

A Guide to Best Practices in Film Handling

Revised 2012-8-19. Copy and redistribute freely. Comments/suggestions/corrections: gobbo@filmonfilm.org

Introduction

The projectionist's mandate is to present a film perfectly and to maintain its condition perfectly. In the first instance this may be impossible if the film is received in imperfect condition, but with care no additional harm should be done. With good handling and modern methods, a print may be shown thousands of times and still look as it did when new.

Every film print should be treated as an archival object. The large print runs and short release windows of recent times make it is easy to regard prints as disposable items, but this is a destructive attitude. Whatever a print's ultimate fate, if it is mistreated during its run then its audience is denied the full experience of the work. Should it play later at another venue, all its presentations will be compromised as well. With small runs and repertory prints that play at many venues this is especially problematic. Increasingly, damaged and destroyed prints *may never be replaced*. Often they are in terrible shape due to poor handling. This is entirely preventable, but requires that projectionists be well-trained and conscientious across the board.

This is intended as a training supplement, not as a complete manual. A basic knowledge of booth operations and terminology is assumed, and of course there is no substitute for hands-on training. Most of the suggestions should be immediately implementable.

The focus is on film handling per se, not on tech work or installation. This guide should prove applicable to platter or changeover booths, irrespective of equipment installed, and to the handling of new or old prints, although in some respects it is geared to U.S. operations. Only 35mm film handling is discussed, though many principles carry over to other gauges. *Safe handling of nitrate film is not covered.*

Some practices outlined in this guide may seem redundant. This should be seen as a virtue. A good operator may have a bad day and make a mistake. General adherence to other good practices will minimize or eliminate the damage caused by that mistake. A mediocre operator who does barely enough to stay onscreen will mangle film and lose shows on a bad day. The more good operators there are, the less time each will spend repairing damage caused by others.

General Principles

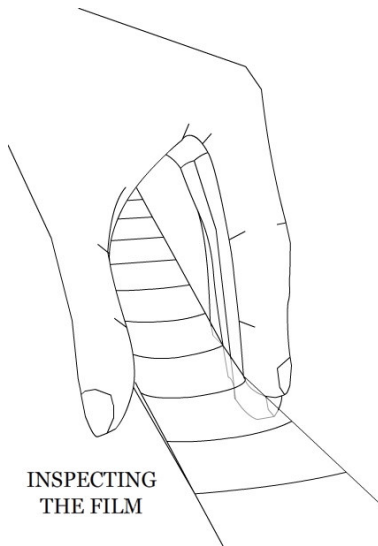
Film should be maintained in a complete state and kept clean and scratch-free. Equipment should be clean and properly adjusted. Handling should be kept to a minimum and leave no signs on the film, while being thorough enough to ensure a problem-free presentation. To minimize the accumulation of dust, the environment must be kept clean and the surface of the

film should spend as little time as possible exposed to it. Splices should be robust and as inconspicuous as possible.

Inspection

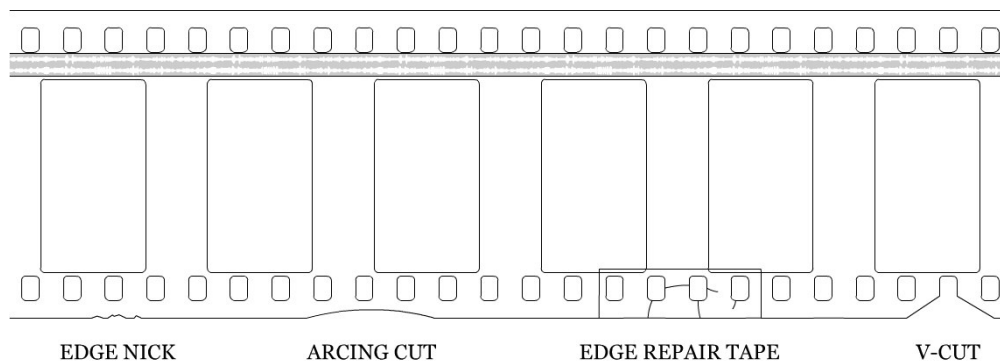
Before starting, the inspection bench area should be given a quick cleaning to ensure a dust-free work surface.

Most films arrive on reels with removable flanges, which are quite often filthy, and sometimes improperly assembled. If this is the case, and the film is tightly wound, it's a good idea to take the flanges off, clean them and the sides of the film roll with a clean and dry or barely damp cloth, then reassemble the reels, making sure to align the flanges correctly so that their dog holes line up with those in the cores.

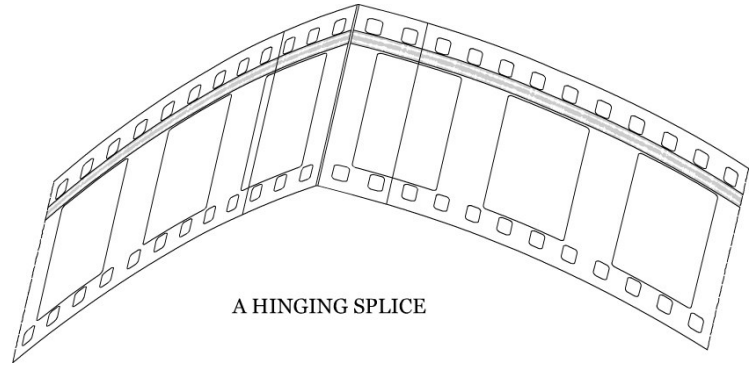


Films should be inspected on rewinds from start to finish before projecting. This is best done by cupping the edges of the film between the thumb and forefinger for the duration of each reel. This way any edge damage and splices may be caught, examined, and if necessary, repaired. If desired, cotton film-handling gloves may be worn, on one hand or both. *On no account should the image area of the film be touched with bare fingers.*

To prevent snagging, edge nicks that don't extend more than halfway to the perforations may be excised with an arcing cut that transitions smoothly to the film edge, although if the film is brittle this method might weaken it excessively and should be avoided. Tears that extend to, into, or slightly beyond the perforations may be repaired with edge repair tape, or unperforated splicing tape applied just to the edge, then punched and cut as normal. Pre-perforated tape may also be applied hanging over the edge on a rivas-style splicer, then folded over and trimmed flush with scissors. While "V-cuts" will usually render a film runnable, they are far inferior to a proper repair and will require attention upon later inspection. Larger tears should be repaired with a normal application of splicing tape.



Tape splices should be checked for stickiness and robustness. If there is a gap, or the splice hinges, or if it sticks to adjacent layers, it should be peeled, cleaned, and remade. Cement splices should be checked for peeling and remade or reinforced if necessary. Frames containing ultrasonic lab splices are best removed. If the splice is on a frameline or just at the edge of



the projected image area it may be possible to bloop the scarring inconspicuously with opaque tape or ink instead. Blooming of the soundtrack is almost always necessary as well.

Care should be taken removing splicing tape, particularly from old films or ones on black-and-white stock, so that the emulsion is not removed along with the tape. Whenever possible, tape on the emulsion side should be peeled towards the junction of the film ends, and peeled last from areas where the emulsion appears cracked.

Old splicing and masking tape can leave stubborn adhesive deposits and unsightly residue, which can further abrade the film, and must be removed as much as possible. Naphtha is a good all-purpose solvent for this, as it evaporates quickly and cuts through most residue. Alcohol will remove sharpie marks and dissolve “shoe polish” edge markings, but must be at least a 90% solution for film use. Solvents should be applied with a lint-free, non-abrasive material.

Metallic foil cues left on from previous engagements should be removed, particularly for automated houses as they may trigger undesired lights, sound formats, or even shutdowns. Often they cannot be felt during inspection so it is advisable with used prints to give the last dozen or so feet of each reel, as well as the beginning of the first reel and the start of the credits, a thorough visual inspection.

It is a very good idea to fill out a print report for each film, listing print number, picture and sound specs, and detailing condition and any repairs made, on a reel-by-reel basis. This will serve as a record of the state of the film at arrival, should there be an issue later. Also, during breakdown it will be helpful to know the location of any repair splices, especially lab splices.

Splicing

If possible, the splicer should be adjusted to make a cut slightly biased, by a fraction of a millimeter, towards one pair of perforations. When cutting, the film should be oriented such that the head or tail leader, or film to be removed, is cut slightly short, and the film to be projected is slightly long. This way, there will be a slight overlap when the splice is made, so the film will not hinge and there will be no pop in the soundtrack. *On no account should the reel ends be cut so as to leave a gap when the reel splice is made.*

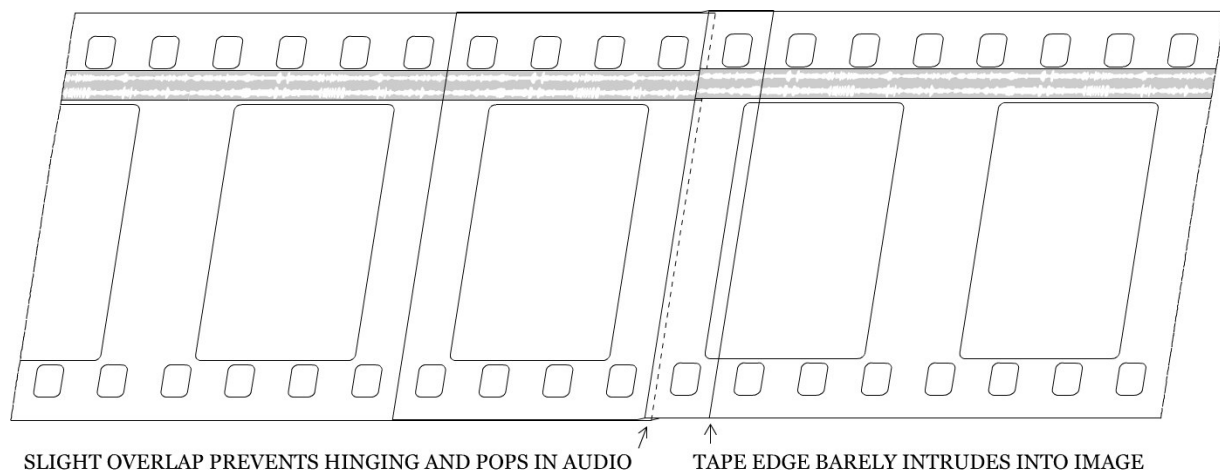
In addition, it is important that the splicer be properly aligned to cut tape flush with the edges of the film and to punch clean holes without enlarging the film's perforations. Cutting blades should be replaced if dull, and all cutting and punching assemblies should be free of adhesive deposits and chads.

Rivas-style splicers that use pre-perforated tape are acceptable if quality tape can be found. This type of splicer may be optimal with shrunken film as enlarged perforations will not be punched out. However, *on no account should a serrated cutter be used to cut the tape*. Otherwise the resulting jaggedly torn edge will be quite apparent on screen and the splice will be difficult to peel.

It is best to use clear tape for all splices. If reel splice markings are required (this should be unnecessary) then tape which is clear over the image area and all applicable soundtracks must be used. Repair splices within reels should be made only with clear tape or with an ultrasonic splicer (or a cement splicer for acetate film). *On no account should opaque splicing tape ever be used*. Tape should be sealed when stored so the edges stay clean and are as invisible as possible on screen.

Splicing tape should peel easily and coherently, leaving no residue. Tape that slips, gums up, or hardens over time should be avoided. For greatest durability and peelability, splicing tape should be placed with its edges between perforations rather than over them.

Inconspicuous splices can be achieved by avoiding laying the tape's edge through the center of the image. 8-perf tape is easily positioned with its edges on framelines. 5-perf tape may be placed with one edge on a frameline and the other one perforation away from a frameline, preferably in a darker area of the frame. Such a splice will hold perfectly well if quality tape is used.



If the reel ends were cut poorly and don't meet up on the splicer, it may be necessary to reinforce the splice for stability with a sliver of scrap film, and to bloop the gap in the soundtrack with a small piece of opaque tape or ink. *Removal of frames should be the very last resort*.

Chads should never be left in the perforations or on the film.

Cue Application

Like splicing tape, foil automation cue material should be chosen to peel easily without leaving residue. It must also survive many runs through a projector without flaking or cracking.

Cues that intrude into the image area should always be placed along framelines. On scope films these should ideally be placed over a dark area of the film to minimize visibility. Even black film passes some light, making misplaced cues apparent. Cues that cover perforations should be punched out on a splicer to prevent image jumps. Those that go to the edge of the film should be cut flush. If it is necessary to fold cue tape over the edge of the film, the fold should be made as tight as possible to minimize image weave and to avoid catching and jamming in the projector.

If it is necessary to mark visible motor and changeover cues, it should be done by temporary means such as a china marker, rather than scribing or scratching a permanent cue in the emulsion.

Picture Formats

While a scope film is easily distinguishable from a flat film, the various flat ratios are not as easy to differentiate. Ideally the distributor or another authoritative source should provide this information.

With the exception of some very early films, almost any sound film prior to 1953 will be academy ratio, or 1.37:1. Since then, films have been shown at many ratios, but since the mid-60's standards have settled on 1.85:1 and 1.66:1 in addition to 1.37:1. Most American films are 1.85:1. Many European films, including most French films, are 1.66:1. There are, however, many exceptions to these generalizations.

In the early years of widescreen, films were often shot with a range of acceptable ratios in mind, reflecting the varying amounts of cropping to be found at theaters, with a maximum, minimum, and ideal crop specified on the reel bands. This information is now typically unavailable or given incorrectly, so a certain amount of judgment is required.

During inspection, an eye should be kept on the matte, if any, determining the upper and lower extremes of the image area on the film. The intended projection ratio will never show more image than is present, but it may well show less. Subtitles should generally appear a little above the bottom of the frame. Microphones and other gear should not appear in the projected image. During the test screening, chopped-off heads or subtitles indicate that the ratio is probably too tight. Dead space at the top or bottom or intruding mikes indicate it is probably not tight enough. The framing must be correct for these visual cues to be meaningful.

Sound Formats

Digital soundtracks are easily identified and unambiguous. Analog soundtracks are another matter, and must be played back in the correct format for proper clarity, noise reduction, and dynamics. Optical soundtracks generally come in three formats with respect to noise reduction: Academy mono, Dolby (Stereo) A-type, and Dolby SR (Spectral Recording).

Dolby SR was introduced in 1987, and most films made since the late 1990's feature this format. If a Dolby Digital track is present, the analog track is certain to be Dolby SR. It is likely that this is the default analog playback format in a first-run theater.

Dolby A was introduced in 1975, and has been obsoleted by Dolby SR since the late 1990's. Virtually any optical soundtrack prior to 1975 will be mono. Mono soundtracks are still produced today but are increasingly rare, especially on American films.

If an older film is rereleased with new prints, it cannot be assumed that the sound format will not have been updated.

The easiest way to ascertain a film's sound format is to check its leaders, if they haven't been replaced. Sound format information is commonly written or printed in the soundtrack area before the countdown. If there is no information there, it is likely that the film is mono, or possibly Dolby A.

Often the end credits identify the sound format as well, but this is difficult to check during inspection, and may be unhelpful when films were released in multiple formats. "DTS Stereo" and "Ultrastereo" are essentially equivalent to Dolby Stereo (A-type).

The soundtrack itself may also be inspected. If it is variable-density (consisting of lateral striations of different shades of grey) or has a single clear waveform, it is mono. If there are two identical waveforms, the film is mono--however the difference between waveforms on a stereo track may be very subtle. It is also possible that even though the sound mix is monaural, it may use noise reduction and thus should be decoded using one of the Dolby formats. If the waveforms differ, the film is certainly stereo, though it could be either Dolby A-type or SR.

Finally, the sound may be evaluated aurally during the test screening, switching between formats. If SR decoding sounds too dynamic, with harsh sibilants, it is likely that A-type is the correct format. If A-type decoding sounds too compressed, it is likely that the track is SR. If this test is indeterminate, it is safer to err on the side of A-type as the result will at least be listenable.

If a print has magnetic tracks, which appear as dull brown stripes on the film base, on either side of the image and outside the perforations, these can only be read by a magnetic penthouse. Many mag prints also contain a mono optical track, half the normal width. This may be reproduced as normal (in the mono format), with the volume boosted to compensate for the narrower track. However, regardless of playback method, a print with magnetic stripes can only be run through a

projector with fox sprockets, which have narrow teeth. (Modern projectors commonly have these sprockets by default, but it is important to make sure.) Additionally, the entire film path, including the platter, and even the splicer and rewinds, must be degaussed so that the soundtrack will not be corrupted by magnetic fields.

Changeover Preparation

If a print is to be run several times with changeovers, it is important to attach at least 15' of additional threading leader, in addition to the countdown leader, at the head of each reel, and a similar length of scrap film to the tail. This extra film will keep dirt and handling away from the projected film and prevent cinching during rewinding.

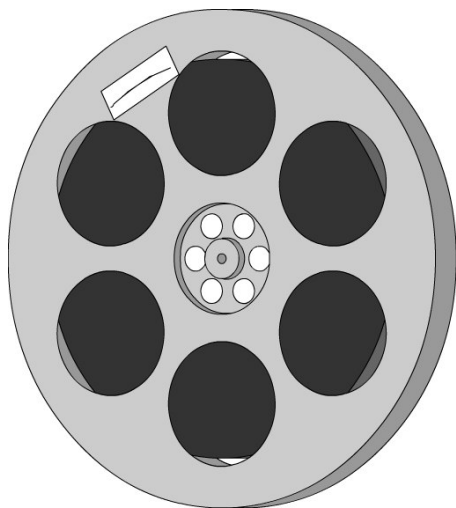
If the head leaders have been cut from the reels previously, they should be inspected for framing integrity and for completeness from the countdown onward. If they are short then the proper start frame must be noted. If changeovers will be performed manually then the position of the cue marks must be checked, and further adjustments to the start frame of the next reel made as necessary. Every effort should be made to use existing cue marks rather than adding new ones.

If a print will be run with 6000' changeovers, some of the next section will be applicable.

Platter Building

All or most of the assembling of a print is best done during the course of inspection at the rewind bench, where work surfaces, lighting, and ergonomics are generally better than at a makeup table.

If a Goldberg-style platter reel is used, the whole film may be assembled at once and then placed on the platter.



MARK A FILL LINE ON A PIECE OF TAPE

If 6000' reels are used, three or four reels may be assembled onto each, rewind if necessary, and then transferred to the platter using the makeup table. When building to the large reels, it is essential that either scrap film or the respective heads and tails of the shipping reels, at least 12' in length, be attached at the inside and outside of each large reel to prevent damage to either end of film.

As the film winds onto a 6000' reel, care should be taken to bind the film gently against one of the flanges of the big reel to ensure an even wind, with no vulnerable film windings protruding from the roll. Of course, only the film's edge should touch the flange while this is being done.

To aid in breakdown later, it is advisable to mark a fill line

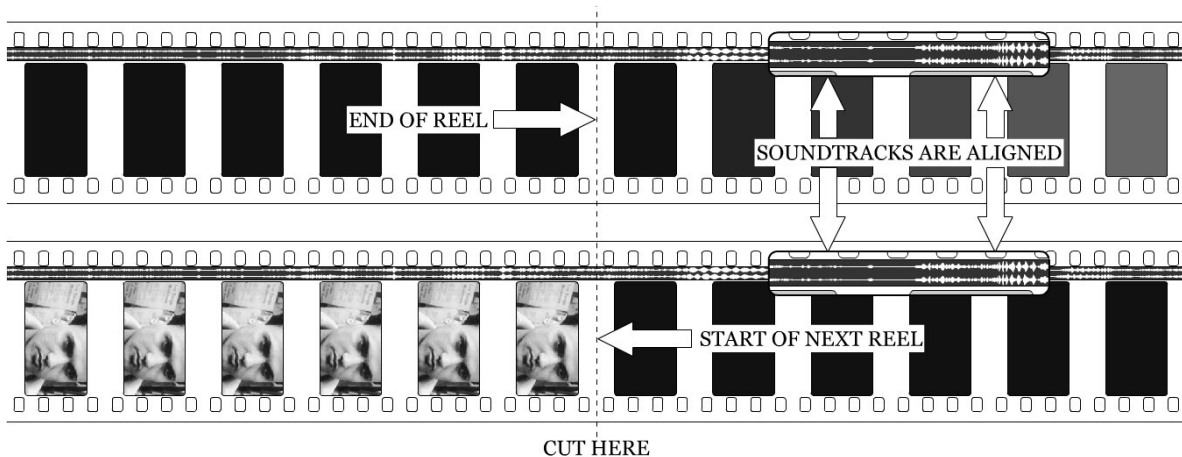
on each shipping reel before assembly. A piece of artist's tape may be placed on either the inside or outside of a flange and a thick line drawn on it, flush with the circumference of the film roll. *On no account should the reel itself be permanently marked.* If reels are head-out, it's also good to mark the location of any cues, such as at the start of credits, in a similar fashion, so they may be easily found and removed at breakdown. *On no account should the edge of the film be coated with white-out or shoe polish, or any like substance.*

As head and tail leaders are removed, they should be kept clean and protected, and never be tossed onto the floor or unraveled into a box. It is convenient that tail leaders end up wound, head-out, onto their reels and taped down, not to the flange, with artist's tape. Head leaders should be wound into a self-contained roll, taped, and sandwiched between the flanges of their respective reels. If the head leader rolls are tail-out, a short length of scrap film should be wrapped around them for additional protection. The tape on each leader should be labeled with its reel number so it may be matched to its reel later even if it jostles loose. Other methods of storing heads and tails may be acceptable if they result in no dirt or damage, however the outlined methods make for an easy breakdown.

Movie reels start and end at precise points. The first frame of each reel is the 48th frame after the last number of the countdown leader (either a "3" or a "2", depending on whether it counts in feet or in seconds). This is usually the first non-black frame, unless there is a fade-in from black. The first reel should be cut to include as much black as possible at the head. In particular, care must be taken to include the entire soundtrack of R1 if it starts before the first image appears.

The last frame of the reel is usually the last non-black frame, unless there is a fade to black. If there is a fade, the last frame may be determined by either of two methods:

- (1) Soundtrack comparison. On most modern films, the soundtrack at the end of the reel is duplicated at the start of the next reel. If the two soundtracks are aligned with each other, the last frame of the reel will correspond to the frame before the first frame of the next reel. Care must still be taken to find the frameline as soundtracks may be printed off by a perforation or two.



(2) Cue comparison. If the film has printed changeover cues, they will be located consistently on all reels (the last dot being 18-26 frames from the end of the reel). Once the position of the cue is determined on one reel, it may be used to find the last frame on all the others.

If there are no printed cues and the soundtrack is silent or has no salient features, and there are no other indications of where to cut, the projectionist's discretion must suffice. *On no account should a cut be made within a fade.*

The head leader should be cut directly before the first frame. The tail leader should be cut directly after the last frame. If an ID frame is required (this should be unnecessary), one may generally be left at the head. *On no account should an ID frame be left on the tail, or more than one on the head leader.* Otherwise, if there is dialog over the reel change, phonemes may be lost, and if there is music, its rhythm may be disrupted.

If the reel ends have been cut previously, it is usually best to peel the splicing tape and use the existing cuts. If the cuts are off by several frames, resulting in a gross discontinuity in the soundtrack, the old cut may be inconspicuously spliced together and a new cut made in the proper place. *On no account should a new cut be made to avoid peeling a splice, or only one frame over from an existing cut.*

The threading leader attached to the head of the film should be long enough that the platter and projector may be threaded without any film that will end up on-screen leaving the feed platter, with at least 20 - 30' to spare. At least 30' of scrap film should be attached to the tail end of the film to prevent damage occurring to the film proper as it tails out after the show. If necessary, this scrap film may be flipped to prevent digital soundtracks being read.

When film is transferred to the platter, splicing should be done on a convenient surface and care taken not to scrape the surface of the film on any edges or corners. The scrap film should be used to thread the film ends through any necessary MUT rollers and removed just prior to splicing.

Platter Breakdown

If the platter spins freely in breakdown mode, some backtension must be applied either by hand or by an improvised clutch as film winds off the deck, to ensure a tight wind.

Head and tail leaders should be strictly matched to their respective reels and re-spliced in frame, correctly oriented, with a single-sided splice, preferably on the base side. If there is a good chance that the next playdate will be at a changeover house, such as with a repertory or festival print, a double-sided splice may be used. Care should be taken that the leaders stay clean and scratch-free even during breakdown.

Reel splices may be anticipated by watching the film roll approach the fill line marked on the reel

during building, and also by looking for the change in “sheen” between reels as they sit on the platter deck. The sheen will also differ on either side of a lab splice, so it is helpful to consult the print report beforehand. As a reel splice nears, the MUT speed should be decreased, while further hand-braking the platter deck, and a finger placed on the top outer edge of the plattered roll as it spins. The splice will be felt with every revolution until it is wound off, at which point the deck should be stopped completely (but not suddenly). To confirm a reel splice, it should be verified that the shot differs on either side, and the soundtrack and edges may be compared with those on the leaders. On most recent films, a sequence of yellow dots, corresponding in length to the reel number, will appear between the perms on the non-soundtrack side of the film very near the start and end of each reel.

Old splices should be peeled, rather than being torn apart and left for the next theater to deal with, and any residue from inferior tape removed. *On no account should any cutting be done during breakdown.*

Once wound, reels may be secured with at least 6" of fresh artist's tape. Common masking tape should never be applied to film.

Prints that arrived on cores without reels may be broken down onto cores at least 4" in diameter using a split reel, then stacked in their box with separators between all cored rolls. If any rolls are conspicuously small, they should be placed at the top. It is a good idea to fill the voids around the rolls with crumpled newspaper or similar spacing. *On no account should cores be removed from their film rolls after winding.*

Any foil cues applied to the film should be removed during breakdown.

If winding is ever interrupted mid-reel, care must be taken that the wind remains flush with itself when it is resumed. This may be accomplished by spinning the platter in reverse a bit to take up any slack before restarting.

Moving Plattered Prints

Assembled prints may be moved from one platter deck to another, even from one theater to another, without being broken down. However, care must be taken to maintain the integrity of the film roll. If the film is allowed to rub against itself, small scratches are liable to occur.

The commonest method of moving prints is by means of clamps. Ideally, they should be used in fours, and the print carried horizontally by two people with their arms under the clamps for stability. Where stairs or doorways must be traversed, this won't work, and the print may be tipped and carried vertically by hand or over the shoulder. If the print shows any tendency to “dish” or “telescope” during this procedure, the platters should be adjusted for a tighter wind.

When the print is placed on its destination platter, it may be slid back and forth until the ring pegs are aligned with their respective holes in the platter deck. Spinning the print relative to the

deck is inadvisable as it can create shear forces within the print and cinch it or buckle splices.

As a further aid to stability, a “doughnut board”, a smooth, flat board with a large hole in the center and smaller holes to accept the platter ring, may be placed on the platter deck before the last show and the film taken up upon it. The last takeup roller must be adjusted so that the film will clear the additional height of the board. Clamps may not be needed if a doughnut board is used.

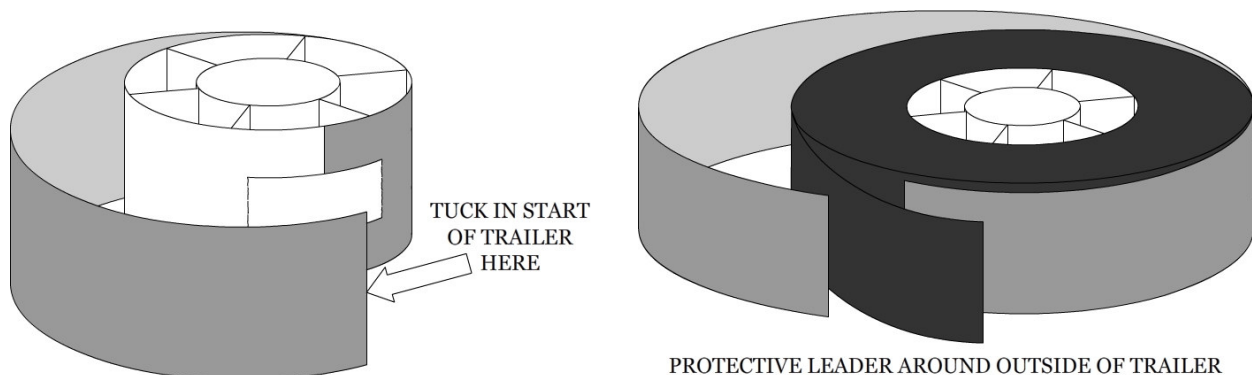
Alternately, a board may be designed to fit against the edge of the platter so that the film may be slid onto it. “Print pockets”, which are available commercially, have arms that rest on the platter deck and, together with a top layer, provide extra rigidity. They allow the print to be carried vertically easily, and will hold prints of normal length, but are limited in their capacity. Obviously, any method that requires that the print slide off the platter deck is dependent on the feed clusters being removable.

A print may also be broken down onto 6000’ reels and then reassembled on another platter. This is often the best way to move prints between theaters as trailers can be left behind. It is essential, however, that the beginning and end of every large reel is protected with scrap film, just as when the print is initially built.

If a very long print can’t be clamped or fit into a print pocket, the last several reels of it may be run onto a 6000’ reel and moved separately. Again, protective scrap film must be attached to the film on the reel and also to the film remaining on the platter before it is moved.

Trailer Handling

Trailers and film ads are no exception to rules of good film handling. In particular, they should always be wound with protective leader at both ends of the roll, preferably on a core 2" or larger, and secured with artist’s tape or a reel band with string. It may be preferable to tuck the ends of the trailer into the leader ends rather than splicing them on. As with any film, it is best to retain the original head and tail leaders for version and soundtrack information. While the trailer is in use, the leaders may be wrapped around the core and put in a clean area for storage.



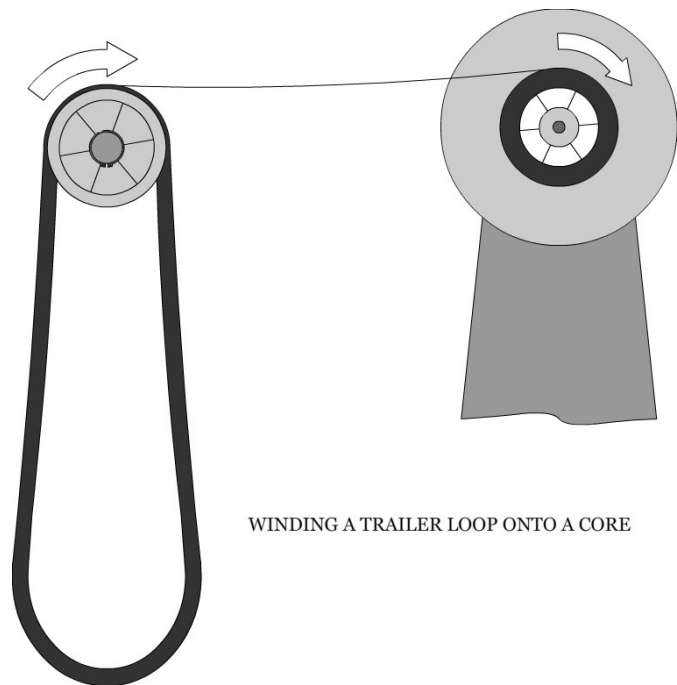
When cutting trailers, a good amount of black film should be left at the start and finish, to absorb any damage from mishandling, avoid image jumps at splices, and allow room for any sound format changes to occur. As with the first reel of a feature, care should be taken that the entire active soundtrack be included. The black areas at either end should be inspected for negative dirt, printed-in negative splices, sync beeps in the soundtrack, or any other audiovisual blemishes, and cut so these stay on the leader and are not projected.

Since the offsets of the digital soundtracks differ from that of the optical, appropriate adjustments of the cutting point may be necessary to include the entire digital track, while excising digital sync beeps. For example, the SRD track leads the optical by about 6 frames.

Trailers, like features, must be played in the correct sound format. Since it is very common for trailers to lose their original leaders, this can involve much guesswork. In addition to the tips in the sound formats section, it should be noted that the mono format was popular for trailers much longer than for features.

If a number of trailers with different sound formats are to be run unattended, without an automation capable of multiple format changes, it may be necessary to choose one compromise format for all, generally mono or Dolby A. However, this should be avoided whenever possible.

The best way to handle a trailer loop after removal from a plattered film is to hang it over a free-spinning roller in-line with a powered rewind fitted with a trailer flange. From there it may then be wound, at a consistent speed, onto a core, starting with the outer end. If the trailer loop is too large (more than 3-4 minutes' worth) for this method, a threading leader and tail leader may be attached and the trailer then run through the projector to another platter, and then removed via the MUT. *On no account should the trailer be flung in a box, or otherwise lose its winding integrity, before being wound onto a core.*



Test Screening

Before any film is shown to audiences, it is advisable to pre-screen it, from start to finish, for problems that may have been missed during inspection. This is particularly important for used prints, which may have foil cues left on them which will trigger undesired events in the automation.

Even new prints sometimes have scratches in them, defective soundtracks, or fogging around lab

splices. A reel with such an issue should be replaced, if possible.

During the test screening, any sound format choices should be evaluated if in doubt, as should the projection ratio.

Projector Threading

Prior to threading a projector, all film-contacting surfaces should be cleaned. Sprockets and rollers must be free of any dust, and gate bands and runners should be scraped free of emulsion residue. A lint-free rag, if necessary moistened with alcohol, may be used on rollers, and a toothbrush on sprockets. A relatively soft scraping tool may be used to help loosen hard deposits in the gate. Many household products, such as WD-40, should be avoided as they can leave damaging residue on equipment and films.

It is important to thread early on the leader and to keep it off the floor at all times. If the film is plattered, the leader should first be threaded through the feed cluster and feed rollers, to the top roller of the projector, then back to the takeup platter. If the platter is on the non-operator side of the projector and conduit extends between the front of the projector and the wall, it may be necessary to run the film down the operator side of the projector before returning it to the platter. If running on reels, the head leader should first be secured to the takeup reel.

The easiest way to thread the projector while keeping leader off the floor is to start at the bottom--the failsafe or soundhead--and work upwards, pulling slack from the feed reel or platter as needed. A further advantage to this method is that the platter take-up may be engaged, or any slack removed from the takeup reel, before threading the projector. Alternately, the leader may be attached with a clothespin to the projector housing, and then sufficient slack for a top-down thread pulled carefully from the feed side.

When threading is complete, the projector should be turned over by hand to ensure that the film stays in frame and the loops remain correct. Additionally, the entire film path should be inspected, visually and tactilely, to ensure that the film is properly seated on all sprockets and rollers on the projector and platter.

In a changeover setting, once the film is threaded it may be motored down and stopped on the appropriate start frame. This may be done with a platter setup as well, but only shortly before the showtime, to prevent the start of the program being exposed to dust. A better way is to start the motor just before showtime, press the start button at the appropriate time (likely a foot or two earlier on the leader), then turn off the motor switch. If the automation will accept an appropriately placed start cue, this is the very best method as it doesn't rely on human timing. As the film is being motored through prior to the show start, a final visual check should be performed to ensure that the framing and loops are correct and that all the rollers that need to spin freely do so.

Presentation Checks

Once the film is on screen it should be checked for focus and framing. Green or red bands at the starts of trailers should look centered. If heads look cut off the framing might be high. If subtitles are cut off the framing is low, or the ratio is wrong. In general, it's good to develop an eye for composition so framing can be corrected before it becomes glaringly obvious.

If there is aperture shadow at the edges, the picture should be centered to minimize it. If it is still apparent, the aperture is cut poorly in relation to the throw and the masking and should be fixed by a tech.

Any ghosting should be eliminated by adjusting the shutter timing, and a tech called in if this is impossible. If there is a hotspot, the lamp might need defocussing. If there is noticeable flicker there could be a problem with the bulb, the shutter, or the rectifier and a tech should be brought in.

If the picture has excessive bounce, there could be a problem with the print, or a lost loop, or insufficient gate tension, or a problem with the mechanism. If this occurs regularly, call a tech.

Sound should be checked for volume and clarity. The dialogue should be at a comfortable level. If the sound seems too dynamic, or the dialogue sounds harsh, especially the sibilants, the film may be playing in the wrong format, or an A-chain may be necessary. If certain frequencies seem to buzz or clatter, there may be a blown speaker or something behind the screen might be resonating and should be secured or removed.

All these things should be checked at the start of the show and from time to time over its course.

If ever there is a change in the mechanical sounds generated by projection equipment, that is a good sign that there might be a problem developing. The source of the new sound should be determined, if possible, and a tech notified.

Cleaning

In addition to cleaning the inspection bench and projectors, the booth as a whole should be cleaned regularly. Depending on ventilation and other factors, a weekly cleaning schedule is usually reasonable.

With no shows running and print covered or stored away, all surfaces should be dusted with a damp rag, then the floor vacuumed or mopped as appropriate. To prevent dust being re-ejected into the air, the vacuum must have a regularly changed HEPA filter. Alternately, a built-in central vacuum system or a water-containment vacuum may be used. Platter decks, rollers, and brains should be cleaned. Port glasses that look dirty when light shines through them should be washed. If they are coated optical glass then this should be done very carefully as the coating is easily abraded.

If a film is dirty, it may be cleaned somewhat while running with PTRs or a media film cleaner. Dirt is best addressed sooner rather than later, as over time it becomes embedded in the emulsion and essentially permanent. The media cleaner is most effective when run with Filmguard, which will ensure that prints stay spotless. If Filmguard is used, projectors generally need be cleaned only once a day.

Additionally, a relative humidity of 50-55% should be maintained in the projection environment. Should the level stray too far out of this range, the film's curl will be aggravated, which can play havoc with platter payouts and cause scratches. A dehumidifier or evaporative humidifier may be used to regulate the humidity. *On no account should a misting humidifier be used.*

Product Suggestions

Filmguard will improve almost any presentation and is available from many dealers.

Neumade, Splycemar, and Film-Tech brand clear splicing tapes are strong, stable, and peel nicely.

Aucuta II brand foil cue material is robust and generally peels cleanly.

Ronsonol lighter fluid remains a fine solvent, though now formulated without naphtha, illegal in some states.

~90% isopropyl (rubbing) alcohol is available at most drugstores.

Metallic Silver Sharpies can make good blooming markers—India ink is better.

Good lint-free non-abrasive film wipes include Pec Pads, Webril Wipes, and Kim Wipes, and should be available at good photo stores.

Proline Glass Towels are relatively lint-free rags.

Permacel artist's tape may be used on film without leaving residue.

Invisible Glass is good for cleaning projection ports, and is available at auto parts stores.

Film-Tech Platter Safety Rings will fit most platter decks and prevent thrown prints.

Other Resources

Film-Tech (www.film-tech.com)

rec.arts.movies.tech FAQ (www.redballoon.net/~snorwood/faq2.html)

American WideScreen Museum (www.widescreenmuseum.com/)

For more specific information, equipment manuals should be consulted. Many are available for download from the Film-Tech site.