

Start here

But before you do . . .

- (a) All files in this manual are in *pdf* format, which can be accessed by using Adobe Reader, a free download available from the Adobe web site.
- (b) This manual is a work in progress. If you have any information you think would be useful or interesting to other cinephiles, send it in, either in its original format or as a copy, and it will be included in later editions (contact details below). Original material will be returned.

Welcome

Welcome to the fascinating and endlessly challenging world of 16mm. A 16mm system comprising projector, speaker and screen can be set up almost anywhere in just a few minutes. The whole system is no more difficult to transport than a couple of suitcases, yet a 16mm screening can be as rewarding as a night out at a major cinema, with all its technical advantages.

Initially aimed at the non-professional market, 16mm film first appeared in 1923, at the same time as the first Bell and Howell 16mm projector. Because 16mm was intended for amateur and home use, it used cellulose triacetate ('acetate') or 'safety film' base from its introduction, and was commonly referred to by the professional industry as 'sub-standard'. Some 30 years and many deaths later, the film industry adopted 'safety film' for 35mm and larger formats. During the inter-war years 16mm film stock was readily available and a range of manufacturers provided increasingly sophisticated cameras and projectors. Users could make their own films, and rent and buy commercial prints. Early in World War 2 it was realised that 16mm was perfectly suited to military training and troop entertainment and before the war had ended the format was firmly established.

For around 30 years following the end of the war, 16mm was extremely important. It provided much of the film entertainment seen by people who lived in rural and remote areas. It made the latest films available to people in the bush, on islands and in isolated communities across the world. In Australia, local clubs had regular film nights, and church halls everywhere were transformed into cinemas on Saturday nights. For about 20 years, all recorded programs shown on television came from 16mm prints. Sixteen millimetre film was also a vital teaching and training aid. Every school had at least one projector. All government departments and large companies screened 16mm films in special theatrettes as part of their training programs. Governments and commercial distributors maintained huge libraries of 16mm films that traveled all over the country. If you wanted to buy a new 16mm projector there was plenty of choice. Competition between manufacturers was keen, and back-up service was always obtainable. In the cities technicians were only a phone call away, and service centres repaired projectors sent in from rural areas. It was big business.

But that was before video tape and the Video Cassette Recorder (VCR) became popular in the mid 1970s. The VCR made everything easier, it simplified the presentation of instructional material and turned the entertainment industry on its head by transforming living rooms into home theatres. By the early 1980s trainers had stopped using film. Schools and clubs no longer needed their projectors. Countless thousands were dumped, because there was no longer any use for them.

That situation has continued until the present day, when screenings in 16mm format are now seen only at film societies and special screenings. The Australian film society movement has kept 16mm alive, but more and more societies are being attracted by digital technology, with its operational simplicity, high quality product, reliability and low maintenance needs.

However, if, as many people maintain, film was the most important contributor to the popular culture of the twentieth century, it must be regarded as much more than a mere entertainment medium. Film is not just a means of preserving a link to our cultural heritage, but of making it accessible to present and future generations in its original form. This philosophy, which can be summed up as providing access

to the 'cinema experience' is reflected in the continuing existence of many Australian film societies, and in the Australian National Film and Sound Archive, which maintains a large collection of 16mm films.

Technology is now developing so quickly that the VCR is already obsolete, and DVD/BluRay will be out of date within a few years. It won't be long before commercial cinema will be a completely digital (or whatever) experience, with image and sound arriving via satellite or Cloud direct from the distributor in San Francisco, Hong Kong or New Delhi. Nevertheless, many thousands of films will survive for a long time to come. So while 16mm technology may no longer be state of the art, it still has a following among film lovers, who enjoy not just the film, but the whole cinema experience, the good moments and the bad, the uncertainty, the 'hands-on' approach and the constant feeling that disaster can strike at any moment, especially with an old, buckled and much-spliced print as it travels through an ancient projector. It is an atmosphere that the sterile, some would say soulless, perfection of digital projection cannot hope to match.

Under these conditions, audiences are very forgiving. But that is no reason for projectionists to take their responsibilities lightly. The projectionist is the final link in the production chain. It is up to the projectionist to present each film so that the work of the writer, director, cast and everyone else involved is seen and heard at its best. The fact that the entire artistic achievement is contained on a strip of film, a fragile piece of plastic that can be destroyed in seconds if a projectionist relaxes his concentration, adds another dimension to the challenge.

In the end, perhaps the best barometer of a projectionist's performance is the audience. The projectionist should aim to make every screening so enjoyable everyone in the audience will want to come back again.

About this manual

This manual is a compilation of information that every projectionist needs to get started and keep going. It is divided into five parts. You are reading *Part 1, The Introduction*.

Part 2, The Basics, is where you get down to business. It is designed mainly for people who are not used to working with film or projectors, but also as a reference for more experienced operators. The content is arranged so that as you proceed you will cover the material in more or less the order in which things happen in practice. The technical information in this part is basic and generic, so if you run into a problem you may need to refer to your particular projector's handbook (*Part 4*) or a technical manual (*Part 5*).

Part 3, Miscellaneous Information, contains snippets that may be useful or just interesting. This part can be added to when you run across things you think could supplement the general sum of knowledge.

Part 4, User Handbooks, contains user handbooks for particular projectors, either in their original form or as compilations of general information. They will help fill in the gaps left by *Part 2*. If you have a user handbook that is not included in *Part 4*, it could be helpful to other projectionists, so please consider sending it or a copy for inclusion (contact details below).

Part 5, Technical Manuals, contains copies of original technical and workshop manuals, and is aimed at projectionists who need technical information to maintain their machines. If this section does not contain a manual you need, refer to the Internet sites: www.film-tech.com and www.film-centre.com, where you may find the information you are seeking. Alternatively, if you have a technical manual that is not included, please forward it for inclusion (contact details below).

Using and improving this manual

Before using any of the information contained in this manual a good first step would be to copy all of it

to your C drive, and then make a CD ROM copy. As you require information, print the pages you want, and file them in a folder. In time, you will work out your own ways of doing things and solving problems. Make notes as you go and if you think they could be useful to other projectionists, forward them for inclusion in future editions of this manual. Illustrations would be especially welcome. Send all information to: 16mm Manual, PO Box 468, Mullumbimby, NSW 2482, or email: lbfs@hotkey.net.au.

You will need

To get the best out of this manual you will need to have direct access to the following:

- A 16mm projector with an external speaker and speaker lead
- A table, bench or projector stand
- Electrical power (240 volt AC)
- A screen or section of suitable wall
- A short 16mm film (400ft is a good size) on a reel for setting up
- A longer 16mm film comprising more than one reel, for screening practice
- Spare reels in different sizes
- Spare lamp and spare exciter lamp
- A rewind bench. It doesn't have to be a permanent bench. Winders mounted on a piece of 19 mm particle board will do the job.
- A 16mm tape splicer
- Splicing tape (not ordinary adhesive tape)
- A loupe (a jeweller's magnifying eyepiece) or a large magnifying glass
- Cleaning gear: toothbrush, cotton buds, small plastic scraper, soft cloth, isopropyl alcohol (obtainable from any pharmacy), an aerosol can of Inox, DW 40 or similar, puffer and soft brush for removing dust from lenses, lens cleaning cloth and fluid, or lens cleaning tissues.
- Cotton gloves (not essential, but highly desirable)

It is also a good idea to have an experienced projectionist with you when you start out. But you will be on your own most of the time, so you will need to quickly become familiar with basic maintenance and to cope with unexpected disasters. In the longer term, unless you have a technician on call, you will also have to carry out your own repairs. And hopefully, that's where this manual will really help.

Acknowledgements and copyright

Information contained in this compilation is drawn from a variety of sources. I am indebted to many individuals and publications, many of whom are acknowledged in the text and others that are not. I make no assertions concerning copyright in relation to the information contained in this compilation, as I believe it is in the public interest to have the information preserved and freely available to everyone who needs it. But I assert and reserve all rights concerning reproduction of material for any commercial purpose.

Michael Lines-Kelly
Mullumbimby,
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