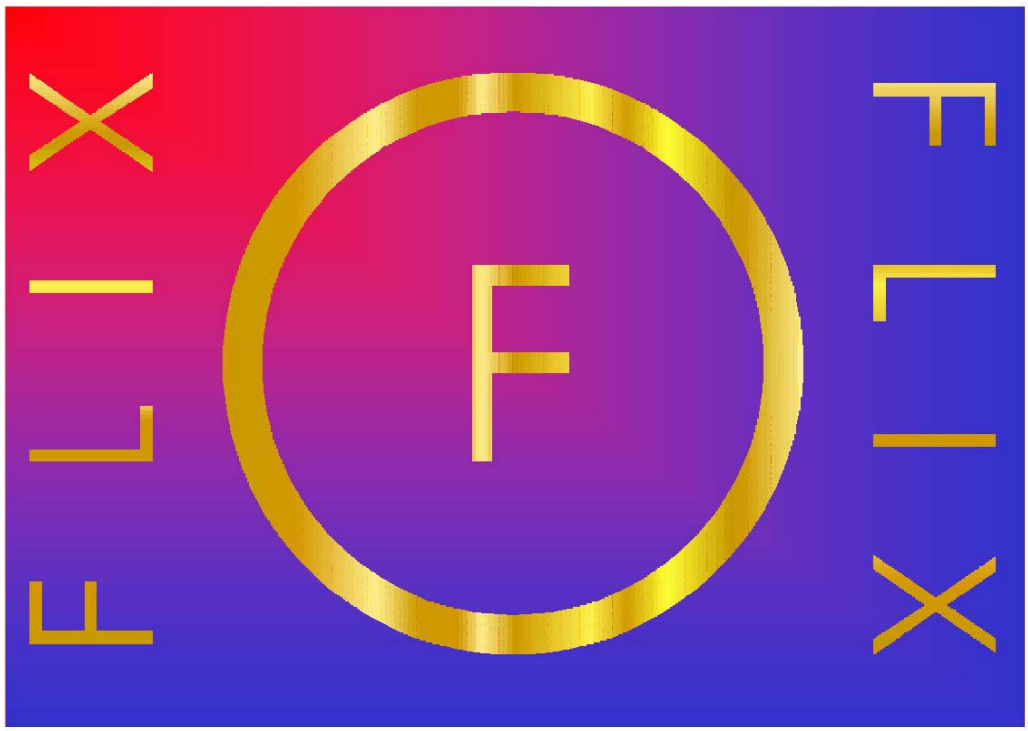

THE FLIX PROJECTIONISTS' MANUAL

Compiled
By
Peter Knight

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The contents of this manual are designed as a suggested method for using and working with Flix equipment and do not pretend to be the only method available. It is suggested that the manual is read and used as reference material. Many of the ideas and methods found in this manual relate to other equipment and similar setups of projector equipment and presentation. All copyright of third parties is acknowledged and remains their property.

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PROJECTIONISTS' MANUAL

SECTION 1 - INTRODUCTION

Time and again it is written "*The presentation of the film is the final link in a multi-million pound investment involving a direction team, production staff, many actors and technicians and if it is not shown in the way that the director intended all the money will have been wasted*". It is therefore up to the duty projectionist to try and make sure that the presentation of the film is as "professional" as possible. There is nothing wrong with "having fun" whilst showing a film, but some pride in your work is always important.

Remember that you are "the last link in the chain of film production"

This manual is intended to help with the running and maintenance of the projector and all the other equipment relating to projecting a film, owned by Flix. However, the manual will take a closer at the 35mm Victoria 5 projector and related equipment due to the greater use that this receives. I would like to thank the past Flix committee members, whoever they were, who thoughtfully wrote notes for the future projectionist. It is these notes which have formed the basic outline for this manual as well as a number of the diagrams.

The principle of film and the way it works remains relatively unchanged since it was first developed in 1895. In order to understand how a projector works it is necessary to have an understanding of how film works. A strip of film is made up of lots of photographs which run at high speed appear to be moving. When the film is running past the projector, each individual frame is stopped momentarily in front of the lamp, while a shutter opens and closes in time. The result is similar to the effect of children's' flipbooks. Although the frame is still as it is projected onto the screen because the film is moving so quickly it appears to be moving. The moment of the film and the shutter should be the same and constant, otherwise the effect of movement is lost. There are 24 of these frames (pictures) per a second or 2.5ft of film. (In the days of silent films this was as low as 16 frames a second, television works on 25 frames a second). With the knowledge of how film works it is possible to find out about the projector.

Finally remember if anything goes wrong "It is all Conrad's fault!!"

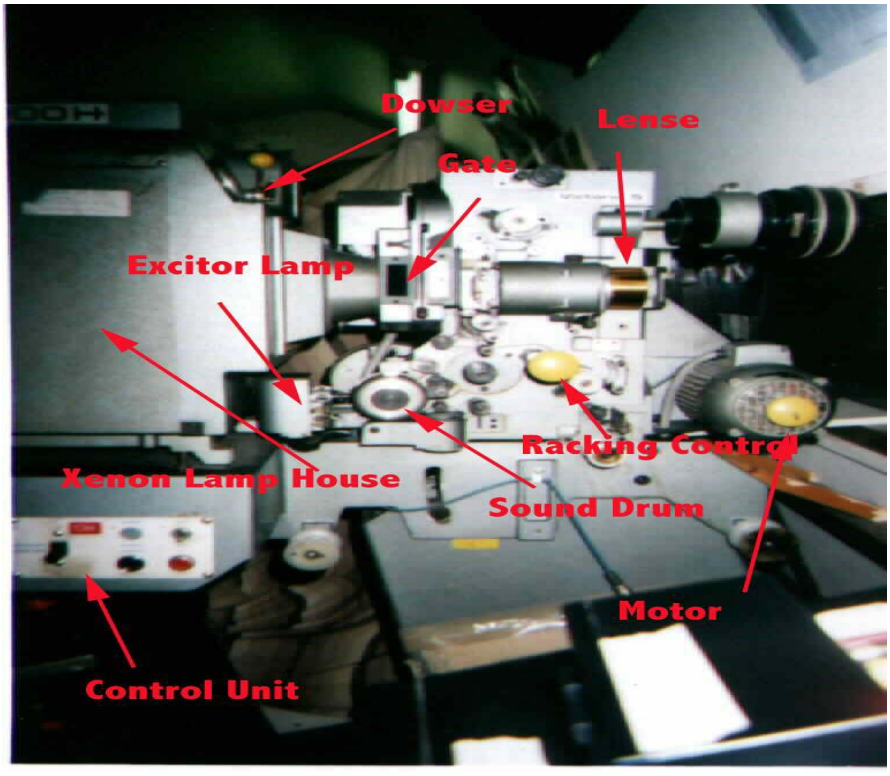
SECTION 2 - THE EQUIPMENT

2.1 The Equipment

Over the years Flix has acquired a wealth of projecting equipment, which to buy today would be worth a small fortune. Below is a checklist of the equipment relating to preparing a film and projecting it:

- 1 x 35mm Victoria 5 Projector
- 1 x Zenith 2000w horizontal Lamphouse with Xenon bulb.
- 1 x Transformer
- 1 x Westrex Tower
- 1 x Dolby A sound system, including
  - 1 x Cassette Deck
  - 1 x CD Player
- 1 x 16mm Fumeo Projector
- 1 x 35mm Kodak Slide Projector
- 2 x Bell & Howell Portable Projector (identical)
- 1 x Bell & Howell Portable Projector
- 1 x 8mm Portable Projector
- 1 x Handheld Vacuum Cleaner
- 1 x Portable Fan
- 1 x Portal Screen
- 1 x Numerous 16mm reels
- 1 x 16mm rewind bench
- 1 x 16mm & 8mm film (various educational)
- 2 x Tool Kits
- 2 x 10” centre reels (35mm)
- 2 x 12” centre reels (35mm - new ones)
- 1 x 12” centre reel (35mm - old one)
- 2 x ??” centre reels (35mm - very old)
- Cleaning Equipment (various)
- Spare parts for projector (various)
- Sound cable

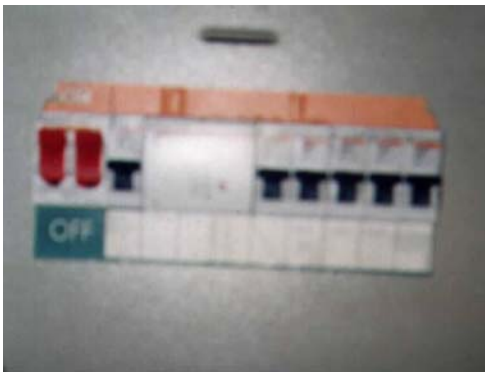
2.2 The 35mm Victoria 5 and other details



The main projector used by Flix is a 35mm Victoria 5 (Vic 5), which is worth around £10,000 with a Xenon 2000w horizontal lamp-house and Westrex tower. This systems is connected to a Dolby A sound system. The 35mm projector is the same model, which is used in many cinemas

today. This is due to its very reliable nature, subject to it remaining in a well-maintained condition. Because the Vic 5 is so common it means that getting spares is very easy (see Section 7 for a list of contacts). The lamps in the Vic 5 operate at high pressures and temperatures "*ON NO ACCOUNT*" must any attempt be made to tamper with these lamps. Always follow the safety precautions, if in doubt call in an engineer. Due to the small amount of usage they receive the lamps should last about 6000 hours or 5 years. It should be noted that the transformer *SHOULD ALWAYS* be set at 50 watts or slightly under. If any more current is used then the bulb gets to warm and the electricity will trip. If this happens the picture will suddenly fade. If there is not enough current then the picture on the screen will not be bright enough. Occasionally there will be no picture on the screen although sound will continue as normal, this indicates there is a problem with the bulb. The lamp-house has a safety system, which means that the bulb cannot be looked at when it is on. In order to get into the Lamphouse the key to the lock is required. There is a spare bulb in the projectionists' cupboard along with a few partly used spare bulbs. The Vic 5 is very easy to maintain and more details about this are provided later. (See Section 3)

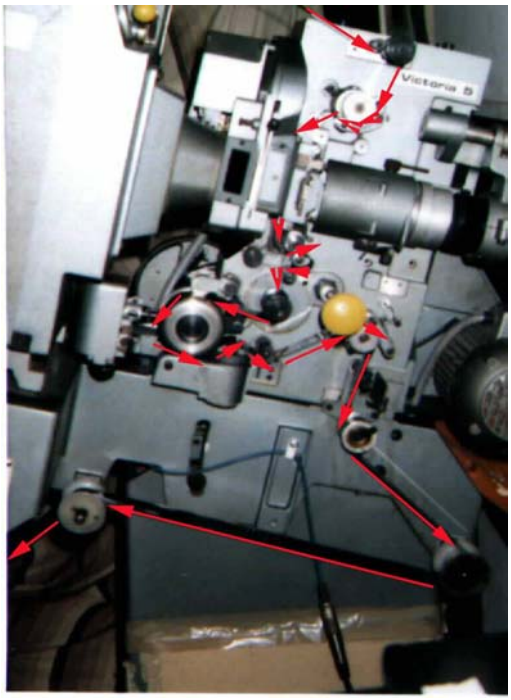
2.2.1 THE FUSE BOX



First thing to know about is the fuse box. This can be found to the right hand side of the 35mm projector and the left of the sound system. When a film is shown all the switches need to be turned on. If it is just the tower being used then the first three switches and the one marked 'tower' need to be turned on. It is important that the Main MCB (Mains Circuit Breaker) fuse is switched on as this will trip if there are any electrical problems. Above the fuse box is a black box with two locks in it. One of these locks used to turn the screen off and stopped it being lowed. This facility has now been disconnected. The lock on the left-hand side turns the power off to the tower and overrides the fuse switches. The keys for these locks are stored in the 128 cash box.

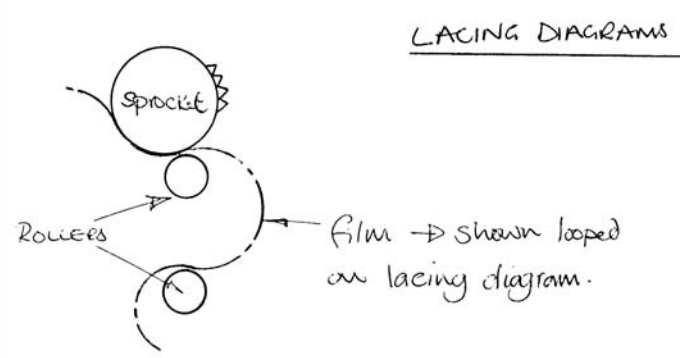
2.2.2 LACING/THEADING DIAGRAMS

The lacing (or threading) diagram shows the path, which the film takes. Within in the lacing of the film there are two loops, one at the top of the projector and the other next to the sound loop. The film is passed through the film in a sort of pull-push motion. These loops are there for two reasons:

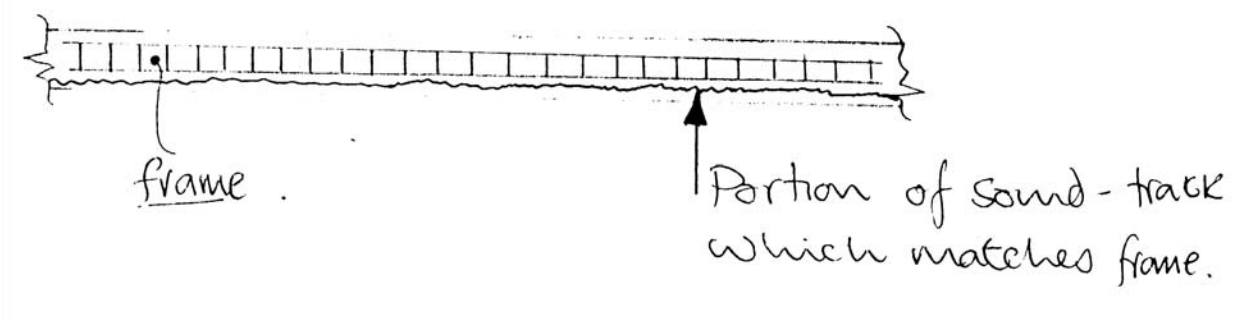


1. The loop acts as a kind of buffer-length, which can become slightly longer or shorter, as necessary.
2. If the loop is missed out altogether, the pulling sprocket may snatch the film and this could result in the sprocket tearing the film.

It is a good idea to practice lacing as it is one of the most important parts of running a film. Lacing of a film is easier when it is taught and is one of the easiest things to pick up.



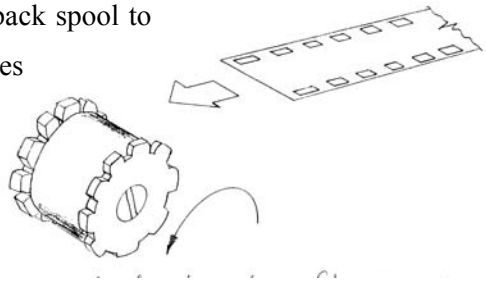
On a film the distance between the frame on screen and its sound is a distance apart, as shown in the diagram below. If the loops in the lacing are too big or too small, the picture won't match the sound; lips will move while the words will come several seconds before or after the picture. This sounds like the film is underwater or a "bubbling" effect on the sound. When this happens, the film is said to be "out of sync" and needs to be dealt with as soon as possible. This requires the film is stopped and then started again.



NOTE: *The soundtrack needs to be facing the right hand side of the film i.e. towards the sound system side of the projector. This may require that the film is run with a twist, but this does not matter.*

2.2.3 SPROCKETS

These are what drive the film through the projector from the back spool to the front take up spool. The motor, via a series of pulleys drives these sprockets. There are two sprockets found on the projector (one at the top and the other near the bottom). There are 15 teeth per sprocket and need to be replaced when the teeth become worn or damaged. It is also important that these sprockets are kept tightly screwed otherwise the film will not run properly.



2.2.4 ROLLERS AND GUIDES

Along with the sprockets are the rollers and guides which 'guide' the film through the projector. The film travels through the **gate**, **sound drum** and over each of the **sprockets** in the correct order. For every projector, there is a lacing or threading diagram. A guide for the Vic. 5 has been provided earlier on in this manual. (See section 2.2.2)

2.2.5 THE LENS

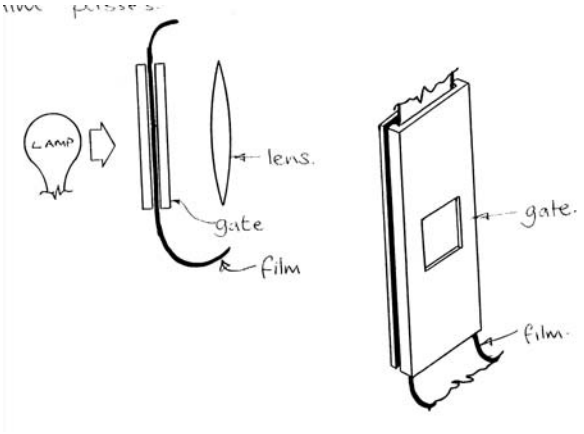
There are two lenses; one is used for showing Widescreen (also known as normal) Films (aspect ratio of 1.85:1 in UK and USA) and the other for showing Cinemascope films (aspect ratio of 2.35:1). Both lenses are worth around £600 each. When the film is in Cinemascope the animorphic lens is also required and it is necessary to change the lens while the film is running. This is a fairly simple process and requires the following procedure:

- Close the dowser (black button)
- Fade down the sound and change back to an alternative source of music
- Remove the Widescreen lens and place the Cinemascope in the lens holder
- Put the anomorphic lens down
- Move the gate in
- Open the dowser (red button)
- Fade the sound back up.

***NOTE**: This procedure is explained again in Section 4.2*

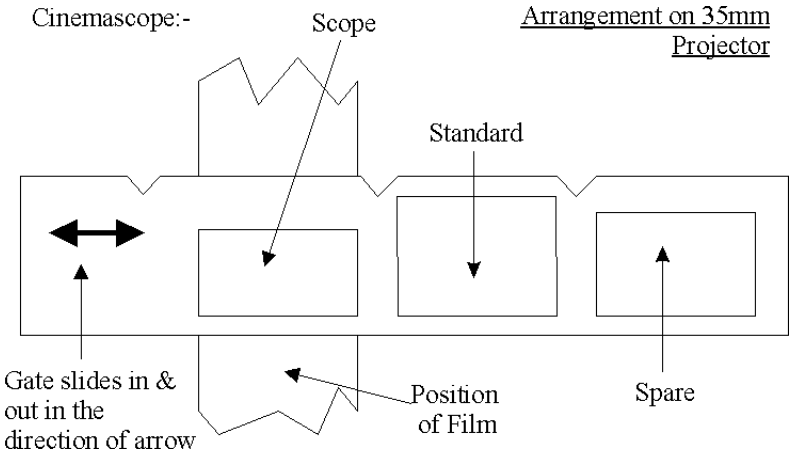
2.2.6 THE GATE

The gate consists of two metal plates, one behind the other, with a small gap in between, through which the film passes: -



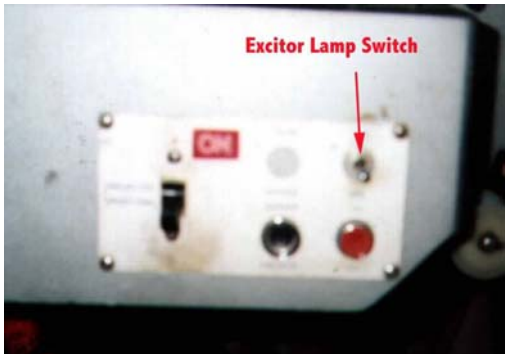
The two plates have holes in, through which the light passes from the lamp. The size and shape of this hole determines the size and shape of the picture outline on the screen. In the 35mm projector, the rear plate has three holes, one for standard films, one for Cinemascope and one is spare.

It is important to move the gate when the lens is changed from widescreen to scope. If the film is standard (Widescreen) then the middle size should be used, while for scope it needs to be pushed in all the way. It is an interesting experiment to run a film without the gate in at all. The diagram shows the gate looking towards the projector and the Lamphouse.



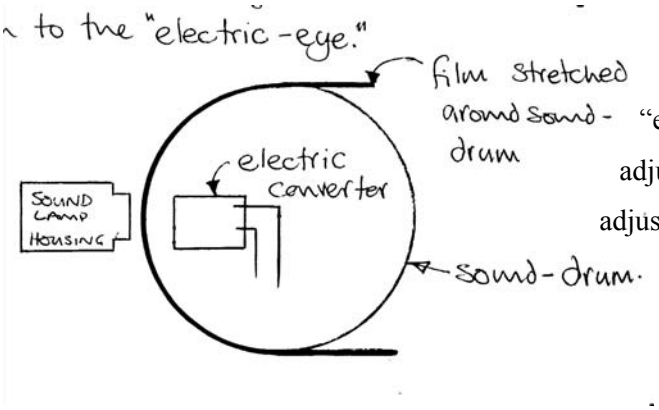
2.2.7 THE EXCITOR LAMP

The sound tracks on the films, which Flix shows, are optically recorded and can be seen as a rippling line by the side of the frames on the film, called "tramlines". The sound lamp shines through a lens on to this line and projects its image on to an “electronic eye”, which converts the image into sound. The lens through which the light from the sound lamp shines is situated just behind the sound drum. The switch to run on the excitor lamp is situated with other projector controls:



2.2.8 THE SOUND DRUM

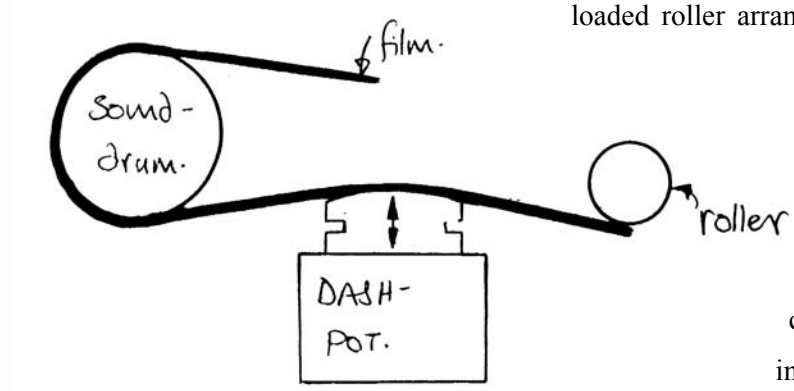
This is a circular guide around which the film must be kept taunt, as the sound of the film will come out slurred if the sound lamp doesn't project the precise image of the rippling line on to the "electric-eye". This may occasionally need to be adjusted using an Alan key and making small adjustments.



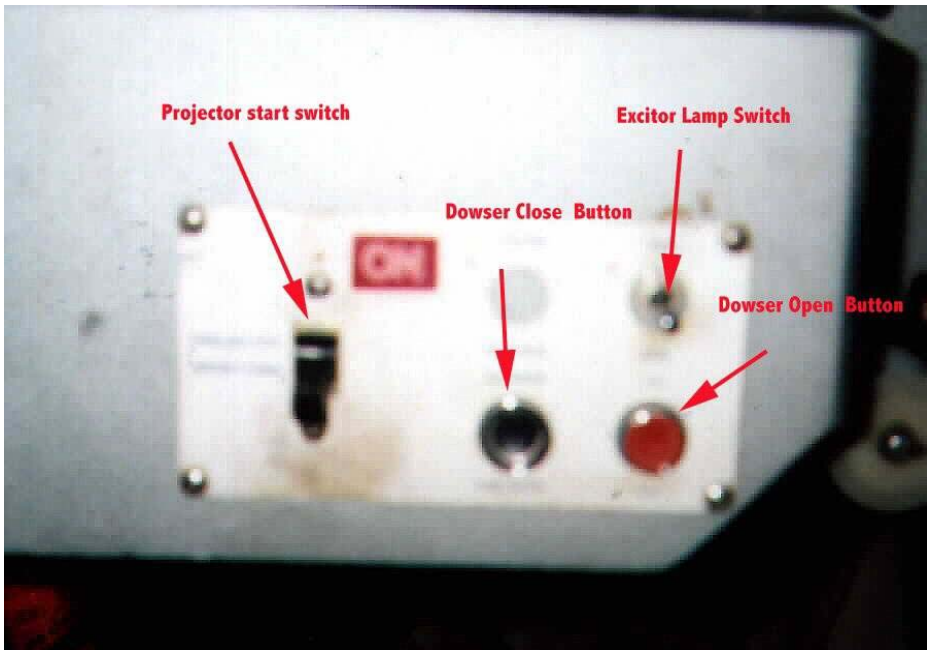
WARNING: *It is very easy to damage this & should not be adjusted unless you know what you are doing.*

2.2.9 DASHPOT

On most projectors, the film is kept taunt around the sound drum by some kind of spring loaded roller arrangement. On other projectors usually the more expensive types, there is a hydraulic arrangement. These are referred to as dashpots. The Vic. 5 has a dashpot and consists of a floating piston inside a cylinder. The up thrust of the liquid inside the cylinder presses the piston against the film and keeps it taut around the sound drum. If the dashpot is unscrewed the fluid inside can be replaced.



2.2.10 THE DOWSER



This is a metal plate, which is placed between the lamp and the gate so that the lamp can be switched on without the film needing to move. Should the film stop moving the lamp would burn through the film in about one second. If the film stops the dowser will shut down and the motor will stop. There are both manual and automatic versions of the dowser on the projector and both needs to be opened before the film will appear on the screen. When starting the film, the film must be moving before the dowser is lifted, otherwise a safety device (a trip switch on the back of the projector) is activated and the projector stops. Fitted to the projector is an automatic shut off device known as a MASCARINI SHUT OFF. To open and close the automatic dowser the switch is beside the switch for starting and stopping the film. (See the picture above).

2.2.11 RACKING/FRAMING

When a bar appears on the screen and splits the picture (as shown in the diagram), the racking or framing is incorrect. By turning the framing knob (found at the front of the projector) it is possible to move the racking up or down the screen as necessary. The framing knob can be compared to the vertical hold on a TV set.

> ***NOTE:*** *The knob must be set in the centre of its movement before the film is threaded and enough slack in the lacing of the film so the racking can be moved without snapping the film.*

2.2.12 THE SOUND SYSTEM

The sound system is an old antique compared to the ones used in modern cinemas. The system is Dolby 'A' with surround sound support and as it has developed over time so is quite complicated to understand. The first thing to remember is parts of the sound system need to be turned on and connected correctly. If this does not happen then there are likely to be problems with the quality of sound (this process is explained in Section 4). The bottom units on the sound system are the amplifiers, the lower one is for the surround and centre speakers and the upper is for the front speakers. Above this is a control for the internal (monitor) sound, which is set up to be the same as the external pod speakers. Above this is the graphic equalizer, which once it is setup correctly does not really ever need to be adjusted. Above this is the control for the surround sound. This unit has the volume control for the surround sound, controls for the centre and rear speakers and the test button. The test button allows the system to be tested and various speakers to be controlled to make sure that the system is working correctly. The second unit from the top is the main volume control with the selector between non-sync (external sound sources) and sync (projector sources). The very top unit is the Dolby 'A' system, which does not have any settings or control, but has a display for the sound strength which is coming into the system from the projectors. On the top of the sound system rack are the external sound sources these include a cassette player, a graphic equalizer for the centre speaker, CD player and Stereo Audio Selector. The way to set these other units up is explained in greater deal in Section 4.2.

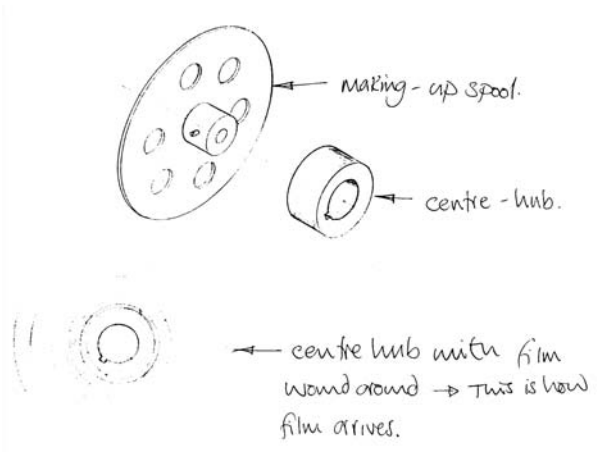
2.2.13 THE FILM

As Flix is fortunate enough to have a tower it means that it is possible to show most of the films as one reel instead of using several reels and swapping them over. This means that when the film arrives (usually on about five - eight small reels of approximately 20 minutes each) they need to be joined together by splicing and placed one very large spool. For more details about this section please refer to the **Splicing Manual.**

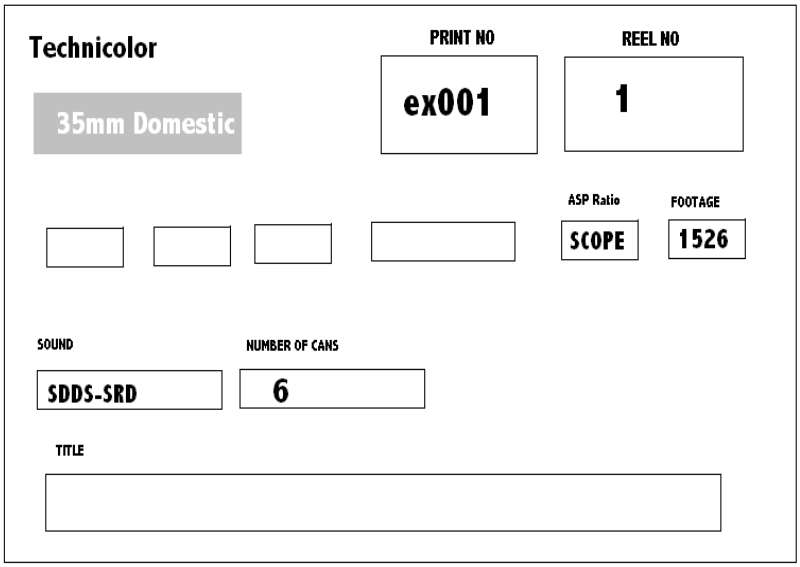
When the film has been shown and wound on to another large spool, it must be de-spliced and replaced on the small spools. Due to the film arriving on several reels it may get mixed up and lead to the beginning of reel one being spliced to reel five, for example (this has happened). In order to avoid this; at the beginning and end of each small reel is what is known as a leader. At the beginning of film it is a called a '*header*' and the end it is called a '*footer*'. On this should be written which reel it is and whether it is the beginning or end: -

Reel 2 Head	Reel 2 Tail

These leaders must be removed from the smaller reels and the last frame of reel two, for example, will then be spliced to reel three first frame, and so on. White stickers are placed on the film near the splice to allow it to be found when de-splicing The leaders are placed back into the cans in the correct sequence, so that they can be located easily when the film is being de-spliced, ready for sending back. Because of the weight of complete 35mm small spools, the film is sent in cans on small hubs. The hub is placed on the making-up spool and the part – film's wound off onto a large spool.



On the film cans there is a lot of useful information provided, although not all cans will have it easily available. The total number of cans for the film should be listed and the length of footage per can. This is useful for trying to work out how long the film is. The aspect ratio is normally put on the can, which lets you know whether a lens change is required or not.



2.2.14 SPLIT SPOOL

When winding the film off the large spool on to hubs so that it can be fitted in to the cans in its separate parts a split spool must be used. A spilt spool is similar to the making up spool but it has two sides and a centre hub. The two sides and centre hub dismantle to allow removal of the film, which is placed in the can with its original centre hub.

The Inertia Free Spool is used for taking-up the film after it has been through the projector. This spool has both of its large faces running free of the centre hub around which the film is wound. When the spool has a large amount of film wound around its hub it has a great deal of momentum, due to its weight. The added momentum of two large flanges being driven round would increase the chances of the take-up spool snatching the film from the last sprocket. If the large flanges are not driven, but can rotate freely, they add little or nothing to the momentum of the take-up spool.

2.3 The Tower

The tower is fairly simple to operate and maintain. The only maintenance, which it requires, is the oiling of the four motors. More guidance on using the tower can be found in the Spicing Manual.

SECTION 3 - MAINTENANCE

General maintenance on all equipment should be carried out on a regular basis (at least every month). If you maintain the equipment well enough it will keep repair costs down, although it is still a good idea to call in the engineer each year, which costs around £200 ago (Contact details can be found in Section 7). Below is a quick checklist of maintenance: -

3.1 Before Each Film

- ✓ Oil Level
- ✓ No lose screws/nuts lose, particularly around the intermittent sprocket area
- ✓ All equipment switched on and works
- ✓ The transformer is not above 50 watts

3.2 At Least Once a Month

- ✓ The floor is mopped down. This makes sure that the pod is kept dust free and looks after the film
- ✓ Make sure all the dust is removed from the gate, rollers and guides.
- ✓ Oil the motors on the tower

3.3 At Least Once a Term

- ✓ Change the oil
- ✓ Grease each of the sprockets, rollers, guides
- ✓ Full sound check
- ✓ Open the transformer up, clean it all up with the vacuum cleaner and make sure that the nuts are tight. BE CAREFUL as this can be dangerous.

Below are some pictures of all the rollers and other components when they have been removed from the projector. Unfortunately the picture is not very clear, but all the parts can be made out.

WARNING: *Before carrying out any maintenance make sure that all power is switched off at the fuse box and that others know what you are doing.*

SECTION 4 - RUNNING THE FILM

Below is a quick checklist of the things, which need to be, done before, during and after showing a film. (Section 4.2, 4.3 and 4.4 go into greater detail).

4.1 Checklist

4.1.1 Before the Film

- ✓ Turn on:
  - ♦ All power at the fuse box
  - ♦ Sound system - including back amps
  - ♦ Little light & fan
  - ♦ Slide projector - (check the slide)
- ✓ Play LCR from 19:00-19:30
- ✓ Switch to dimmer lights
- ✓ Does the film need rewinding?
- ✓ Add the adverts, trailers and any extra counter to film.
- ✓ Which lens or lenses are required?
- ✓ Check oil
- ✓ Check the gate position
  (Out for standard/In for scope)
- ✓ Lace and rack projector
- ✓ Do sound and picture test Show 16mm film as audience arrives
- ✓ Turn off outside light
- ✓ Show the Film

4.1.2 During the Film

During the film there is very little which has to be done. It is necessary to always have one projectionist in the auditorium for safety and incase the film jumps out of rack or something else goes wrong. Below are some of the things which need to be kept an eye on whilst the film is running

- ✓ The Focusing
- ✓ The racking is correct
- ✓ The sound loop is correct
- ✓ The general sound quality
- ✓ The Equipment is not over heating
- ✓ The film is not breaking or getting damaged

If any of these seem wrong then it is necessary to investigate them and correct the problem as necessary.

4.1.3 After the Film

- ✓ Play Music/Credits as audience leaves
- ✓ Bring up the Lights
- ✓ Stop the Film
- ✓ Switch back from dimmers
- ✓ Tidy-up and put away the sound system, film etc
- ✓ Remove the adverts and trailers from film
- ✓ Cover up all the projectors (including the slide projector)
- ✓ Turn off power including the back amps

4.1.4 At All Times:

- ✓ Be Professional
- ✓ Work as a Team

4.2 Before a Film

Most of the work for a projectionist happens before a film. A lot of the maintenance of the equipment can be done as well as setting up the projector and film.

One of the first things to do is open up the projectionists' cupboard (the big grey one) and sound system cabinet and turning on the electricity at the fuse box (situated beside the Vic 5). The parts of the sound system, which live in the cupboard, need to be taken, out and connected up. Most of the leads are labelled as to where they go. There are four units which live in the cupboard (tape player, CD player, centre speaker graphic equalizer and Stereo Audio Selector (S.A.S)). The S.A.S allows you to select one of the three music inputs with a touch of a button; there is also an input cable for another item such as a minidisc player. All the items need to be connected before the sound system will work correctly. Beside the fire escape door there is an amp control unit. The bottom two cables need to be moved from the left-hand bottom sockets to the right hand bottom sockets. This allows the sound, which comes out of the Flix sound system to bypass the ENTS sound system and go to the back amps, which are situated, on either side of the screen. The amps are turned on at the back of the stage. Some music can then be put on to amuse both the committee and the audience when they start to enter the auditorium. The slide projector can also be turned on with the Flix logo or another slide on screen.

The screen needs to be lowered at some point before the doors open. The screen control is situated just above the sound system. There are three buttons on this (up, stop, down). The screen needs to be watched, preferably by two people, one on each site of the stage, holding the curtains back, whenever it is moved either up or down.

The projector should be checked that it is working properly. Turn the Vic 5 on and let it run for a few minutes without a film. This serves two purposes, firstly all the sprockets, rollers, guides can be checked that they are working properly. Secondly this warms up the oil so that it can be adjusted. The oil should be looked at each night. Take the back cover off of the projector (around the side where the slide projector is) and look at the oil level through the gage. If it is too high then a little needs to be removed and if the oil level is too low then it needs a little more. Every month or so it needs to be changed. To change the oil drop the end of the tube connected to the projector in the waste container (found in the grey cupboard) and pours all the oil into it. When this is finished use the squisy oil can to refill it. There is plenty of oil kept in the cupboard for this purpose. This process also applies to adjusting the oil in general.

The projector should now be ready to use, except for the lens. Both the lenses live in the top shelf of the white cupboard and are worth around £600 each, so it is necessary to take care when handling them. The wide or normal lens needs to be placed into the projector as this likely to be the one, which is needed first. If there is a lens change then the other one needs to be placed on the unit above the fuse box. The gate will need to be checked that it is in the correct position for the lens, which is going to be used.

The next thing to think about is making sure that the film is ready to run. The end of the film needs to be checked to see whether it needs to be rewound or not. If it has been then it will be necessary to check whether it is a normal (flat, wide) or scope film. Looking at the cans as well as holding a bit of the film up to the light can check this. When looking at the film if the frames look stretched, or the certificate looks oval and not quite as it would appear on the screen then this is a scope film. In this case there will be a lens change. There are two options for dealing with this. The first is to show the adverts and trailers. When they have finished, shut the projector down; change the lens and then start it up again. This takes a while to do and breaks the flow of the presentation. The alternative and preferred method is to place a bit of film in between the adverts and the leader of the film. This gives you between ten and twenty seconds to change the lens. The procedure for this method is to shut the dowser and fade down the music when the "No Smoking" film comes on screen. Change the selector over to a source of music so that there is something happening in the auditorium. While this is happening leave the projector running. Undo the normal lens and replace it with the scope lens. Then make all the other alterations required before changing the sound selector back to the projector and opening the dowser, making sure that it is opened on the certificate. With practice and experience the lens change can be achieved happily in this time.

Lace the film up in plenty of time so that the show can start as close to time as possible. It is always easier to start the film when there is no pressure.

When the house manager gives the okay it is worth taking a second to check everything is ready and concentrate. The procedure for starting a film is as follows: -

1. Change over to pod red (turn off pod lights) *

2. Turn the lamp on by turning on the transformer and then pressing the red button at the back of the projector. The lamp should then strike. *
3. Put the tension on the film by setting the dials on the tower to 80 over 140. *
4. Place left hand just above the bottom film reel on the tower side of the projector, with the right by the projector switch.
5. Gently push the film down as you start the projector
6. Slowly bring the film up until there is no extra tension
7. Turn the excitor lamp on
8. Open the dowser when the little bit of brown film goes past the gate. Check the racking and focus the film on screen.
9. Fade down the background music and fade it back up having changed the selector over to the projector setting. Also fade up the surround volume control at the same time.
10. Turn the slide projector off. If possible do this before putting the picture on the screen or have a 2nd person to do it.
11. Turn the dimmer lights off
12. Check the sound

- This list is ideal if there are two or more people in the pod at the time the film starts as this allows one person to concentrate on the projector while the other can deal with the sound and lights.
- * = It is also possible to do these items earlier on during the setup period.

4.3 During a Film

There is very little that needs to be done when the film is running. An eye needs to be kept on the focusing and quality of sound. Sometimes the sound loop may get tight or lose which will affect the sound and may even cause the film to snap. The other thing, which may happen, is that the film goes out of racking at a splice. A projectionist needs to be on the balcony at all times to ensure prompt action of any of these problems and in the case of a fire alarm going off. (See section 5)

4.4 After a Film

When the film credits start to roll the audience tends to start to move and it is time to start work again. It is therefore an advantage to bring the dimmer lights back up as quickly, but as gently, as possible. When the audience has left the auditorium change back from the dimmers to the mercury's, so that the rest of the committee can see to start putting the bleachers away. It is advisable to give a warning, as there will be darkness for a few moments. "*IT IS NOT ADISEABLE TO HAVE BOTH SORTS OF LIGHTS ON AT THE SAME TIME*", as this will cause the bulbs to blow.

When the above has been done it is possible to shut down the projector. First thing to do is close the dowser, using the black button on the projector and turn the excitor lamp off. If the film is near the end of the reel then it is just as easy to let it run through on its own as this will reduce the risk of any damage occurring to the film. As the film end (footer) runs through the projector, the projector just needs turning off, followed then by the tower.

To stop a film from running before it reaches the end the following procedure should be followed:

1. Stand at the side of the projector, facing it, with the sound system on your right and the cupboards behind you.

2. Place your left land near to, but not touching the BOTTOM reel with your right near to the projector switch.

3. With your left-hand catch the reel and wait a couple of seconds before stopping the projector then stop the projector.

4. Quickly catch the top reel and turn the tower off. Because the bottom reel is moving slowly it is possible to momentarily let go of it to do this.

> ♦ *IT IS IMPORTANT THAT YOU ARE WEARING GLOVES TO DO THIS.*

The lamp needs to be turned off and allowed to cool a little. Turning the transformer off and then turning it back on immediately allows this to happen. While the lamp and projector are cooling, the other items can be turned off and put away (the sound system, fan and lenses)

Remember to move the cables back over and to turn the amps off backstage. The screen needs to be rolled back up, curtains closed and all the electric's turned off at the fuse box.

Finally all the equipment needs to be covered over again and a final check made that nothing has been left out.

Section 5 - Health and Safety Considerations

There are a number of important health and safety things to think about when using the projector and related equipment. As many of the issues as possible have been listed here:

- Remember to wear the leather gloves provided whenever using the tower.
- Always make sure that the nuts on the tower are done up properly.
- If holes appear in the gloves then replace them immediately.
- Do not put hands or arms towards the tower when it is moving.
- Becareful of long hair when the projector or the tower are on.
- Be aware of electrical and static shocks when operating or touching any of the equipment or film.
- While working in the Pod make sure the fire escape hatch and door is open. During a film it is necessary to shut them because the projector is too noisy.
- Be aware of sharp corners.
- When striking the lamp shout "Clear" and make sure everyone is the tower side of the projector. If the bulb was to explode it may cause the door to blow off. The Lamphouse of the projector should be able to with stand such an explosion, but by keeping everyone out of the way of it, provides a backup.
- Know what the evacuation procedure is (when the alarms sound, shut down the film if possible then, turn on lights and leave)
- See also the *Flix Code of Practice* and the *Flix Health and Safety Sheet.*
- If handling the film then it is a good idea to wear the white gloves, which are provided to protect the film from getting greasy.
- When using the tower it is a good idea to wear the goggles provided to protect your eyes from any flying film.
- Do not drink alcohol whilst using any of the equipment
- No drinking or eating around the projector, particularly while it is running

SECTION 6 - PROBLEM SOLVING

There is no easy way to solve the many different problems, which will arise when using any Flix equipment. If something goes wrong, here are some pointers as to what to do:

- Don't panic - let someone else know there is a problem. This is especially important if it is going to delay or stop a film.
- Has the problem happened before?
    - If yes, how was it solved then?
- Do any of the other projectionists have any ideas?
- Is it a problem with the projector, the film or sound system?
- How long will it take to repair?
- Is there anyone else on the committee who may be able to help?
- Have a look in the Projectionists Logbook this may give you some pointers.
- Can you repair it yourself or does it require the engineer to be called out?

SECTION 7 - CONTACTS, LINKS & Other Information

7.1 Contacts

Below are a list of suppliers who Flix have used in the past. There are also a list of contacts of people who might be able to help and other sources of helpful information.

Omnex Pro Film Limited
Unit 6 Avondale Industrial Estate
Avondale Road
Edgeley
Stockport
SK3 0UD
Tel: 0161 477 7633
Fax: 0161 474 1735
Email alan@omnexhq.freeserve.co.uk

We get the projector specific parts, such as intermittent sprockets from this company. When the projector has a proper maintenance check then the engineer is contracted to Omnex.

Simon (the engineer)
Tel: 0850 983841

Although he works for Omnex he sorts out his own bookings.

Jack Roe Ltd.
Poplar House
Peterstaw
Ross-on-Wye
Herefordshire
HR9 6JR
Tel: 01989 567474
Fax: 01989 762206
Email: sales@jack-roe.demom.co.uk
URL: http://www.jack-roe.demon.co.uk

We buy the other sort of projector equipment here, such as reels, splicing tape etc. They produce a catalogue each year, which is worth getting hold of.

Movie-Time
St Georges Market
Fore Street
Exeter
EX4 3HU
01392 495877

Chris White
9 Elmbridge Drive
Ruislip
HA4 7XD
01895 634610 (after 11:30am)

Both of these places have 16mm film for sale as well as other 16mm film equipment.

BKSTS (The Moving Image Society)
63-71 Victoria House,
Vernon Place
London
WC1 4DA
Tel: 0171 242 8400
Fax: 0171 405 3560
URL: www.bksts.com

Although we don't have any direct contact with BKSTS they do provide information for projectionists and training. There is a student rate available for £19.50.

Curzon Cinema (Loughborough) Limited
Cattle Market
Loughborough
LE11 3DL
Tel: 01509 212261
Fax: 01509 241224

Whenever thing goes completely wrong, the projectionists at the Curzon MAY be able to help. The name of the manger is Barry Phillips and is very helpful to Flix.

Peter Knight (Home Address)
Merrifield Cottage
Wheal Rose
Scorrier
Redruth
Cornwall
TR16 5DA
Mobile: 07974 930772
Email: pjk700@pmail.net
Internet Site: http://www.madcornishprojectionist.co.uk

Worked as projectionist between 1997-2000

I know the system reasonable well. If you get stuck then feel free to contact me.

7.2 Links

Here are some interesting/Useful Web sites: -

Bell Theatre Services Ltd. -
http://www.bell-theatre.com/ -

Soundbyte Products -
http://www.soundbytes.dk/products.htm -
www.SoundBytes.dk -

Attila Nemes - secrets of projecting, pictures -
http://www.klte.hu/~nemesa/movipict.html -

FILM & PROJECTION SERVICES -
http://cinema-tv.usc.edu/Norris/default.html -

Special Report Entertainment and Technology-
http://interactive.wsj.com/public/current/articles

The Projectionist
http://www.geocities.com/Hollywood/Set/9679/

These Universities have film societies:

Edinburgh University Film Society
http://www.eusa.ed.ac.uk/societies/filmsoc/

Imperial College
http://www.su.ic.ac.uk/cinema/

University of Manchester Union
http://www.umu.man.ac.uk/pages/index.html

UCLU Film Society
http://www.ucl.ac.uk/~uczxflm/

University of Essex Film Society
http://privatewww.essex.ac.uk/~filmsoc/

York Student Cinema
http://www-users.york.ac.uk/~socs101/

Warwick Student Cinema
http://www.warwick.ac.uk/~suaag/

Leicester University Student Union
http://www.le.ac.uk/su/

Lancaster University Film Society
http://www.lancs.ac.uk/socs/filmsoc/filmsoc.htm

Aberdeen University Cinema Club
http://www.abdn.ac.uk/~src020/

Bath University Film Society
http://www.bath.ac.uk/~su0bufs/

Brunel Film Society
http://http2.brunel.ac.uk:8080/~xxsubfs/

CF University
http://www.cf.ac.uk/uwcc/suon/film-soc/

Corpus Christi College Pictures
http://www.corpus.cam.ac.uk/~pictures/

Manchester University Film Society -
http://www.mufs.man.ac.uk/

Surrey Filmsoc
http://www.ee.surrey.ac.uk/Societies/filmsoc/

Soton - http://www.soton.ac.uk/~uf/main/

Sheffield - http://www.shef.ac.uk/~fu/

Keele Film Society -
http://www.keele.ac.uk/socs/ks5/ks5home.htm

University of East Anglia
http://www.stu.uea.ac.uk/~cultfilm/

St. John's Film Society
http://www.joh.cam.ac.uk/Societies/Filmsoc/

7.3 Other Information

There is a logbook, which is kept in the projectionists' cupboard. It is a good idea to keep this up to date. The log contains both serious information relating to problems with the projector or film and some of the lighter moments which happen in the pod. By keeping the log it allows both current projectionists to see what has been happening while they have been away and future projectionists benefit from past projectionists' experience.

If at any point the film has to be stopped during a presentation it is a good idea to wind a couple of minutes of the film back so that the audience do not miss any of it.

When training new projectionists it is a good idea to start as early in the year as possible, so that they can gain as much information and experience from the previous as possible projectionists. Also to begin with they should do everything in your presence.

Qualities of good projectionists are people who are both enthusiastic about film, but also the equipment and who are willing to look after it and care about what they are doing.

It is also a good idea to have one or two "Reserve Projectionists" trained, incase there are no committee projectionists available. If the previous year's projectionists were available then they would be ideal, as they will already know what they are doing.

SECTION 8 - A Quick Guide to the 16mm Fumeo Projector

This section deals briefly with the use of the 16mm Fumeo Projector (Fumeo), which Flix also owns. One of the main reasons this will be such a brief section is because it is used so little and as a result very little is known about running and operating it.

The Fumeo has a switch in the fuse box, which needs to be switched on. The lacing diagram for the Fumeo is on the side of it so it is simply a matter of following that in order to lace the film. Turn the Fumeo on wait a moment and then turn on the lamp switch, which is above the power switch. The bulb should strike. If it doesn't turn the power off again and try again. This seems to work most times. At the top of the side of the projector there is a dial with three settings. They are marked "Stop", "Motor" and "Dowser". Simply more the dial to motor and the projector will start, by moving the dial to dowser you get the picture on the screen. Focusing and racking can be controlled from the front of the projector, just as on the Vic. 5.

In order to get sound the exciter switch needs to be switched on, on the Fumeo. On the sound system the two silver switches need to be set to non-sync input (i.e. CD player, tape etc) and the CD player needs to be switched off. If the CD player is on then no sound will be heard at all. Important note is that because the sound put from the Fumeo is only stereo the main volume needs to be kept down very low otherwise the sound will be too loud

Maintenance wise there is very little to do. The most important thing is to make sure that the Fumeo is kept oiled. There are specific places, which need to be oiled, and these are marked with red dots. The Fumeo is not fitted with an automatic dowser device, but there is a fair chance that the dowser on the Fumeo could be operated manually before the film stops.

SECTION 9 - FLIX JOB DESCRIPTION

The job description for the Head Projectionist and Projectionist can be found in the Flix Job Description or on the Flix web site.

SECTION 10 – BIBLIOGRAPHY

Key

= Item has been viewed.

= The item is illustration.

BKSTS. *Projectionists' Manual.* London: BKSTS, 1997. (http://www.bksts.com)

This is the manual to read as it gives all the information on projectionist techniques and is meant for the professional. It is a very popular publication and is up to date.

Film Tech Web Site - (URL http://www.film-tech.com), 01/03/00

This is a very useful website and has a number of links to other web sites which relate to projectors and films.

The Mad Cornish Projectionists' Information Web Site (URL http://www.madcornishprojectionist.co.uk), 01/03/00

This site has an online version of this manual and has a number of links to other useful or interesting web sites relating to protectionism.

Rehrauer, George. *The Macmillan film bibliography.* New York: Macmillan, 1982. 2 vols.

Volume 2 contains references to material written about the film industry up to 1982, and a cross-referenced index between subject and author. One section of volume 2 (p. 360) deals with references to books and articles in special effects.

All-Movie Guide (AMG).(URL http://www.allmovie.com/), 24/04/99

Features the All-Movie Guide (AMG), an online film and video database from Matrix Software, Inc., in Michigan. Provides film ratings and reviews, as well as educational and associative information on the cinema. Allows searches by keywords, film titles, and actors' first or last names. Offers browsing by movie genres, time period, and country. Includes a glossary of cinematic terms, an online feedback form, and interviews. Notes that each movie entry includes the rating, director, a plot synopsis, a list of the cast, production credits, related movies, movies on the same theme, and movies with the same personnel.

TVLINK: Film and Television Website Archive. (URL http://www.timelapse.com/tvlink.html), 24/04/99

SUMMARY: Provides a collection of Web sites related to films and television shows. Offers film and television schedules, reviews, professional organisations, and newsgroups. Includes motion picture studio, live video image, video distributor, broadcast television, cable channel, and international film and television sites. Contains reference sites for filmmakers and screenwriters, as well as production supply, equipment, and facility sites. Highlights film festivals and awards.

Spottiswoode, Raymond (General Editor) [et al.]. *The Focal encyclopaedia of film and television techniques.* London: Focal Press, 1969.

Although this encyclopaedia was not published recently, and is now out of print, most of the contents is still very relevant today. The encyclopaedia is very comprehensive and entries, which are alphabetically arranged by topic, are extensive; the entry on special effects is twenty pages long (pp. 723 - 743). The language it uses is quite technical.

Handzo, Stephen G. [et al] *In: The New Encyclopaedia Britannica*, The University of Chicago, 1988, Vol 24, pp 379 - 445.

The special effects reference within this article goes from page 436 to page 438 and is very comprehensive. The whole article is interesting and easy to understand. The article is authoritative due to the qualification the authors have in this field. The whole article is also available on the on-line version of the Encyclopaedia Britannica at http://search.eb.com/bol/topic?eu=119928&sctn=1, although you will need to obtain a temporary subscription to read it.

Section 11 - Solutions to Common Problems

This section is lists some of the common problems, which are likely to appear and ways of overcoming them. If a problem is not listed here look in the "*Projectionists' Log Book*" as there may be an answer in there.

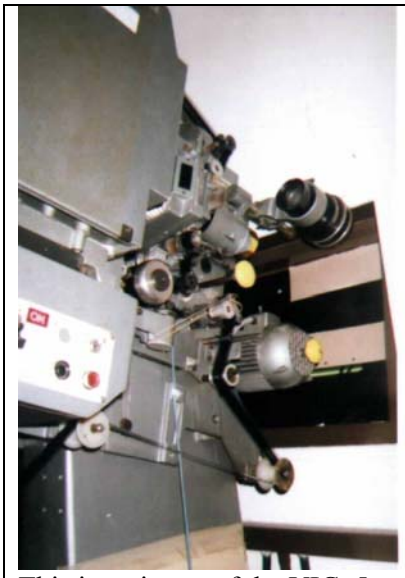
Problem	Cause	Solution
Bubbling Sound	Sound Loop to tight	Loosen the film by either stopping the film or using a screwdriver to slacked the film.
Film going in and out of focus on screen	The film slipping in front of the gate.	There are two screws on the front of the gate door which if tightened should hold the film tighter against the gate.
The Fumeo does not work.	The belt can't move	Take the cover off and make sure it is put back without catching the drive belt.

Section 12 - Notes

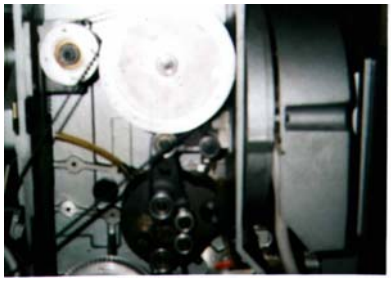
This space has been included so that extra notes can be added to the manual.

SECTION 13 - APPENDIX 01

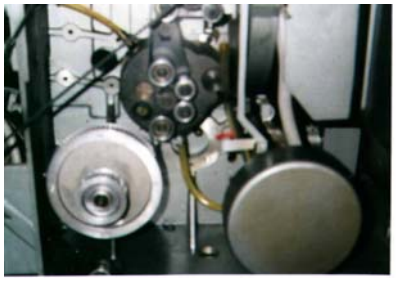
Below are some extra pictures relating to the projector and the sound system, but which do not fit directly into the manual. They have been provided here as extra help.



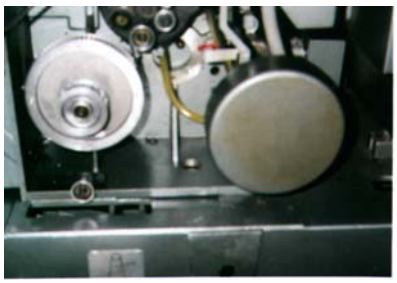
This is a picture of the VIC. 5 from the sound system side of the projector. In the picture you can see the Lamphouse, the control panel, the sound head, the anomorphic lens and some of the path which the film takes



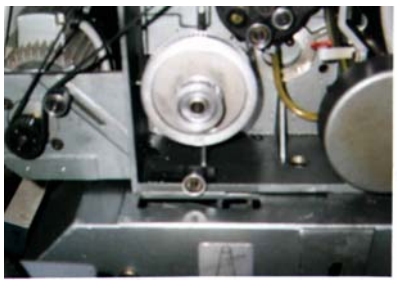
This is the first of four pictures which show the motor side of the projector; this is the other side to the previous picture.



In this picture you can see the oil gauge; this is in the black metal area in the centre of the picture.



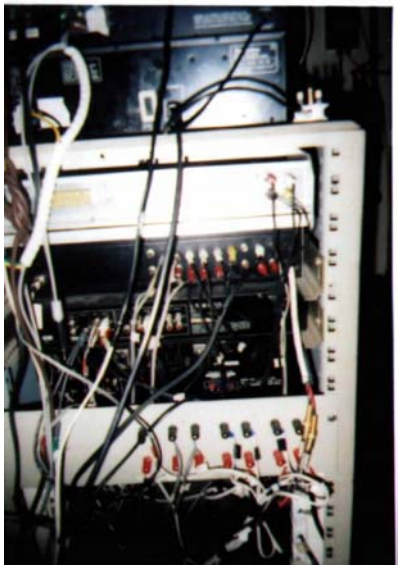
Motor picture 03



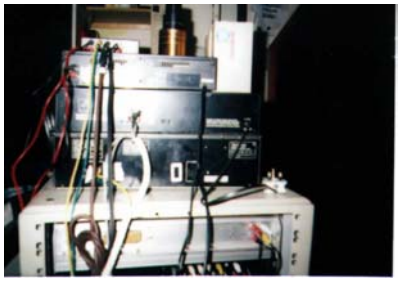
Motor picture 04

This is a rather blurred picture of the sound head and excitor lamp.(left of the picture)

This is a closer look of the top of the sound system showing the units which need to be put away each time.



This is the back of the sound system and is just a mess of cables and plugs. If you do not understand it then you are not the only one.



This picture tries to show you how the leads in the top of the sound system plugs into each other, but unfortunately it is not very clear.

This is a closer picture of the Vic. 5 when it is laced up.

What a lovely bunch we are. These were the projectionist from 1997 - 1998. Two of these are left for the 1999-2000 year (Chris - left and myself - next to Chris)

SECTION 14 - SPLICING MANUAL

Picture(s) of everything used when splicing:

Splicing Machine

Split Spool

Large Spool

Goggles

Gloves

Tower

Film

White Cupboard (with doors open and everything stored away properly)

Electrics box

Pictures of people splicing/various stages of the process

Diagram of the tower controls (needed 2/3 times to illustrate different things)

Contents:

Health and Safety

Power

Tower

Reels

Splicing

Film

Labelling

Finishing

Health and Safety

- No-one should splice a film until they have been fully trained and are confidant of using the equipment.
- A new splicers first film should be overseen by an experienced member of committee, not necessarily the person who trained them.
- Whenever a film is being spliced there should be at least 2 people in the pod, including the splicer.
- There should be no more than four people in the pod when a film is being spliced.
- NB: George does not count as a second person!!!!
- Long/medium length hair should be fastened back in such a way that it cannot fall into a reel.
- Baggy clothing must not be worn when splicing.
- Items of clothing must not be tied around the waist when splicing.
- The splicer should wear strong shoes and not sandals.
- Hats must not be worn when splicing as they can fall off a persons head and interfere with the reels.
- When the tower is in motion the splicer must wear a pair of goggles, which are provided.
- When starting and stopping the reels the splicer must wear a pair of the gloves provided and not use their own pair, bare hands, arms, legs, feet or any other part of their body.
- Ensure all reels are securely in place and all nuts are screwed on tightly.
- Only turn on the power for the things to be used.
- If you have not been trained to use a piece of equipment then DON'T USE IT !!!!

Power

The fuse box is between the projector and the sound system.

Turn on the two red switches and the grey switch marked "Tower". PETER – This may not be right but it is what I've always told everyone to do, though some people used to turn on the switch next to the two red ones and Simon didn't have the two red ones on !!!!