SAFETY & TRAINING PROGRAM

LIGHTING CONSOLE PROGRAMMING STUDY GUIDE

Historically, the motion picture industry has been late to adopt dimming technology onto our stages and sets. The intense cueing necessary in the theatrical world was not so important for Hollywood. However, as the demand for greater control over our lighting systems grow, our sets get larger and more complex, and the need for faster and more efficient lighting set-ups become necessary, dimming control has become an integral part of the motion picture process.

The Lighting Console Programmer (LCP) is a relatively new position on our sets and the responsibilities of the programmer are still new to many of our members. The LCP is not be confused with the classification of Dimmer Board Operator.

TYPES OF PROGRAMMERS
There are four distinct type of programmers represented by Local 728.
- Sitcoms/Multi-camera – These programmers work in a largely theatrical manner and are frequently expected to handle all of the dimmer related work, including running and dropping dimmed leads to the set. These productions are usually much more relaxed and have a friendlier schedule than other programmer types. These programmers also have to take into consideration the needs of a live studio audience.
- Episodic Television – These programmers must work quickly and efficiently on stages with little to no prep time. Frequently, they are asked to work as an SLT when the show is on location. The stress level can very depending upon the show. Budgets on episodics are typically limited and this results in the programmer having to come up with some really creative solutions to problems. Also because of the budget crunch, time is at a premium and prep time is practically non-existent.
- Feature Film – These programmers are heavily relied up on for archiving set-ups and shots. The expectations of Production and the DP are high from the Feature Programmer. Moving lights and lighting effects are very common. The pressure to be fast is high and forgiveness can sometimes be rare. Production time is very expensive on a feature so the stress level can build rapidly. The budgets are typically better in a feature so the programmer should sudden expect changes as new cueing and equipment are thrown in at the last minute.
- Special Events – Most of the time these shows are live and require a large number of automated lights and extensive cueing. These shows can be very stressful and very lucrative. Not for the faint of heart, these shows require advanced training on a handful of consoles.

LIGHTING CONSOLES VS. DIMMER BOARDS
Dimmer boards are obsolete for our purposes of lighting control as they are limited to a single slider or knob per dimmer. Even with low numbers of dimmers, this form of control is cumbersome and limited. With sets routinely having between hundreds and thousands of dimmers, the dimmer board is now rarely seen on a Hollywood sound stage. Dimmer boards (also known as manual preset boards) have limited or no softpatch capability, no memory system and limited or no timing functions. Lighting consoles, however, are computerized and have integral softpatch, memory and recorded playback capacity.

TYPES OF CONSOLES
For the most part, there are two basic console types currently used in the motion picture industry. These are conventional and automated lighting consoles.

- *Conventional consoles* come from the theatrical world where the emphasis is on playback and ensuring that exactly the same show happens every night. These consoles are typically dimmer based with options to control a few moving lights. Programming the conventional console is typically very straightforward though the theatre world benefits from having Technical Rehearsals. These consoles work best for us in situations where linear cue sequencing is necessary.
- *Automated lighting consoles* have their origins in the rock & roll world. The emphasis of the automated lighting console is on the programming interface. These consoles are designed to work with large numbers of advanced lighting fixtures with multiple attributes. Technical rehearsals are rare in the music world and the rig frequently changes every night on tour. The automated programmer must be prepared at any time to make instant modifications to the show. These consoles work best for us in situations that require quick changes and little emphasis on a linear playback.

WHAT IT TAKES TO BE A PROGRAMMER
The position of LCP is not for everyone. Before someone considers becoming a programmer, they should consider some of the requirements of the job that are overlooked by most people. The Programmer should have the following traits:

- The ability to handle high levels of stress and pressure.
- The ability to handle long periods of physical inactivity.
- The Programmer should NOT be claustrophobic.
- The Programmer should be able to handle isolation from the rest of the crew.
- The Programmer should be computer savvy.
- The Programmer should be able to adapt quickly to unexpected situations.
- The Programmer should be able to adapt quickly to new technology.
- The Programmer should be able to think creatively and quickly.
- The Programmer should be willing to come in early and stay late.

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- The Programmer should be knowledgeable about the ART of lighting.

ROLE OF THE PROGRAMMER
The role of the LCP on the motion picture set is significantly different than that of a programmer in a theatrical situation. The main focus of the motion picture programmer is immediate and total control of the lighting system as opposed to creating playback. This different role requires the programmer to manage how the information is relayed between all parts of the Set Lighting Department. The Programmer needs to be involved as early as possible with the riggers to lay out channels and set-up the control network. On larger shows, the Programmer is frequently the central person that overlaps between the rigging of the stage and 1st Unit production. The Programmer is normally responsible for creating the documentation for the Chief Lighting Technician (CLT) to interpret the lighting rig.

In the eyes of production (and the people writing the checks) the main purpose of the motion picture programmer is to save time and speed up the process of lighting the set. This requires the programmer to be very well trained on their console and to always be accessible to the CLT.

SAFETY
One of the most overlooked aspects of being a motion picture console programmer is perhaps the most important. This is the issue of Safety. The programmer is responsible for safety in several ways:

- Illumination of the set – The entire company can be plunged into darkness with a missed keystroke, spilled drink, or moment of not paying attention. Sets can often be dangerous places in the bright light and doubly so in the dark.
- Injury prevention – Electric shock, blindness, burns, and epileptic fits can be attributed to an unskilled programmer.
- Fire prevention – Lights make great fire starters and a programmer who is not paying attention or does not know which lights are on can cause combustion by allowing lights that may be too close to movable scenery or in a public area to remain on without the lights being checked to confirm they are safe.
- Equipment protection – Energizing a load too quickly can cause a generator to overload and fail. This can cause such damage as to render the generator inoperable. Additionally, sudden power surges can cause serious problems in DC systems as well. Frequently, practical lights may be placed in a situation that will not allow them to burn continuously without overheating. The programmer must remain vigilant and save these lights as much as possible and then remember to turn them back on for the shot.
- Conflicting needs of Production – frequently work, rehearsal, or still photography will happen on set during crew meal breaks. Under no circumstances should the console be left unattended if the lights are left on. (Special exception can be made

at the CLT's discretion if the lights left on are fluorescent with no load, temperature, or fire hazard. However, the console must guarded to prevent unauthorized persons from accessing the console.) The same holds true if Production asks the Programmer to take an NDB (Non-Deductible Break) due to a pre-call. Anytime the Programmer leaves an active console, it must be staffed by another trained member of the Set Lighting Crew.

DUTIES OF THE PROGRAMMER
The duties of the LCP go far beyond pushing buttons and drinking coffee.

- The programmer also has a much larger impact on the health of the entire shooting company than often realized. Lights generate a large amount of heat and the programmer needs keep in mind the temperature in the perms (particularly if crew is working there) as well as on the stage and save the lights between takes as necessary. Lights that may blind the cast must also be saved between takes.
- The programmer is considered to be the expert with the entire control system. This includes the control network (i.e. DMX-512A, Ethernet, RDM, etc.) as well as the dimmers themselves. The temperature in the dimmer rooms must be checked on regular basis to ensure they do not overheat. In the absence of a DMX Technician, the programmer is expected to troubleshoot any problems that arise.
- The programmer is responsible for the console and all issues concerning the console. This includes:
    - Console selection (sometimes)
    - Assembly
    - Placement
    - Protection from weather, dust, water, extreme temperature, other crew, civilians, etc.
    - Audio & Video monitors
    - Protection from electrical overload and failure (UPS and surge protection)
- The programmer is responsible for keeping and maintaining notes and information including:
    - Maps/Lighting Plots
    - Shot information from the console
    - Lighting set-ups
    - Color information
    - Dimmer hook-up and other information
- Since the CLT is often more concerned with the art of the shot, the Programmer is often called upon to act as a second set of eyes for the CLT. Specific things the Programmer should always look for are:
    - Persons/equipment in the shot.
    - Status of practical lights (ensuring that they are on or off accordingly)
    - Intensity level of practical lights (ensuring they can be seen/aren't too hot)

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- o Continuity of the Lighting
- The programmer's functions require them to be at the console at all times when the console is active. This does not allow the programmer to work concurrently as an SLT. However, it is expected that the programmer will pitch in and assist the Set Lighting crew if they are buried. This should never distract the programmer from fulfilling their primary purpose or make them inaccessible to the console.

FUNCTIONS OF THE CONSOLE
All lighting consoles have similar functions and characteristics. The following is a list of common functions. Not all terms are the same on all consoles.

Most consoles are broken into three distinct parts:
- PATCH assigns DMX slots to fixtures/control channels on a lighting console.
- PROGRAMMING is the process of storing specific channel information for reproducing at a later time.
- PLAYBACK is the function of the lighting console that allows the Programmer to recall onstage previously recorded information.

Typical consoles will have most, if not all, of the following features/functions:

Patch
- DIMMER/CHANNEL PROFILES are a graphic representation of the curve that a dimmer or channel will take in bring its' load to full. Typically several curves are available in the console and custom curves can be created to serve the programmers needs.
- ATTRIBUTES are the individual functions of a fixture. There are typically five types of attributes: *Intensity*, *Focus*, *Beam, Color*, and *Time*. Each attribute normally requires one DMX slot. Some attributes, like high-res tilt, will require two parts with each part being a single DMX slot. All attributes are patched as one unit with the fixture.
- FIXTURE PROFILES are library files that the console refers to when using multi-attribute lighting instruments. Frequently attributes can be adjusted or changed in patch to accommodate errors in the rig such as a moving light being hung incorrectly.
- CONTROL CHANNELS are unique numbers on the console representing dimmers, groups of dimmers or various controlled devices. On some consoles, the Control Channel is synonymous with Fixture Number.

Programming
- GROUPS are associated Control Channels recorded as a single unit.
- PARKING locks a channel at a specific level with the highest command priority.

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- TIME FUNCTIONS are the aspect of playback concerning how long a specific function takes to complete.
- PALETTES are recorded groups of information concerning the attributes of a specific fixture used to decrease programming time. Palettes are typically global, meaning a change updated in one palette will be updated everywhere that palette is recorded. Palettes are sometimes referred to as Templates.
- EFFECTS are short cuts to provide complex programming of an attribute of a fixture.
- DISPLAY VIEWS are the layouts of the information on the console's monitors.
- TRACKING is how a console handles recorded information between cues.
- REMDIM/SOLO is a programming function that will take out everything *except* the channel that is selected. Pressing the button a second will usually bring everything else back on a zero count. THIS CAN BE VERY DANGEROUS.
- AUTOMATED FIXTURES are focused by using a joystick, mouse, trackball, wheels, or tractor. The pan and tilt attributes can be swapped in the patch if necessary.

Playback
- SUBMASTERS are a manual playback function of a console. Submasters are typically additive but some consoles will allow submasters to be programmed as inhibitive. Submasters typically only control intensity attributes.
- FLASH/BUMP BUTTONS are found with submasters and some faders. These buttons allow the programmer to "flash" the intensity attributes of the submaster to FULL by pressing the button. They have other programmable functions based on the specific console.
- GRAND MASTER is a manual inhibitive fader that will override all intensity channels.
- BLACKOUT (BO or DBO) will immediately take all intensity values to zero when pressed and will immediately restore them when released. THIS CAN BE VERY DANGEROUS.
- CUES are recorded "looks" of the console played in a specific sequence.
- FADERS are playback function of the console that allows the execution of sequential cues.
- GO BUTTONS are used to execute a cue in a fader. They are usually located with individual faders. Some consoles will have a Master go button that can be selected to control different faders.
- MACRO FUNCTIONS allow playback to perform simultaneous or complex multiple playback functions.
- COMMAND PRIORITY is how the console resolves a conflict over multiple levels assigned to a single control channel.
  - LTP – Latest Takes Precedence
  - HTP – Highest Takes Precedence

- SMPTE is timecode protocol that allows cues to be precisely executed at a specific frame.
- MIDI provides playback triggers that will execute cues on the console or functions on another console or device.

Please note that some features will apply to multiple areas.