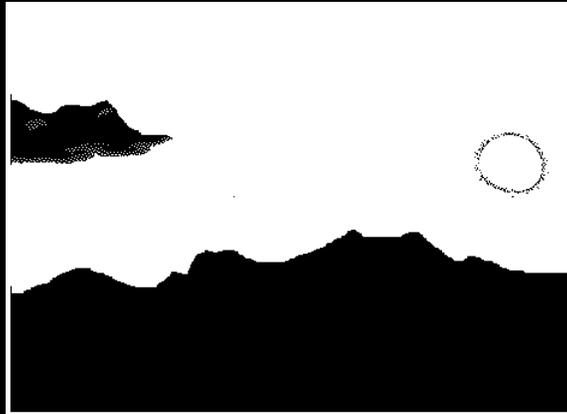
ITUNES DEMO

Control iTunes Visualizer (Load Glorious God)

- ? - Shows/hides the help screen
- M - Changes the mode
- P - Changes the color palette
- I - Displays the track information

- C - Toggles "auto-cycle" (which is turned on by default)
- F - Toggles the "freeze mode"
- N - Shows/hides the "smoke" in the background
- L - Toggles camera lock
- A - 'A' key or 'S' key while the visualizer is on, increase or reduce the number of 'particles' around each 'sphere'
- + - "+" and "-" changes the size or contrast of the particles.

Silhouettes





Scrim (Fabric)

See YouTube Demonstration



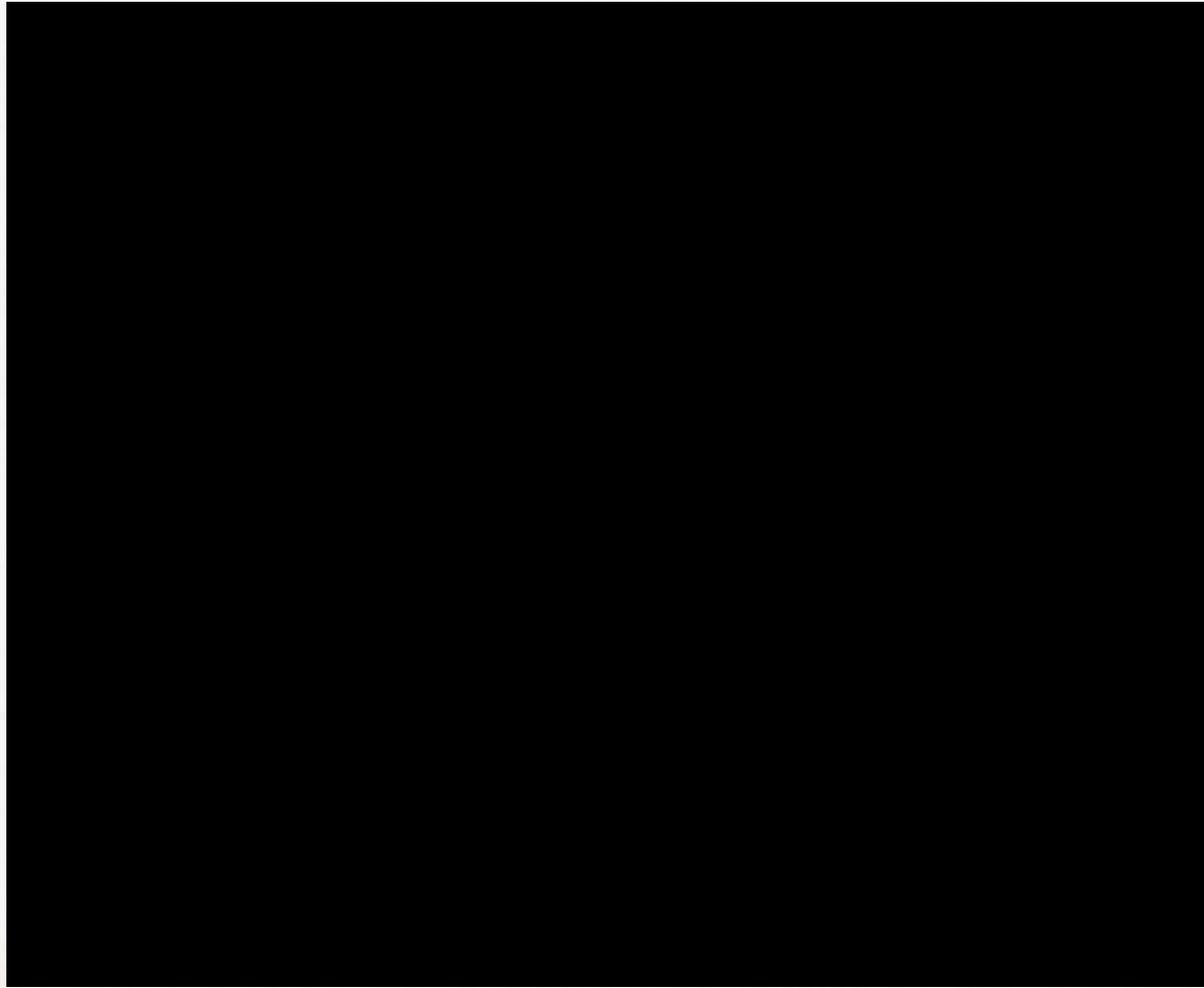
Northern Lights

Choreography by
Robert Gardner

Lighting by
Kenneth Pogin

Full stage shot to show Northern Lights effect

Adam and Eve





Projection

- Show lyrics
- Show video
- Set mood



Projection Software

- PowerPoint
 - Keynote
 - Media Shout
 - SongShow Plus
 - Easy Worship
 - ProPresenter
- 
- 

Troubleshooting

- The lighting person should always know where the circuit breaker board is located, and how to find and reset a circuit that may be blown. Having a ladder or lift is a great help in installing new fixtures, replacing bulbs, and correcting wiring issues. Extension cords for temporary lighting must be rated to carry sufficient wattage for the lighting being operated. These cords should be taped to the floor.
- Any power strips used should have a built in circuit breaker. Older power strips with fuses should be replaced. Fuses are too difficult to replace under pressure.

Troubleshooting

- **Dimmer switches**
- Replace failed switches.
- Listen for noise in the sound.
 - If the hum or noise appears as the switch is operated, relocate the dimmer switch, or the lines that it controls.
 - Plug audio systems into “power cleaner” strips to filter out dimmer strip noises.

Lighting Web Sites 1

✿ <http://www.rosebrand.com/>

✿ http://www.sewwhatinc.com/custom_spandex.php

✿ <http://www.vincentlighting.com/resources/ideas.php>

✿ <http://www.etconnect.com/>



Lighting Companies

✿ Moving Heads Intelligent - **Martin**

✿ DJ Gear - **American DJ**

✿ LEDs - **Elation**

✿ Conventional Lighting - **Altman**

✿ High End - **Digital Lighting**



PRICES

✿ Show Musician's Friend web pages.

DMX

- ✿ Show “About DMX” web page.
- ✿ Show iPhone DMX apps.
- ✿ Show Revo_4.pdf

Lighting Choices

✿ Show American DJ web pages (choices).



Snow

VFCC Christmas Concert
12:57 to 14:00





Lighting and Special Effects

by

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Lighting and Special Effects

With thanks to

Zachariah Green

zlgreen@mail.valleyforge.edu

440.527.1339

Valley Forge Christian College



Manufacturers

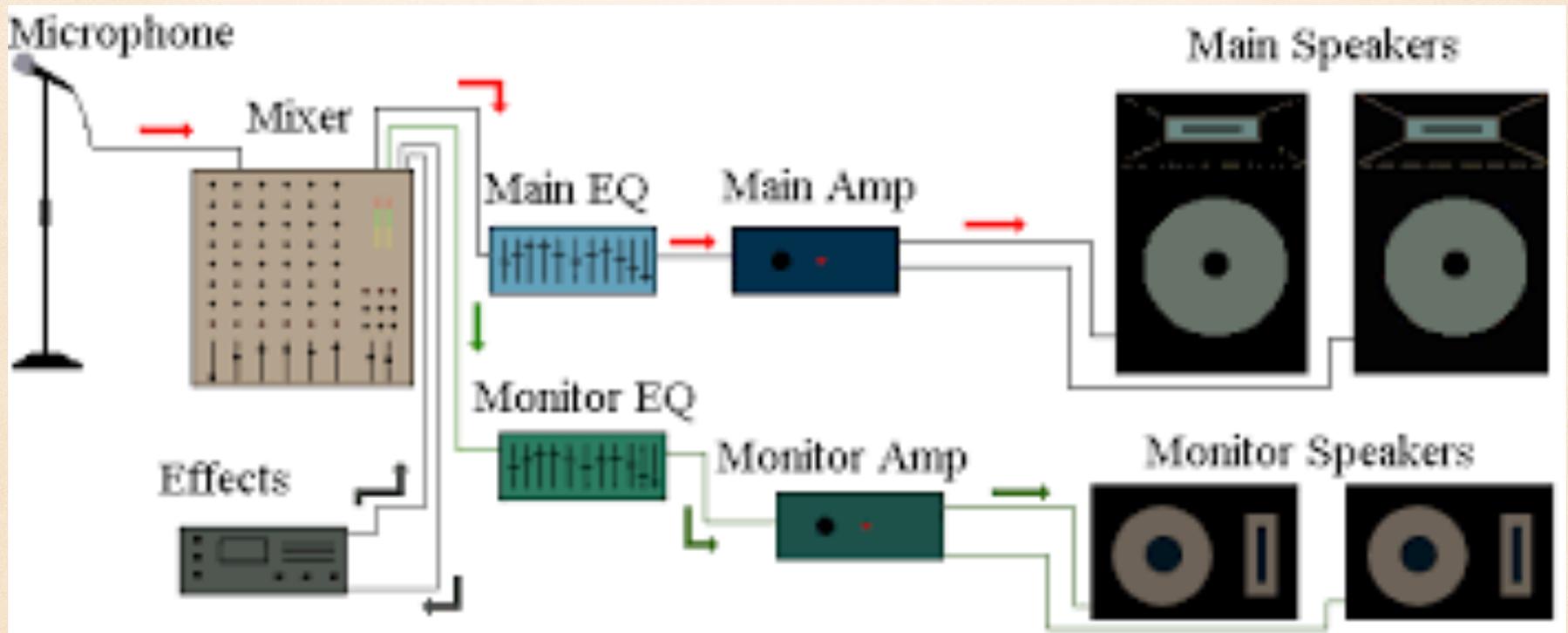
- Leviton
- Lepracon
- ETC (Electronic Theatre Controls)

Light Fixture

- Chauvet - Slimpar 56 - LED

CALVARY ASSEMBLY OF GOD

POTTSTOWN, PA



BALANCING FOR A GOOD MIX

- ❖ We must hear the melody of the lead vocal. The lead worship leader is not always the one singing lead. Always know who it is, and turn them up.
- ❖ Background singers can be $\frac{1}{3}$ to $\frac{1}{2}$ as loud, be heard, and blend well. It's rare for a background vocal to be 100% of the lead vocal level (unless they are balancing themselves - which is only possible if they can hear).
- ❖ All instruments must go through the board. Otherwise, the sound tech cannot possibly balance them.
- ❖ Monitors must provide performers with the information they need to play or sing well, but must not overpower the house sound.
- ❖ Sound levels must be comfortable for the musicians, congregation, and leadership.

A GOOD BLEND BETWEEN SUBS AND MAINS

- ❖ Place speakers in same general vicinity and point the same directions.
- ❖ If possible set the changeover frequency between 100 and 130 (not always possible to adjust this). You could experiment with different changeover frequencies. If you can send full range to your mains, experiment with that also.
- ❖ Balance the perceived volume of the subs and the mains. Have the bass or piano player play a low G scale up and down repeatedly (starting on the note sounding on the lowest bass clef line - bass guitar and string bass may transpose octaves, so . . . be careful to get the correct octave). The lower half will surely be in the subs; the upper in the mains. Adjust volume of one or the other until there's the least perceivable change possible. If the speakers are not located close together, there will be an apparent location change regardless. You have to live with that (or move speakers).
- ❖ If you have low male singers . . . listen to see if they're going into the subs, and if so, whether it creates problems (130 = C₃, 98 = G₂).

ADJUSTING GAIN STRUCTURE

- ❖ On the Peavey FX2 - click the PFL button for each channel, check the meter on the right while sound is entering that channel. Adjust to a consistent level with other channels - well below clipping.
- ❖ Mixers with no PFL: <https://youtu.be/cJhDuw93Tpo>
(Requires RTA - \$4.99 iPad app).

RINGING OUT A ROOM

- ❖ Ringing out a room is basically turning the audio up until feedback is experienced. Then the frequencies creating feedback are pulled down on a 31 band equalizer about 6db. This permits an additional 3db or more in the mains before feedback is a danger. It is a way to identify naturally reinforced frequencies due to equipment and/or the room which could cause problems. This is not an ordinary procedure, but only used when initially checking the system in the room without specialized gear.
- ❖ <https://youtu.be/b-f9qwi8PRU>

PINKING A ROOM

- ❖ 31 Band EQ and Pink Noise: https://youtu.be/8_KlWgnme-k
- ❖ RTA Demo - <https://www.youtube.com/watch?v=YfXsbpwnLZM>

PEAVY 32FX BOARD

- ❖ https://assets.peavey.com/literature/manuals/FX_Mixers.pdf
- ❖ Effects Demo** <https://www.youtube.com/watch?v=7wnxjHTARGs>
- ❖ Quick Look*: <https://www.youtube.com/watch?v=-T9eim-5zTI>
- ❖ Slow look*: <https://youtu.be/GOqkCeBjiio>

- ❖ Peavey/Audiostar
- ❖ Overview: <https://www.youtube.com/watch?v=Mukgc74PEmo>
- ❖ Details (Inputs, etc.): <https://youtu.be/ZXfW5PnXSfo>
- ❖ DSP: <https://youtu.be/nIqJl3PGX-8>
- ❖ Output: <https://youtu.be/Ltc3OswXihQ>

AUDIO MIXING AND 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 speaker in a large 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

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

*Microphones
and Instruments*

Mixer

Amplifier

Speakers

Cables/Snake

Cables/Snake

Cables

GEAR

Microphones



Dynamic



Condenser

GEAR

Microphones



*Wireless
Microphone*



*Wireless
Lapel*



Ear worm

GEAR

*Wireless
Receivers*



GEAR

*Microphones
and Instruments*

Mixer

Amplifier

Speakers

Cables/Snake

Cables/Snake

Cables

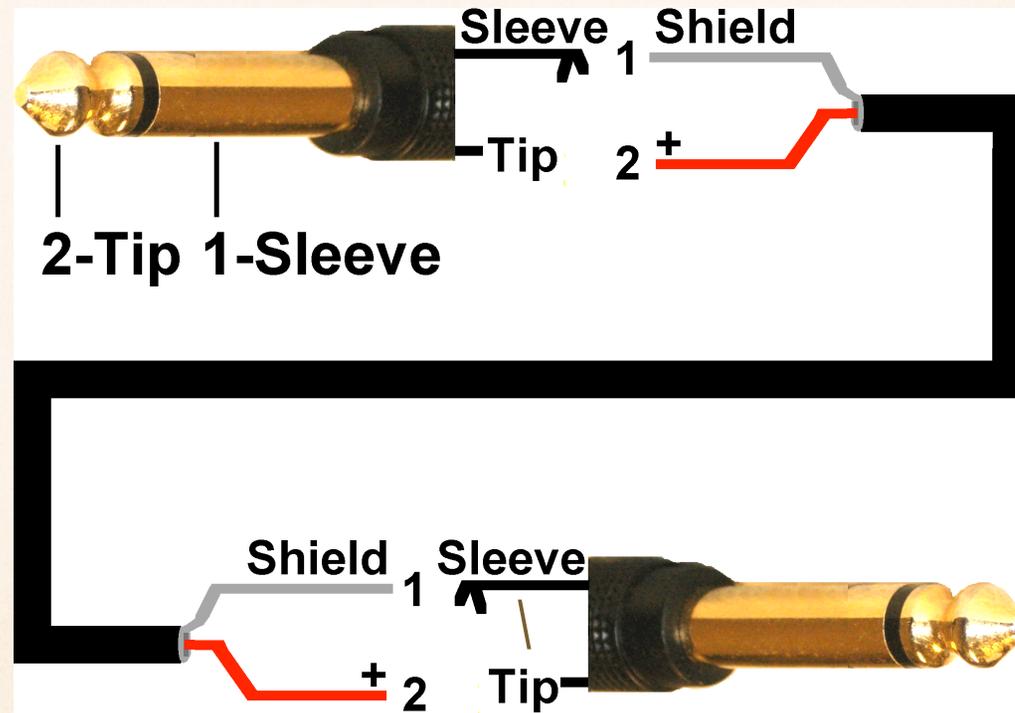
GEAR

Cables



GEAR

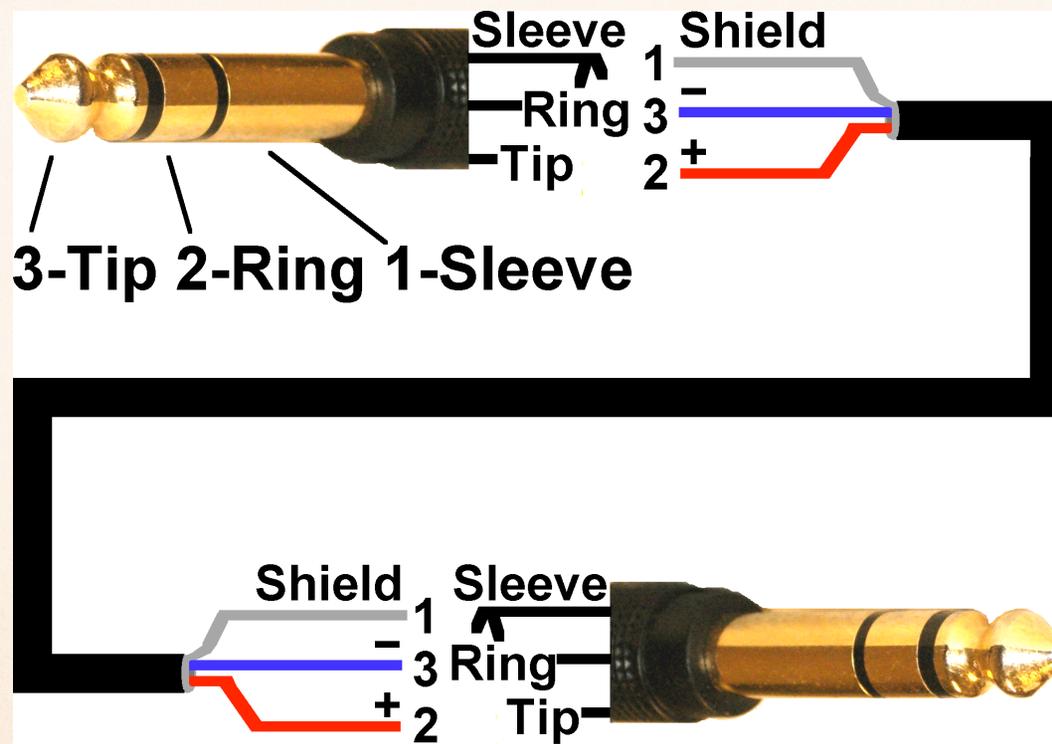
Cables



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

GEAR

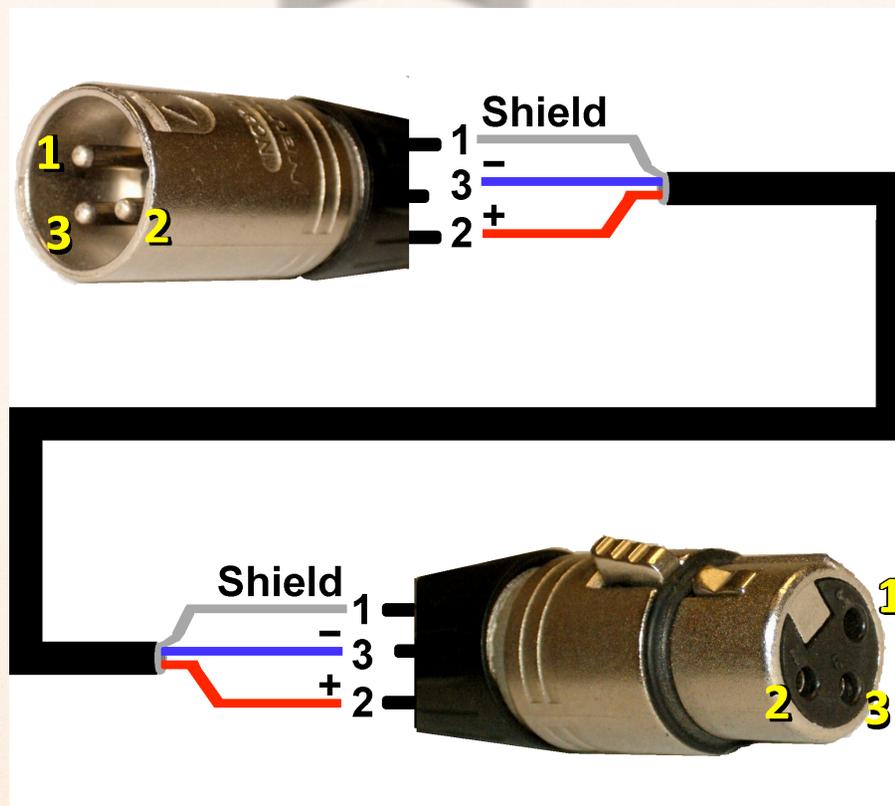
Cables



1/4" TRS for Balanced Lines and Stereo Equipment

GEAR

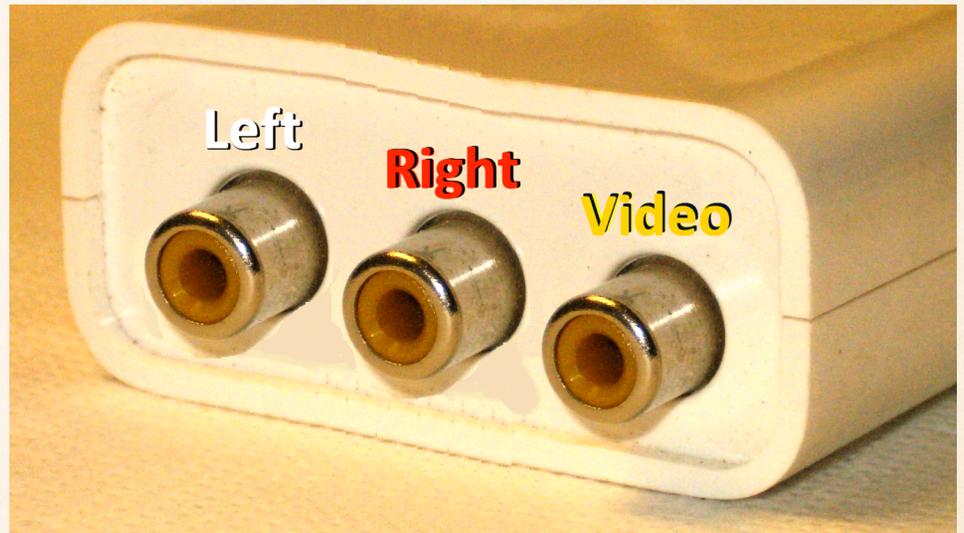
Cables



XLR for Microphones

GEAR

Cables



RCA Cables primarily for CD and DVD players, tape recorders

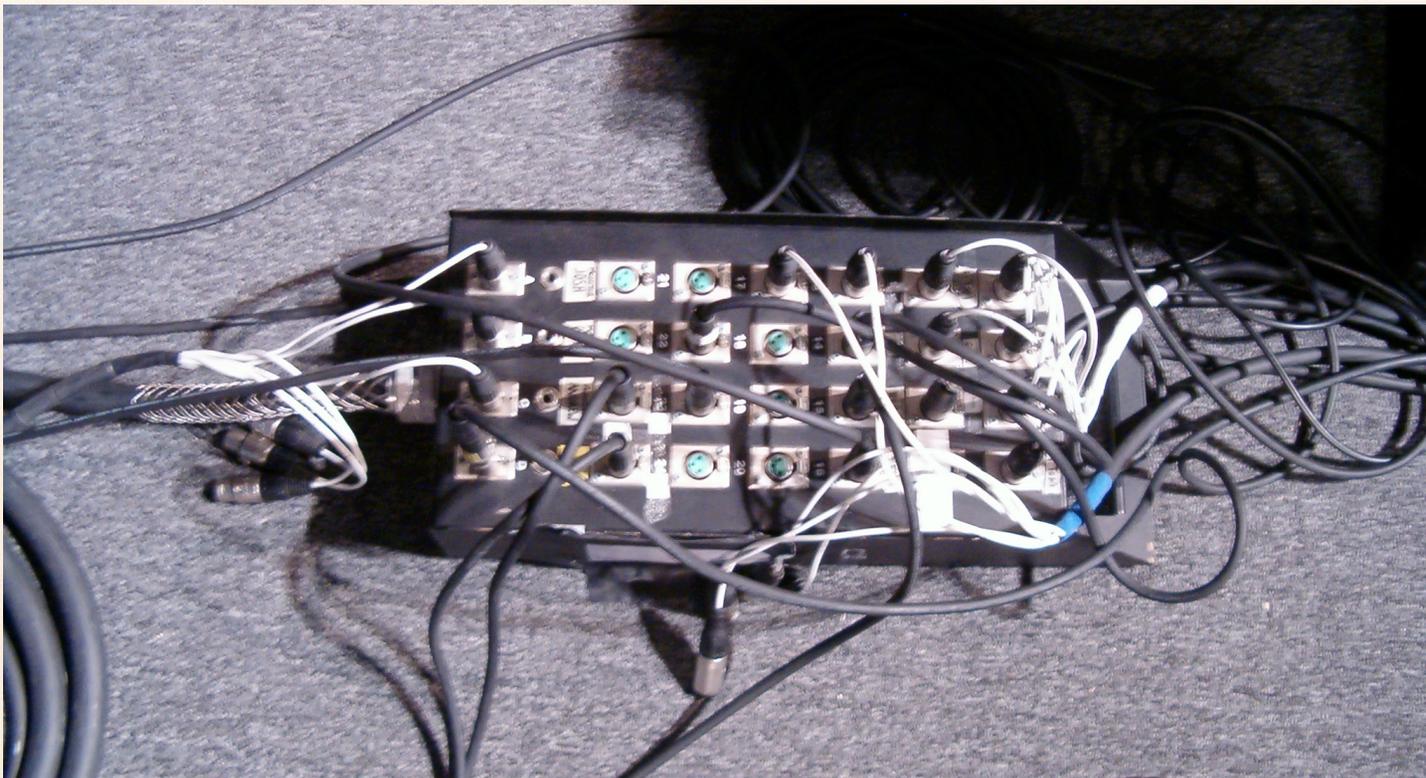
GEAR

Instruments/Direct Boxes



GEAR

Snake



GEAR

*Microphones
and Instruments*

Mixer

Amplifier

Speakers

Cables/Snake

Cables/Snake

Cables

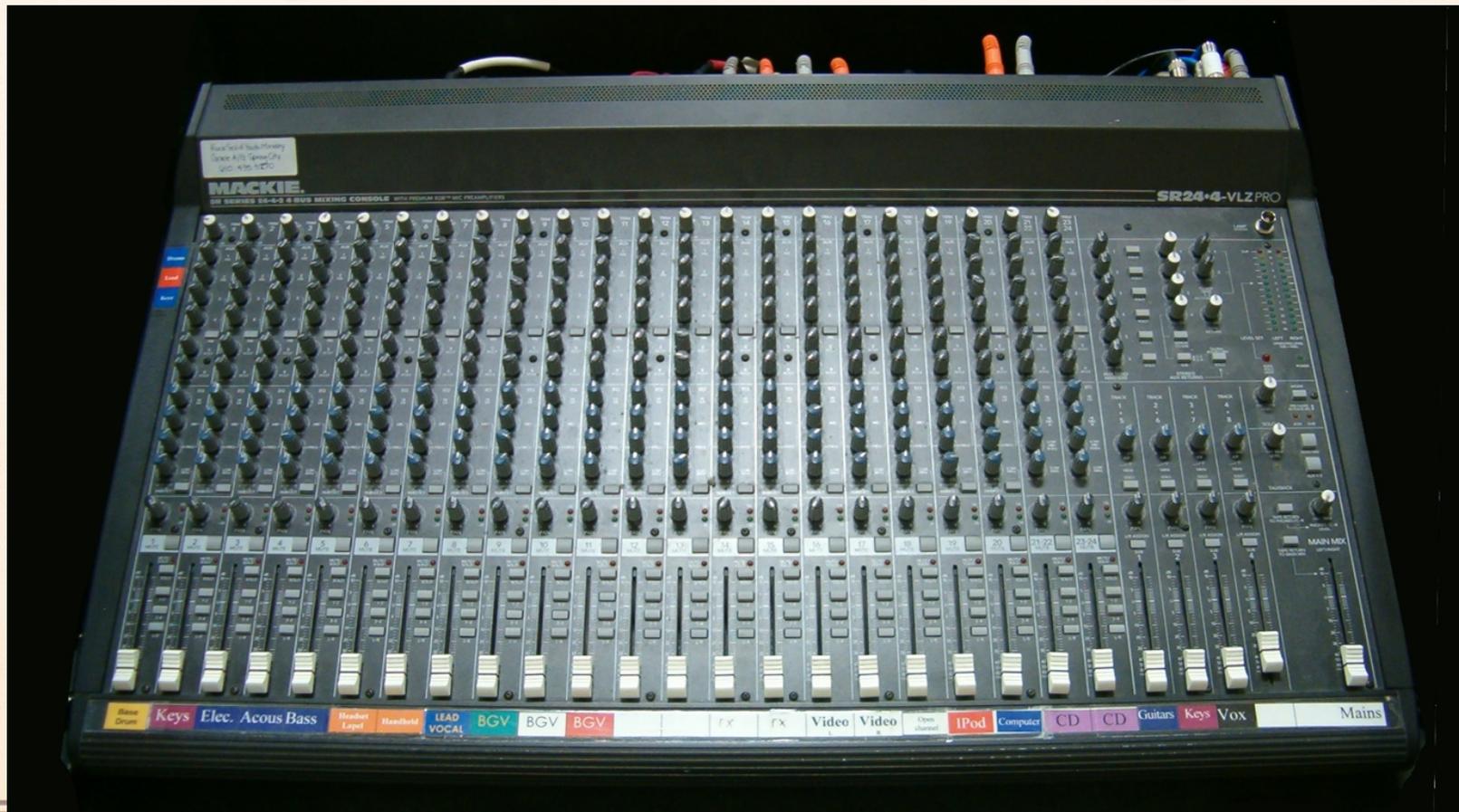
GEAR

Mixer - Allen and Heath iLive 112



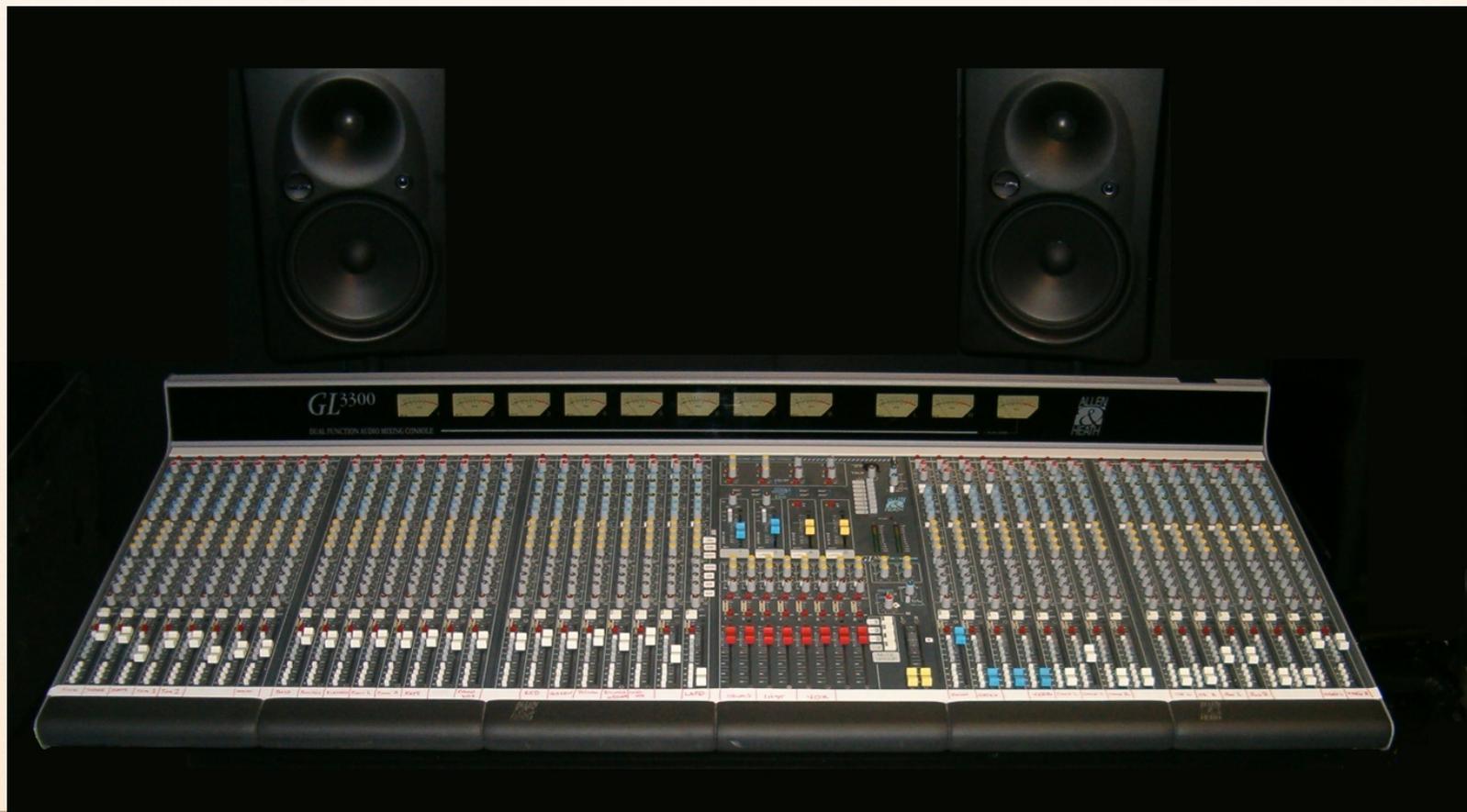
GEAR

Mixer - Mackie SR 24-4-VLZ Pro



GEAR

Mixer - Allen and Heath GL 3300



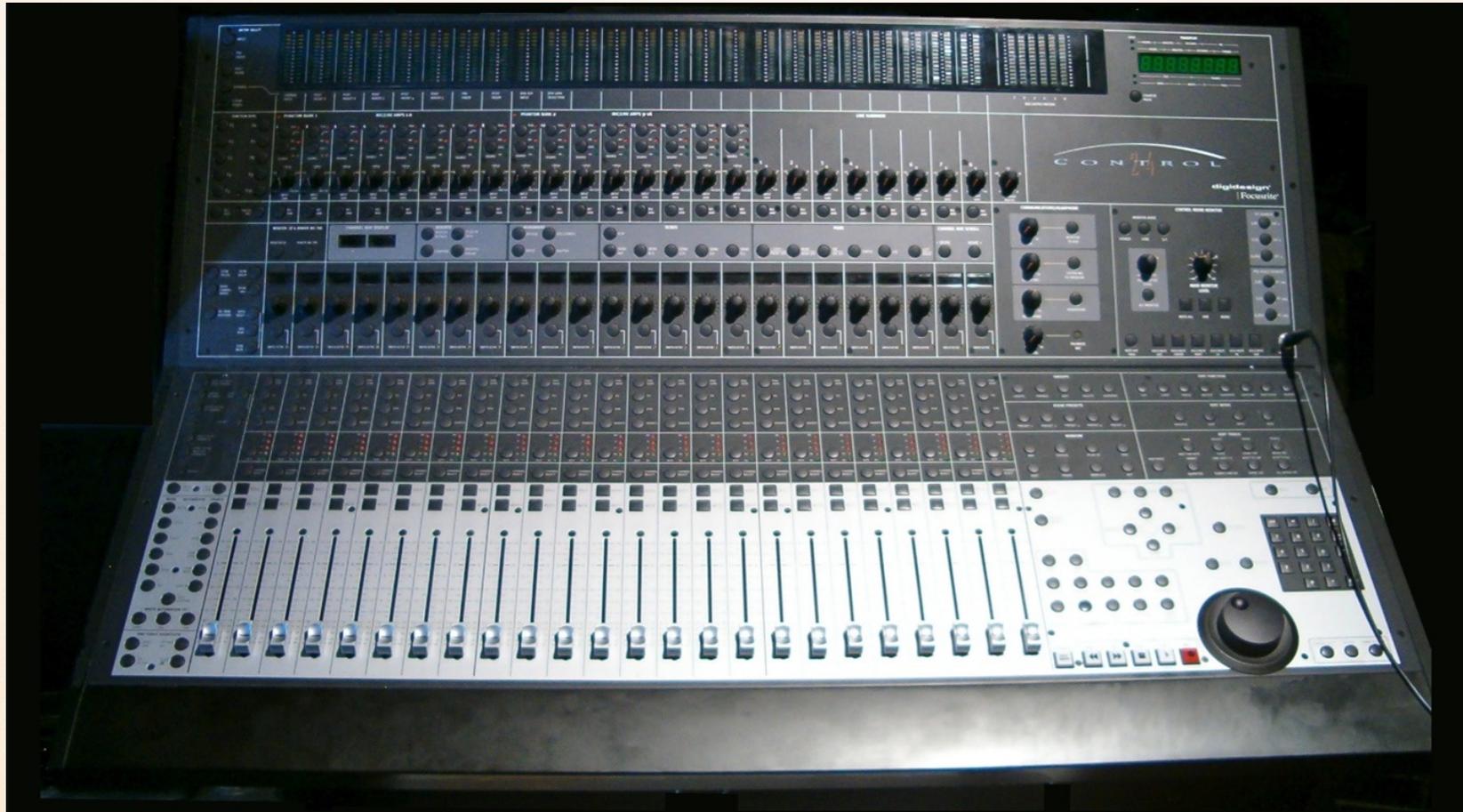
GEAR

Digital Mixer - Digidesign 8



GEAR

Digital Mixer - Digidesign Control 24



GEAR

Digital Mixer - Presonus StudioLive 24.4.2.24



DIGITAL MIXERS

Digital Mixers provide fundamentally the same operations as analog mixers, however, common differences are as follows.

- (1) Additional effects on each track.
 - (1) Filters - EQ
 - (2) Dynamics - Compression and Limiting
 - (3) Noise - Gating
 - (4) Time - Reverb, Echo, Delay
- (2) The ability to save and recall board settings from different rehearsals.
- (3) Recording Interface - can record each single track for separate mix-down later.
- (4) Greater complexity (extra features) - less approachable interface.

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

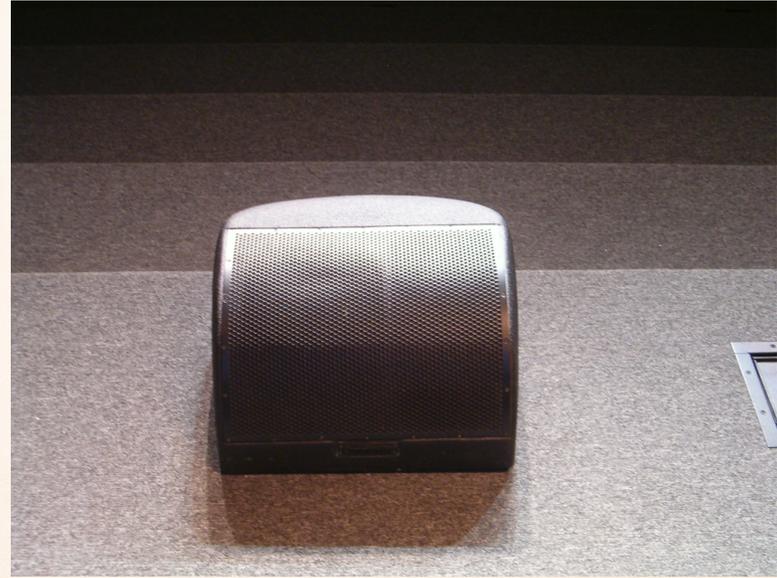
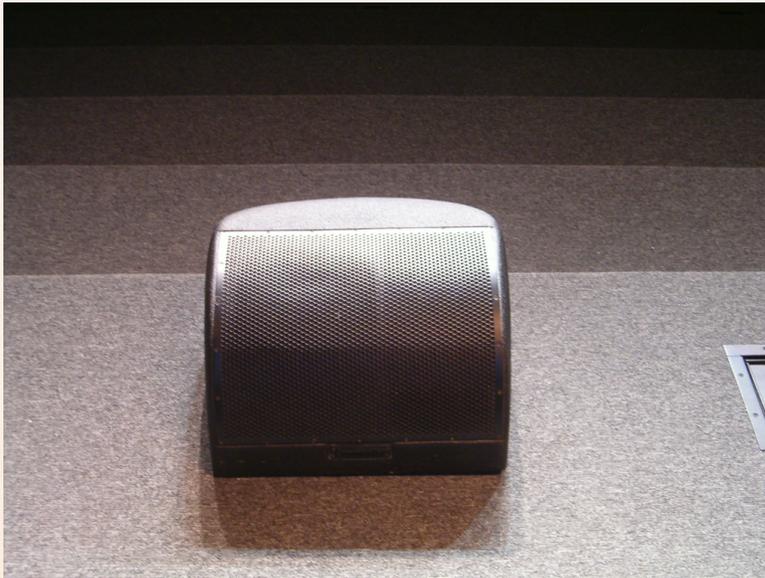
Cables

Amplifier

Monitors

GEAR

Monitor Speakers



GEAR

Powered Speakers



GEAR

Powered Speakers



GEAR

Powered Speakers



GEAR

In Ear Monitors



GEAR

In Ear Monitors



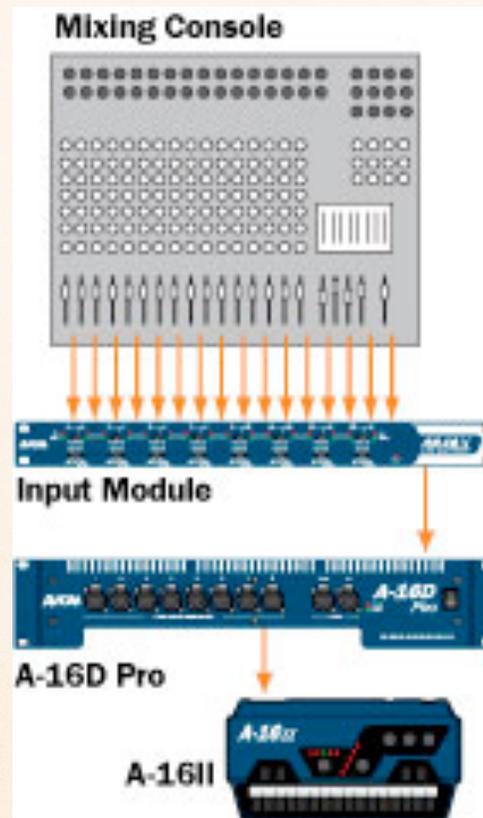
GEAR

In Ear Monitors



GEAR

In Ear Monitors



GEAR

*Microphones
and Instruments*

Mixer

Amplifier

Speakers

Cables/Snake

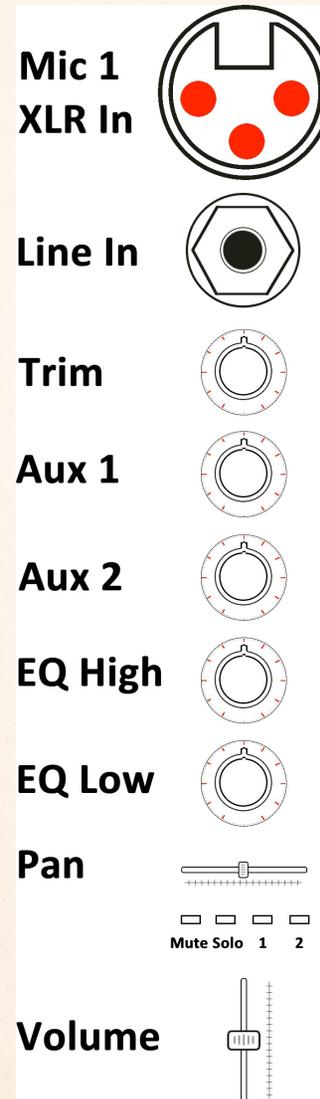
Cables/Snake

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=IocrooAKIWA>
- ❖ <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
- ❖ Sennheiser
- ❖ Electrovoice
- ❖ Audix
- ❖ Neuman
- ❖ Beyer
- ❖ AKG
- ❖ Cascades
- ❖ Earthworks
- ❖ Rhode
- ❖ Blue
- ❖ 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

◆ Show 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/>

SOUNDBOARD 101

- ❖ Floyd Richmond (frichmond@vfcc.edu)
- ❖ Valley Forge Christian College

- ❖ Pennsylvania Music Educators Conference
- ❖ Hershey, PA
- ❖ March 28, 2014

- ❖ <http://floydrichmond.com/soundboard101.pdf>

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.