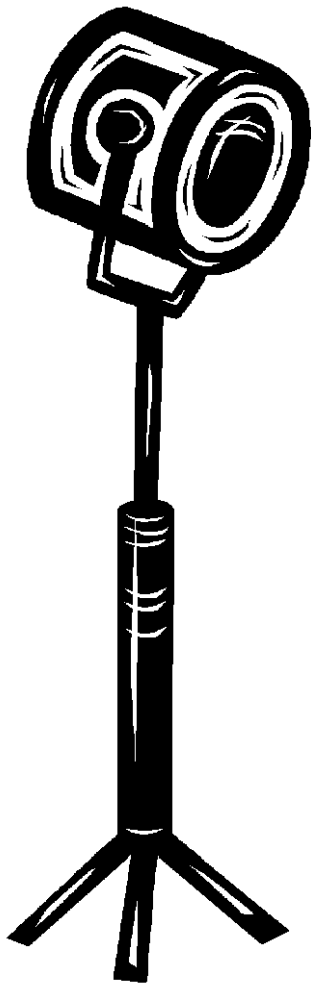




# A Basic Guide to the Technical Stage Facilities at the Commemoration Hall Huntingdon

by John Morgan



# Table of Contents

Handy Web Sites .....	3
Introduction.....	4
The Technical Stage.....	5
Legal & Organisational Stuff .....	7
The Balcony .....	8
Lighting Bar Winches .....	8
Lighting Plug & Socket Boards .....	8
Backdrop Ropes .....	8
Main Switches & Dimmer Packs .....	9
Main Switches.....	9
Dimmer packs.....	9
The Six Channels.....	10
What Each Pack Does.....	11
Technical Stuff or How Not To Blow A Fuse!.....	11
Spare Bulb Types .....	11
Lighting Bars .....	12
FoH Bars.....	12
Bar A .....	13
Bar B.....	13
Bar C.....	13
Bar D .....	13
Hanging Lights .....	14
Types of Lanterns.....	15
Floodlights .....	15
Fresnel Lanterns .....	15
PC (Pebble Convex).....	16
Barn Doors .....	16
Profile .....	17
Followspot .....	18

The Lighting Desk.....	19
Connecting the Desk .....	19
Using the Desk .....	20
Upper Preset Sliders (Orange) .....	20
Lower Preset Sliders (Blue) .....	20
Flash Buttons .....	20
Flash Buttons On/Off Switch .....	20
Upper Master Slider .....	20
Lower Master Slider .....	20
Grand Master Slider .....	21
Master Timing/Smoothing Sliders .....	21
On/Blackout Switches .....	21
Master Select Switches .....	21
Crossfading .....	21
Timing .....	22
Sound Equipment.....	23
Setup .....	23
Using the system .....	23
Intercom Phone.....	24
House Lights .....	24
Ownership.....	24

## Handy Web Sites

[www.huntingdondramaclub.org.uk](http://www.huntingdondramaclub.org.uk)

[www.stage-electrics.co.uk](http://www.stage-electrics.co.uk)

[www.pulsarlight.com](http://www.pulsarlight.com)

[www.theatrecrafts.com](http://www.theatrecrafts.com)

[www.c-c-z.co.uk](http://www.c-c-z.co.uk)

## Introduction

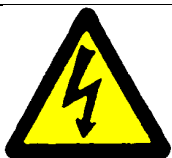
The aim of this booklet is assist drama clubs and others to use the technical facilities that are provided in the Commemoration Hall, Huntingdon.

It will not tell you how to create sound effects or how to design complex West End lighting. However you should be able to light a production so that it can be seen, and play sound effects and music in support of the production.

Page 3 lists some useful websites that will provide more detailed instructions.

This booklet consists of the following sections:-

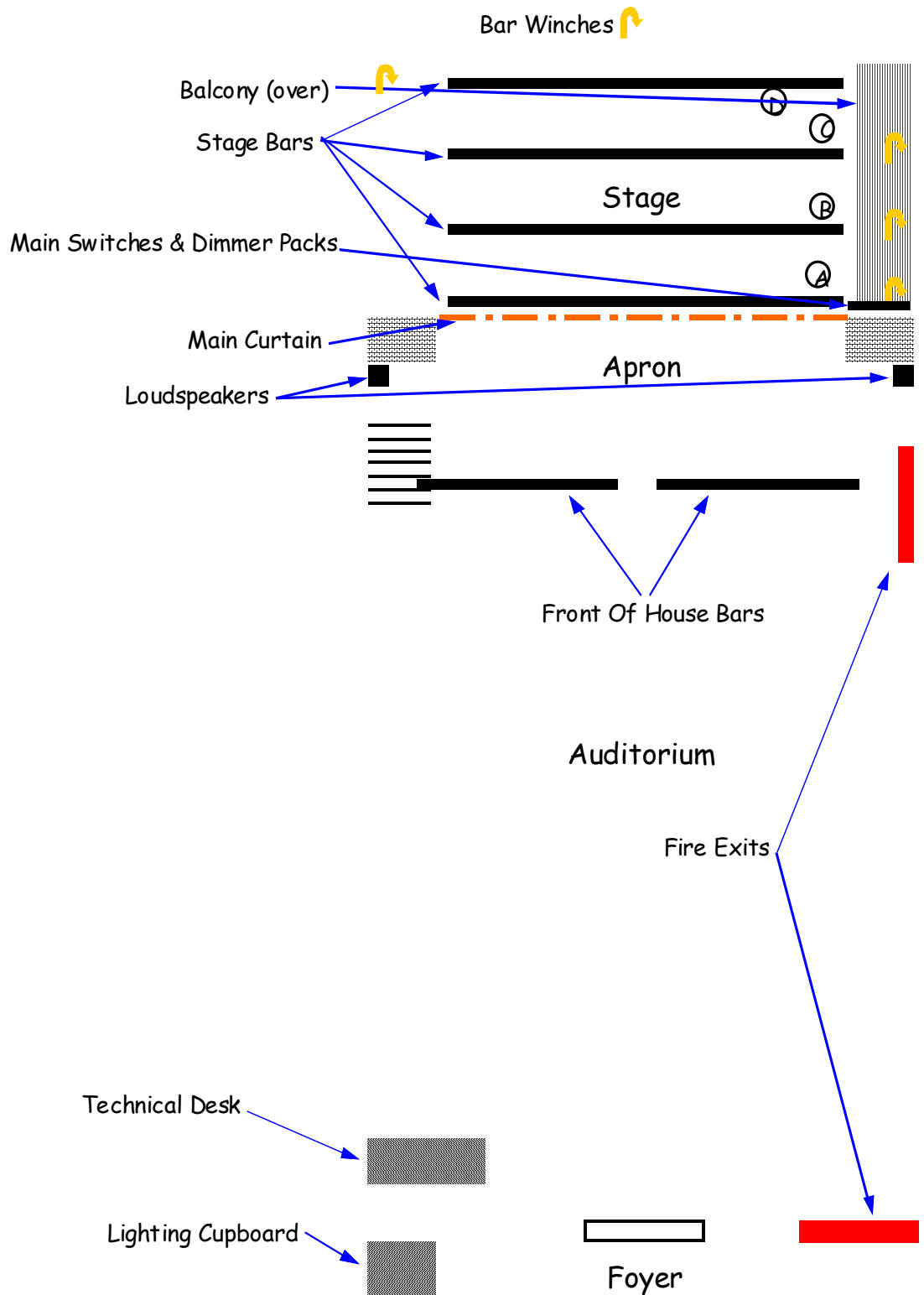
1. Overview of the technical equipment resident in the hall
2. Communications & organisation and legal stuff concerning a production
3. Lighting - aims, effects, problems with the hall.  
Using the lighting desk
4. Sound - setting up and using the equipment in the hall.



All the stage lighting is powered by 240V mains—take care especially changing fuses and lamps or when connecting or disconnecting plugs.

The dimmer packs are supplied with a 3-phase mains supply. The voltage between phases is 405V. Take Care!

# The Technical Stage





All the stage lighting connectors are 15A round pin plugs. On no account should heaters, drills etc be connected to the lighting circuits.

### **Bar Winches**



Enable the lighting bars to be lowered and raised.  
Make sure you drop enough rope to make the electric cable slack!

### **Balcony**

Gives access to the winches for stage bars A, B, & C, and the cable rope for all the stage bars.

### **Main Switches**

The main stage power switch and circuit breakers for dimmer packs A, B & C.

The backstage telephone & curtain winch are also in this area.

Loudspeakers: used for music & sound effects

### **FoH<sup>1</sup> Bars**

Enable lighting of the apron and first third of the stage.

### **Technical Desk**

Location of the lighting control desk, sound system & backstage telephone.

### **Lighting Cupboard**

Houses the House Light switches and connectors for lighting control, loudspeakers and backstage telephone.

---

<sup>1</sup> Front of house

## Legal & Organisational Stuff

Not really part of the technical side, but the sound & lighting engineers sit at the back of the hall for the entire performance, and also have easy communication with Stage Manager and the Front of House Staff.

So they are ideally placed to:-

- ensure fire exits are not obstructed in any way
- ensure all gangways through the auditorium remain absolutely clear
- ensure the 'No Smoking' rule is strictly enforced, throughout the building
- make the following announcement (live or recorded): 'In the event of an emergency, fire exits are located at the front & rear of the hall, on the right hand side. Also use the main entrance through the foyer onto the street outside.'
- liaise with the FoH Manager & Stage Manager about curtain-up times etc.
- assist members of the public in finding their seats etc.
- assist with evacuation of the Hall, should it be required.

# The Balcony

The Balcony runs along the stage left side of the stage and is reached via a vertical ladder near the front of the stage.

The balcony provides access to:-

- lighting bar winches (Bars A, B & C)
- lighting bar cable ropes
- lighting plug & socket boards
- backdrop ropes
- various audio cables used by Pantomime '89 for sound reinforcement (not covered in this booklet).

## Lighting Bar Winches



Power should be switched off before raising or lowering a bar!

The winches are used to raise and lower the lighting bars. They are simple to use: just mind your knuckles as the handle goes round.

HOWEVER you must ensure the cable to the lighting bar is slackened using the appropriate rope (for bars A, B & C this is adjacent to the winch, for Bar D the winch is stage right at the rear of the stage, but the rope to control the cable is on the balcony!

It is also essential to check that the stage is clear of people and that the bar doesn't snag on anything on its way down.



## Lighting Plug & Socket Boards

These provide flexibility in the cabling and will be discussed in more detail later.

## Backdrop Ropes

These are used by the stage crew to raise and lower backdrops and other items. Backdrops are heavy, so if you want to raise or lower one, make sure everyone on stage knows what you are doing.



# Main Switches & Dimmer Packs

## Main Switches

Dimmer Pack circuit breakers: there are 3 breakers, one for each pack, A, B & C. These are shown in the 'Off' position.

The stage lighting main switch (this should normally be 'On' and should not be turned Off). The handle is up for on, as shown.



## Dimmer packs

There are 3 dimmer packs, A, B & C. An example is shown below.



Each pack provides 6 lighting channels (numbered 1-6). Each channel has 2 sockets to help with patching (more later).  
Note: The channel numbers are the small white figures at the top of the photo, not the numbers on the plug tops.

The left hand side of each pack has 3 panel lamps, 2 switches and a fuse. When the circuit breaker is On, all 3 lamps should glow.

The upper rocker switch supplies power to the control electronics of the dimmer pack. The lower switch provides 'pre-heat': this keeps a low voltage passing through the stage lamps so that they will come on quickly. Both these switches should be On for use.

The fuse protects the control electronics and if it blows the chances are that the pack will have to be professionally serviced.



## The Six Channels

Each of the six channels has 2 panel lamps, a fuse and a rotary control.

If the red lamp glows the associated channel fuse has blown. This often happens when a bulb blows! Spare fuses are 10 Amp  $1\frac{1}{4}$  inches and should be available in the hall.

The green lamp will glow if no lamp is connected or if a lamp is connected and switched on.

The rotary control allows the intensity of the lamp(s) to be controlled from the dimmer pack.

If the lighting desk is to be used, this control should be in the 'Remote Control' position (this is a 'click' position). Otherwise, the lighting desk will not be able to turn the lamp off!



## What Each Pack Does

Each pack feeds a separate set of lighting bars, as shown in the table below.

### **Pack Channel Bar**

A	1-6	FoH Bars
B	1-4	Stage Bar A
B	5-6	Stage Bar B
C	1-3	Stage Bar C
C	4-6	Stage Bar D

## Technical Stuff or How Not To Blow A Fuse!

Each channel is rated at 2kW (2000 watts) so the total number of lamps connected must not exceed 2kW.

More information later on the sizes of lamps in use on the stage.  
Bulbs

## **Spare Bulb Types**

Lantern	Bulb Description	Stage Electrics #
Profile	GE GKV600 39750 240V 600W G9.5 LAMP	LAMGKV600
Fresnel	GE T26/T27 39457 240V 650W GY9.5 LAMP	LAMT27
Cyclorama	TH500R7 K1 Lamp Clear 240V 500W R7s Base 117mm	522-8096
10A Fuses	10 x FUSE 32mm 10A CERAMIC FAST ACTING	FUS32C10

Please do advise the caretaker or office if spare bulbs or fuses are running out

## Lighting Bars



A nice busy FoH bar

The picture to the right is a close up of the FoH bar. The bar is a 'C' tube with the cabling inside it and a plastic filler. The sockets are all rubber, and set at an angle of about 45°. Each socket is numbered so it can be found at the dimmer packs.



### FoH Bars

Each of the two bars is fitted with 8 sockets, arranged in 4 groups of 2, which are cabled back to the A Dimmer Pack. NB It is easier to use the long cables from the Balcony and not the 6 cables brought out of the A Dimmer Pack.

Looking towards the stage the plug numbers are:

5	5	6	6	7	7	8	8	1	1	2	2	3	3	4	4
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

NB Each group of 2 sockets can take lamps with a *combined* maximum wattage of 2 KW. If the wattage is any higher, you'll blow the fuse.

However, great care must be taken not to overload these channels as you have 8 pairs and only 6 channels.



If you cable lamps on this bar to another dimmer pack you will have 2 phases on one bar, which is not recommended.

### Bar A

This bar is fitted with 12 sockets, arranged in 4 groups of 3, which are cabled back to the B Dimmer Pack. Looking towards the back of the stage the plug numbers are:

2	1	4	3	4	2	3	1	4	3	2	1
---	---	---	---	---	---	---	---	---	---	---	---

NB Each group of 4 sockets can take lamps with a *combined* maximum wattage of 2 KW. If the wattage is any higher, you'll blow the fuse.

### Bar B

This bar is fitted with 12 sockets, arranged in 2 groups of 6 sockets that are cabled back to the B Dimmer Pack. Plug number 5 is for sockets labelled 1, and plug 6 for sockets labelled 2.

2	1	2	1	2	1	2	1	2	1	2	1
---	---	---	---	---	---	---	---	---	---	---	---

NB Each group of 6 sockets can take lamps with a *combined* maximum wattage of 2 KW. If the wattage is any higher, you'll blow the fuse.

### Bar C

This bar is fitted with 12 sockets, arranged in 3 groups of 4 sockets that are cabled back to the C Dimmer Pack.

Looking towards the back of the stage the plug numbers are:

3	2	1	3	2	1	3	2	1	3	2	1
---	---	---	---	---	---	---	---	---	---	---	---

NB Each group of 4 sockets can take lamps with a *combined* maximum wattage of 2 KW. If the wattage is any higher, you'll blow the fuse.

### Bar D

This bar is not internally wired and its lamps are cabled directly to a Plug & Socket Board on the Balcony.

It has 3 ways of 4 lamps; each lamp is nominally 500W.

It uses plugs 4, 5 & 6 on the C Dimmer Pack.

There is no spare capacity on this bar.

## Hanging Lights

**Take care!** If you have lowered the bar, don't bang your head on it. If you haven't, don't fall off the ladder!

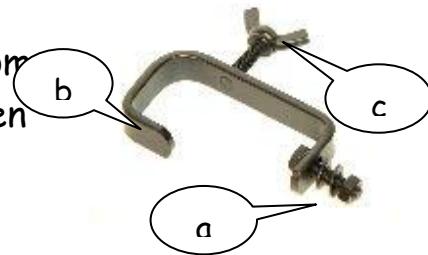
Before hanging a light it is worth checking that it works. It's easier to change a bulb, add gels etc, on the floor!

Lights are fastened to the bars using 'C' clamps. The lamp is bolted to the bottom of the bracket (a), the hook part (b) is then placed over the bar and the wing-nut (c) tightened. Ensure the wing-nut is not tightened into the bar's plastic cover.

The safety chain is then fastened around the bar to ensure the lamp can't fall to the ground. The safety chain can be a chain or wire rope with a dog clip style of fastener. In the photo to the right you can clearly see the Bar, Hook Clamp and Safety Wire.

Lamps can also be fitted to stands, 'T' Bars etc. These would be hired and due to variations are not discussed, except to remind you to keep gangways clear and make

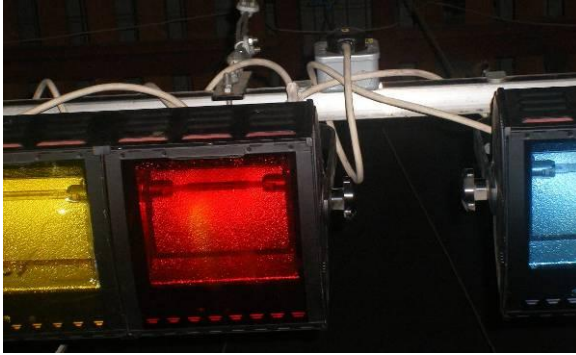
sure stands can't topple over.



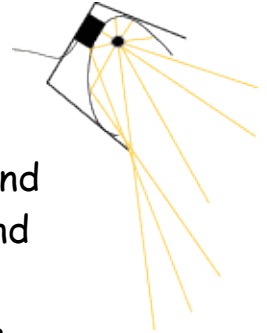
# Types of Lanterns

## Floodlights

Have asymmetrical reflectors and use linear lamps, to ensure an even cover across the reflector.



These are often called Cyc<sup>2</sup> Floods and are grouped in 3s and fitted to Bar D (normally). They are 500W each. There are 4



groups of 3, giving a total of 6KW. Three lighting circuits are provided in Bar D, giving a total of 6KW. This means there is no spare capacity on Bar D if you use the Cyc Floods.

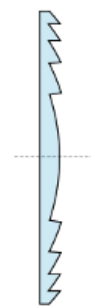
There is spare capacity on the 3 dimmer circuits, but do total up the bulbs fitted before plugging the circuits together.

## Fresnel Lanterns

The main workhorse lamp provided as part of the hall hire. The Fresnel (pronounced "frenNEL") is a soft-edged spotlight with more control over beam angle than floods, but less control than profiles.

The lens is a series of stepped concentric circles on the front and pebbled on the back. It is named after its French inventor, Augustin-Jean Fresnel (1788-1827).

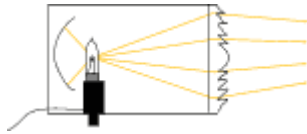
The size of the beam can be adjusted by moving lamp and reflector closer to or farther from the lens, by either a screw mechanism or a simple slide. The beam can be shaped by the four barndoors attached to the front of the lantern.



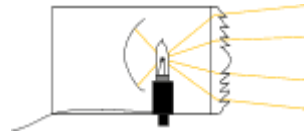
the lens,

---

<sup>2</sup> Cyclorama: the rear backdrop of the stage



Fresnel "Spotted down"



Fresnel "flooded"

There are 12 of these lamps in the hall. They are nominally 650W so you can use a maximum of 3 on a dimmer circuit (1950W).

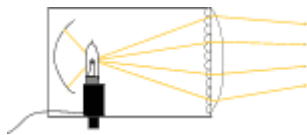
### PC (Pebble Convex)

Not provided at the hall.

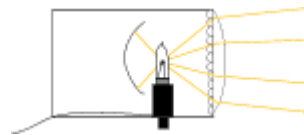
This lantern uses a modified plano-convex lens with a pebbled effect on the plano (flat) side. The pebbled effect gives the beam its characteristic soft edge. The edge of the beam is slightly harder than a Fresnel, but is not hard edged. The pebble convex lens uses the efficiency of the plano-convex lens and gives the light a softer edge. Like a Fresnel, there is one focusing knob to change the beam angle.



The Strand Cantata PC



PC "spotted down"



PC "flooded"

### Barn Doors

Barn door: A four shutter rotatable device which slides into the front runners of a fresnel to shape the beam and reduce stray scatter light.

Shuttering can be used to keep light off a part of the set, or out of the audiences eyes. There is also a slot for gels.



## Profile

Six provided at the hall.

Profile lanterns produce clearly defined spots of light and are the most focusable and versatile of the lanterns. They have a lens (some have two lenses), a lamp and a reflector, and they also have shutters and a gate.

Profiles get their name from their ability to project the shape of anything placed in the gate of the lantern between the lamp and the lens. These shapes may be formed by the shutters, or they may be cut out of thin metal (a "gobo" - see diagram right

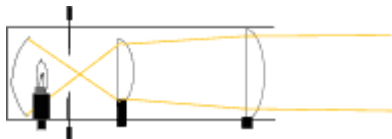
Profiles with two lenses (zoom profiles) are best for projecting gobos and other shapes, as the size and sharpness of the beam is fully adjustable throughout the beam angle range of the lantern.



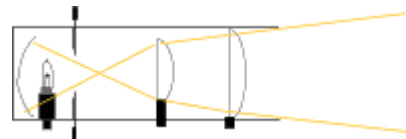
Strand SL23/50

zoom profile

### Focussing a Profile Lantern



With the lenses far apart, the beam is narrow



With the lenses close together, the beam is wider.

## Followspot

Not provided at the hall.

A special type of profile lantern with additional controls, extra handles, sights, built-in colour changer and iris, and usually of much higher power.



Followspot in use at Pantomime '89 in 2007.

If you need to use a followspot, you will need to create a platform for both the lamp and the operator. There is a high current supply in the lighting cupboard for powering followspots. If hired from Stage Electrics, a followspot rig includes everything that is required to use it, including a dimmer circuit. They are not normally powered from the main board.

# The Lighting Desk

The Lighting Desk is the control part of the dimmer packs. It can be connected in one of two locations: backstage, or at the back of the auditorium, in the lighting cupboard. Both connection boxes are shown below.



Back Stage



Lighting Cupboard

## Connecting the Desk

The desk is connected using 3 cables, stored with the lighting desk. Each cable has an 8-way DIN connector on each end. One end of the 3 cables connects to 1, 2 & 3 (think A, B & C) on the wall. The other ends connect to the bottom of the lighting desk.

There are a lot of connectors on the base of the lighting desk: the ones you need are numbers 1 to 18 in 6s (1-6, 7-12 & 13-18).

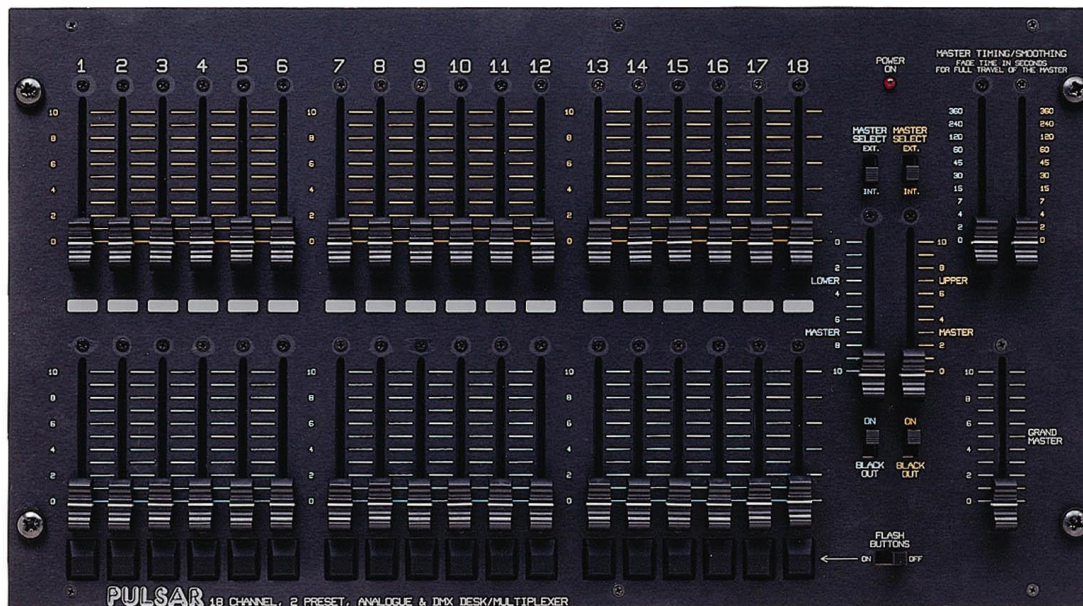
The 'stuck on' labels are correct!

Note: If setting up at the rear of the hall, all cables should pass through the hole top-right of the cupboard door.



## Using the Desk

Information From Pulsar Light Of Cambridge Limited



### **Upper Preset Sliders (Orange)**

One per channel. These are used to set the lighting levels for scenes 1, 3, 5..., for example.

### **Lower Preset Sliders (Blue)**

One per channel. Used to set the lighting levels for scenes 2, 4, 6..., for example.

### **Flash Buttons**

One per channel. These are used to flash their channel to the Grand Master Level.

### **Flash Buttons On/Off Switch**

This allows the Flash Buttons to be disabled to prevent accidental activation.

### **Upper Master Slider**

This is the Master Dimmer for the Upper Preset.

### **Lower Master Slider**

This is the Master Dimmer for the Lower Preset.

## **Grand Master Slider**

This is the overall Master Dimmer for the whole desk.

## **Master Timing/Smoothing Sliders**

Used to control the time taken for the fade in/out of the Upper and Lower Presets. The Fade Time is measured in seconds (0 to 360) and is for the full travel of the Upper and Lower Masters.

## **On/Blackout Switches**

One for each preset, used for an instant blackout.

## **Master Select Switches**

These select the source of the Master control for the Upper and Lower Presets, i.e. whether they are controlled by the Grand Master, Master Timing and Upper and Lower Preset Masters in this desk or another desk. They must be in the 'Internal' position when the desk is used on its own (or as the Master Desk with 'Slave' Desk(s) and in the 'External' position when used as a 'Slave' Desk.

## **Crossfading**

The Upper and Lower Master Dimmer Sliders are adjacent to each other, but with the settings reversed, enabling the operator to easily produce a smooth crossfade between Upper and Lower preset scenes.

The usual way of using the controls is to put both Master Dimmer Sliders in the upper position (i.e.. Lower Master at '0' and Upper Master at '10'), then set up Scene 1 on the Upper Preset Sliders and Scene 2 on the Lower Preset Sliders. On the cue, slide both Masters to the lower position (i.e.. Lower Master at '10' and Upper Master at '0'), whereupon the lights will crossfade from Scene 1 to Scene 2. Similarly Scene 3 could then be set up on the Upper Preset and the Masters moved up again on the next cue, and so forth.

These are 'Dipless Crossfade' Desks, which means that while crossfading between the two presets, the level of light will remain constant for channels which are at the same level on both

presets.

It is possible to achieve other types of crossfade easily with this system, for example, there can be a chosen amount of 'dip' between scenes, or both scenes may be at full before the first is faded out. With both Masters at full, a switch, fitted on the back panel, enables you to select whether the preset levels are 'pile added' or 'averaged'.

### **Timing**

The Master Timing Sliders can fulfil a number of functions. If they are set to '0' the crossfade will occur at the rate that the Master Dimmer Sliders travel. However you may choose to set the timers to 2 seconds to smooth out any visible jerkiness.

They may also be used to control the rates of fade of the Upper and Lower presets. If the Upper Timer (orange) is set to 15 seconds and the Lower Timer (blue) to 60 seconds and the Masters are moved down from the upper to the lower position, the lighting levels programmed on the Upper Preset would fade down in 15 seconds while the lower preset would take 60 seconds to fade up.

Finally, the timers also operate on the Grand Master. If, for example, a sunrise effect is required, the timers could be set to 6 minutes and the Grand Master brought up to the required level. The overall lighting level will then gradually rise from 0 to the required daylight levels over 6 minutes.

# Sound Equipment

This section requires re-writing.

~~The sound system consists of the following equipment:~~

- ~~▪ Stereo Amplifier~~
- ~~▪ CD Player~~
- ~~▪ Cassette Player~~
- ~~▪ Stereo Mixer~~
- ~~▪ Pair of Speakers~~

## Setup

~~Connect Amplifier front speaker terminals to the 2 left hand pairs of terminals on the grey connection box in the lighting cupboard, using white cables.~~

~~S.R. = Speaker Right, S.L. = Speaker Left.~~

~~The following connections are all made using phono cables. The connection convention is Red is Right, White is Left.~~

~~Connect the 'tuner input' of the amplifier to the 'mixer output' connectors.~~

~~Connect CD 'output' terminals to 'Line In 1' of mixer.~~

~~Connect the Cassette Player 'output' to 'Line In 2' of the mixer.~~

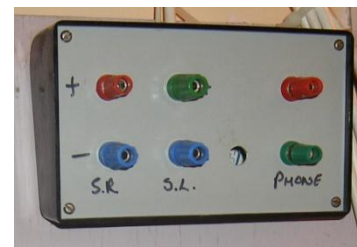
~~Note: Do not use the 'Phono in' connectors on the mixer: they are for record players.~~

~~Other sound sources can also be connected to the mixer inputs, e.g. MP3 Players, Laptops etc.~~

## Using the system

~~The amplifier volume should be set to about half way and the channel sliders used on the mixer to control the volume.~~

~~I recommend turning down the Sound Effects Volume on the mixer – it's ever so easy to get an electronic bomb by leaning on the button!~~



Phono Cable

~~The CD player has an autocue function, which means that the current track will start without pause and the player will not go on to the following track.~~

~~Golden Rule: If you start playing the wrong music or effect DON'T panic and press stop! Try to fade the effect away and hope nobody notices!~~

## Intercom Phone

Connects to the right hand pair of terminals on the grey box in the lighting cupboard.

Batteries (4 of AA size) fit in small compartment under handset.

Note: Remove one battery for storage, as if wires touch they will run the battery down.

## House Lights

The house lights are controlled from the Lighting Cupboard. To use the dimmable house lights, first switch the top left and three right hand boxes to 'ON' and 'DIM'.



The dimming control is on the Master Unit. Use the left hand button to dim down and the right hand button to increase light.

If you use these lights you must ensure they are set to Dim and that all other lights in the hall are turned off, especially the switches shown to the right.



## Ownership

All lighting equipment is owned by the Trustees of the Commemoration Hall. This includes barn doors, gel frames etc. The entire sound system is owned by Huntingdon Drama Club.