Film-Tech

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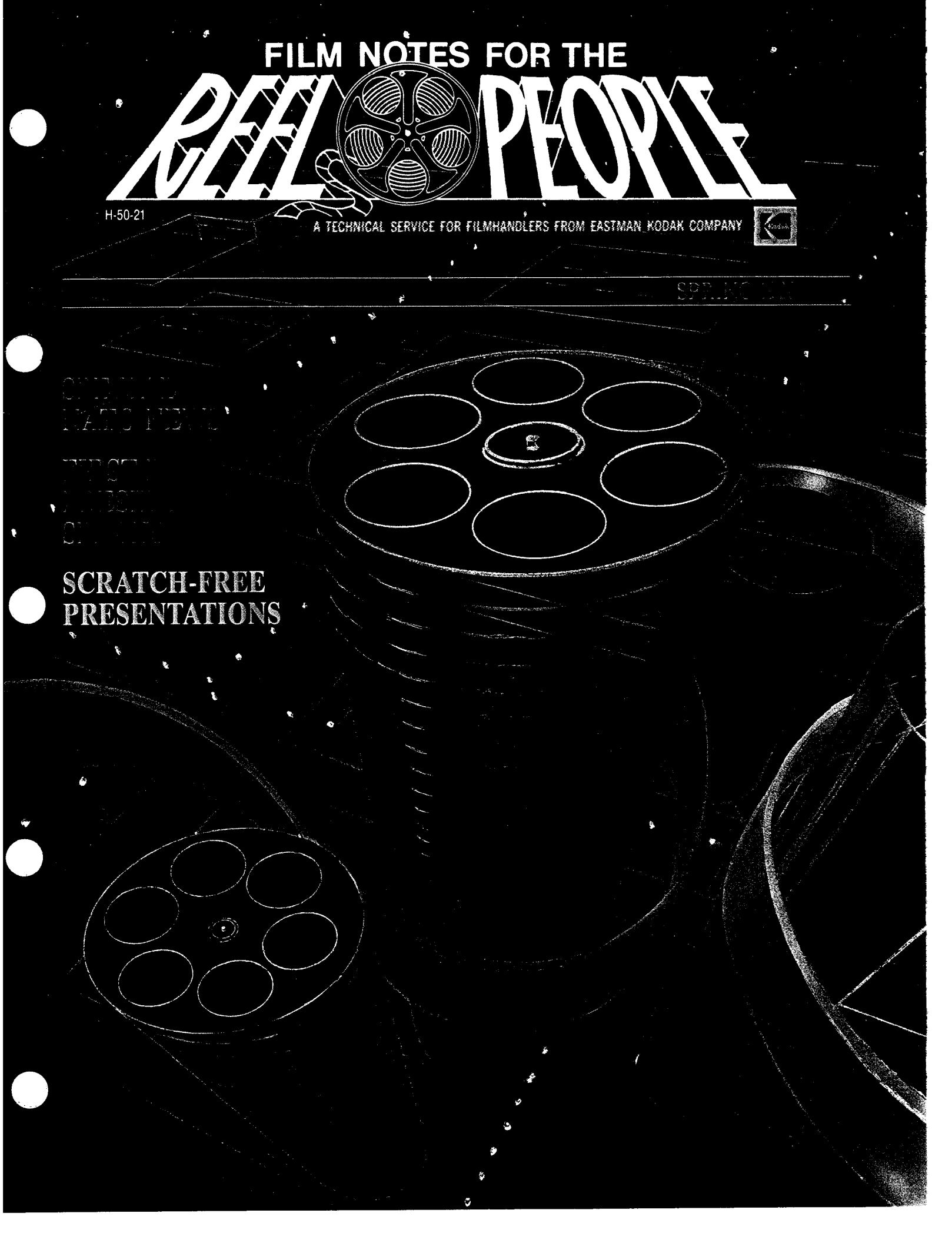
FILM NOTES FOR THE

REEL PEOPLE

H-50-21

A TECHNICAL SERVICE FOR FILMHANDLERS FROM EASTMAN KODAK COMPANY



SCRATCH-FREE PRESENTATIONS

FILM NOTES FOR THE
REEL PEOPLE
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A TECHNICAL SERVICE FOR FILMHANDLERS FROM EASTMAN KODAK COMPANY
SPRING 1988

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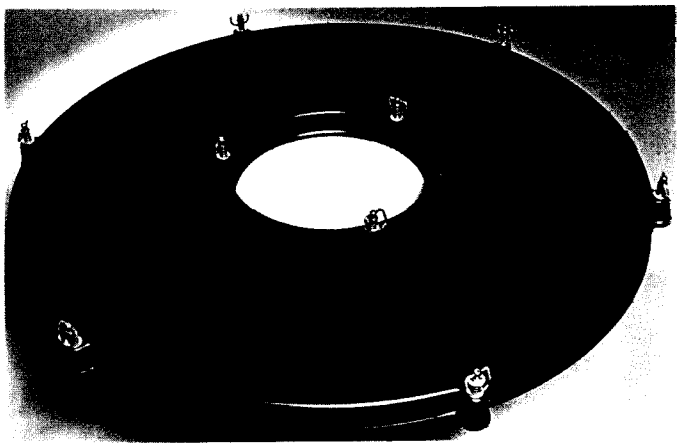
EDITOR'S MAILBOX

Having been a "reel person" for many years and an avid reader of *Reel People,* I have heard the question asked many times, "When are they going to come up with a better way to ship films?"

The MOVIE MOVER consists of only three primary parts and is used for shipping and circuiting feature-length films. Prior to the last screening of a feature, a flat circular disc is placed on the take-up platter, along with a special center ring. After the last show, the top cover is simply locked to the lower disc, forming a totally enclosed container for shipping.

The MOVIE MOVER's top cover makes a great dust cover during non-operating hours. Film handling is more efficient and the potential dust accumulation and print damage is minimized.

Steven Klindworth, S. Bose Inc.



Editor's Note:
—An interesting concept, and certainly worth considering for moving a print between screens within a theatre complex. But shipping a roll of film over 4 ft. in diameter and weighing over 50 pounds may be quite cumbersome.

BILL KARTOZIAN

Q: There seem to be a lot of changes occurring within NATO with the reaffiliation of TAC (Theatre Association of California). Now that you are the first paid president and headquarters will be in Los Angeles, can you give us some specifics about this restructuring?

A: The move to Los Angeles will occur this summer. The heart of the business has moved to L.A. and NATO feels the need to be there as well. There will be a monitoring presence in Washington D.C. However, it is yet to be determined what form this presence will take. As far as the structure, the organization starts with the members. There is the board of directors, the executive committee, and a cabinet, which will be in the most frequent contact with me. The staff in the Los Angeles office will include an executive director and several additional people to handle the day-to-day operations of NATO. I will remain in Northern California, but will travel to Los Angeles as required.

Q: Will the reaffiliation of TAC with NATO affect the California group?

A: TAC has always been a very strong independent organization dealing with problems within the state of California, and I am certain that will continue. TAC has announced it will change its name to NATO of California, but will maintain its separate presence, identity and offices under the able leadership of Bob Selig. They will continue to do the same great job they have always done. NATO is affected by regaining one of its strongest State units, and presumably regaining a number of members through the reaffiliation of TAC with NATO.

Q: NATO encompasses a very diverse group of members. What do you see as the challenges and opportunities for each of these groups?

A: The major opportunity is the potential to learn from each other. With the distribution-aligned circuits as members of NATO, there will be more sensitivity to each other's problems. When you work with someone and get to know them, you become more sympathetic to their needs. There can be learning on both sides. It will be easier to work on programs and explore opportunities of common interest. One possibility—and this is nothing concrete yet—is the creation of an institutional advertising program with both distribution and exhibition mutually promoting our industry. The challenges are brought about not only by distributors entering exhibition but also by the consolidation occurring within exhibition. All of these diverse groups must co-exist and learn from each other. Each brings something a little bit different to the party. Some of the important innovations and unique operational concepts begin in the smaller circuits and in the individually owned theatres. It will be a challenge to keep all of these various constituencies happy and healthy.

Q: The vertical integration of distribution through ownership of theatres may potentially impact the traditional ways of doing business. Please comment on both the positive and negative aspects of this trend.

A: Now that distribution owns theatres, they will be more sensitive to keeping production up—and keeping the window open. In other words, they will realize the importance of keeping exhibition the first forum for their product. The greatest concern is that we don't revert to pre-consent decree days, when exhibitors were not all treated fairly and equally. People are more sophisticated today and more sensitive to these potential problems. We can work together to avoid them.

Q: Do you feel that studio ownership of theatres will contribute to the availability of year-round product rather than the heavy saturations at Christmas and early summer?

A: Hopefully. Again that is an area where, when sensitivity increases, remedies are more quickly forthcoming. There is no doubt that certain times of the year are better than others to release product. But this has been greatly exaggerated and become a self-fulfilling prophecy. This could change. A serious conflict arises when a theatre is contractually obligated to hold one picture and also open a new one on a certain date. These are the sorts of problems that can be worked out more reasonably when people have mutual interests.

Q: A number of distributors have consolidated their branch offices in the United States. What affect has this had upon the buying operations of the theatres? Has service been affected in the smaller cities?

A: Yes, it has been affected. It is understandable that distribution is consolidating when exhibition is consolidating. The principle negative impact has been in smaller towns and with independent circuits and individually-owned theatres. This is not what anyone intended to happen, but the people who are selling the films are further removed from the theatres which they serve. They are not as familiar with the territories as they used to be when there were more branches and there was much closer contact. For example, San Francisco has three branches, compared to ten previously. This distance has created a certain degree of unfamiliarity and it is more difficult for the theatres in the smaller areas, and especially those that are independently owned, to obtain product on a timely basis.

"A serious conflict arises when a theatre is contractually obligated to hold one picture and also open a new one on a certain date."

Q: Has the introduction of exhibitor relations people in several of the studios helped to ease some of the problems?

A: It is definitely an avenue to follow, but this is a real and pressing problem and needs to be addressed more forcefully than it has been. It is not anyone's intention to provide bad service and certainly no one wants to cut off the smaller towns from product. It is an inevitable offshoot of consolidation and we have to figure out the best way to deal with it.

Q: Theatre screens now number in excess of 21,000 in the United States. Has this heavy expansion resulted in "over-screening" in certain markets? Is the public better served by having the same film play in, say, three theatres within a two-mile radius of one another or does that make it difficult for any screen to gross?

A: Yes, there is "over-screening" in some markets, but that is basically the nature of free enterprise. It is really shocking to compare the number of screens in certain markets today to the number that existed three to five years ago. Fortunately, business is good and the over-screening has not been as big a problem as it may be if a product shortage should develop.

With regard to the number of prints released in an area, this is clearly a balancing issue and it is up to the distributors to determine how many runs they will make available on any particular film. They are going through a great deal of soul searching on this issue now. There is a certain degree of tension between the cost of advertising and the cost of prints and how you mix the two to get the best possible result. Every market has to stand on its own and the results will usually dictate what the most advantageous pattern of distribution will be.

Q: At a ShoWest session, some exhibitors felt NATO should follow through with a theatre presentation upgrade. What would you like to see in such a program?

A: At ShoWest several exhibitors discussed this. I think most, if not all, of the leadership of NATO agrees. This is an area where NATO can work for the betterment of all of its members and at the same time better serve the public.

Q: What involvement would you like to see from other industry organizations for this type of program (i.e., TEA, SMPTE, etc.)?

A: Before any program is instituted, we should get input from all of those organizations. They all have something to contribute. If we can get one well-orchestrated program with everyone participating from the beginning, it will be the best program possible.

Q: Last year was a banner year at the box office. What can exhibitors do to keep the bottom line so solidly in the black for the future?

A: Good and plentiful product is really the key ingredient, along with the fact that there are many rejuvenated screens in the United States. Exhibitors have invested a lot of money over the last several years building new theatres as well as improving existing screens. This fact together with the availability of good product is what added to the bottom line.

We need to continue to be sensitive to the needs of the public. Keep providing them with the best facilities possible. Keep providing them with the best service possible. Make them realize that going to the show is an experience that is different than sitting home and watching the tube. Make them realize it is a bargain compared to other forms of out-of-the-home entertainment. Being responsive to our customer's wants and needs will keep the bottom line strong. ●

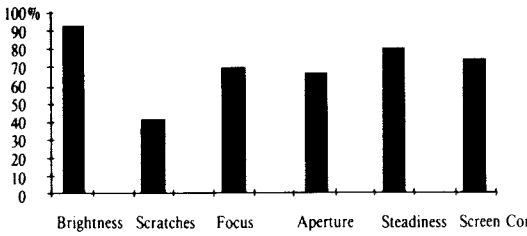
SCRATCH FREE PRESENTATIONS

During the manufacturing and processing of film, extreme care is taken to keep the film free from dirt and scratches. Film handlers often wear special lint-free clothing, including shoe and hand coverings. Dirt and dust are minimized through extensive air handling systems which filter the room air approximately ten times per hour.

Why all the effort? To make sure that the cinematographer, the director and the audience get the best the industry has to offer. Care should always be used when handling film to maintain the best possible image. The theatre is the final and most important link in the distribution chain.

Scratches are the primary form of print damage and are easy to prevent. Last year, the Society of Motion Picture and Television Engineers (SMPTE) conducted a test program, the Theatre Quality Evaluation Program, in Los Angeles. Of the total performances observed, 57.6% contained scratches on the film *(Figure 1)*. The study identified scratches as the biggest hindrance to satisfactory picture quality. Even when other contributing factors were above average or excellent, scratches continued to be a problem. In the highest-rated circuit, 27% of the performances observed contained scratches. In the lowest-rated theatres, 80% of the prints showed objectionable scratches.

Figure 1 **SMPTE Theatre Quality Evaluation**

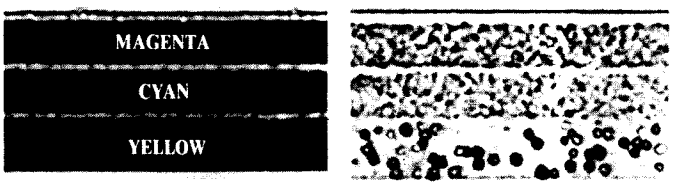


Everyone handling film MUST be aware of how easily a print can be scratched. Every effort should be made by YOU to minimize the amount of scratching and other damage while the film is in your care.

Before exploring the causes of scratches, a discussion of how film is made and the role it plays in image quality may be helpful.

Film Composition

Motion picture film is made of gelatin emulsion layers



Processed Film Raw Stock

This is a 1500x microscopic cross-section of EASTMAN Color Print Film. *Figure 2*

(Figure 2), coated on a transparent plastic base. The supporting layer is called the base. The base must be transparent, free of imperfections, chemically stable, and not photographically sensitive, while remaining strong and flexible. The materials used in making film base have an influence on the amount of physical damage a film can tolerate before being rendered useless.

At present, there are two types of film base: triacetate (acetate) and polyester base. Acetate film base is made from cotton linters or wood pulp, purified and treated with chemicals and solvents. The majority of release prints are printed on acetate based stock. Acetate prints may be cement-spliced and, with care, can last many hundreds of projections. Polyester film base is made from petro-chemicals, and has extremely high tear strength, but it cannot be cement-spliced. Kodak's trade name for polyester base film is ESTAR.

The emulsion layers are the light-sensitive elements within which the image is formed. The typical color emulsion is 0.0003 of an inch thick. The emulsion layers consists of light-sensitive silver halide salts suspended in a gelatin layer. Color print film essentially, has three emulsion layers, sensitive to green, red and blue light respectively. After printing and processing (developing), magenta, cyan and yellow dyes are formed, yielding a full-color image. The magenta dye controls the green light, the cyan dye controls the red light and the yellow dye controls the blue light.

Motion picture film damage occurs when the physical limitations of the film are exceeded. A print can be ruined in one pass through the projector, or can look like new after hundreds of showings. It all depends on the care you take while the film is in your possession!

Scratches

Abrasion and scratching are usually caused by careless handling, improper threading and poorly-maintained equipment. A scratch the width of a human hair will be magnified hundreds of times in projection, and ruin the image on the screen.

If the base side of the print becomes scratched, a black line will be projected. The scratch appears black because the light shining through the clear base layer is refracted by the uneven surface of the scratch.

Because the emulsion layers consist chiefly of gelatin, they are easily scratched. The depth of the scratch in the emulsion determines the color that appears on the screen. A light scratch will project black. A scratch that has gone through the top magenta layer will project green. As it permeates the cyan layer, it appears yellow. A heavy scratch will project white, indicating the scratch has reached the base layer. The presence of scratches should always lead you to investigate the cause(s).

Dirt

Modern equipment is designed to transport film hundreds of times without producing abrasion or dirt that is visible on the screen. But the equipment must be maintained properly and be in

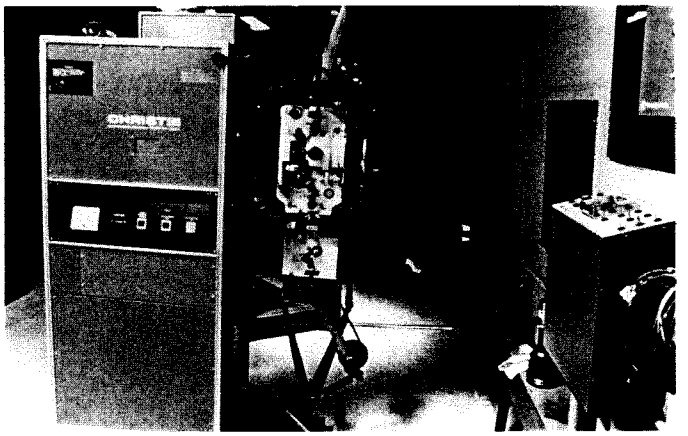


Figure 3

good repair *(Figure 3).* You invite dirt, abrasion and scratching every time you handle film carelessly, fail to maintain your equipment or allow the cleanliness of your work area to slip.

You should assess your own film-handling situation by paying particular attention to the type and amount of ventilation, the materials used for floor surfaces, and dust accumulation on your benches and equipment. Dirt on the work bench or rewind will ultimately result in poor image quality. Static electric charges generated by winding the film, especially under low relative humidity conditions, will attract dirt to the film.

It is especially important to use lint-free gloves when handling the film *(Figure 4).* Skin oils and oils from your other duties, such as projector oil on your hands, will leave imprints on the film, attracting dirt and dust particles. Film should be handled by the edges whenever possible. Try not to ever touch the actual picture

or soundtrack area. Even a gloved hand can scratch the picture or soundtrack, especially when the glove is dirty.

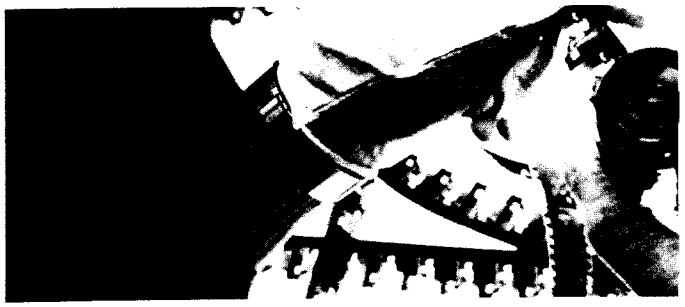


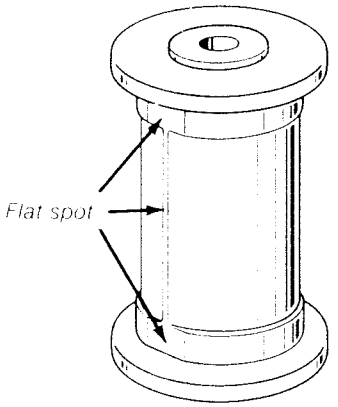
Figure 4

Usually abrasion and cinch marks are caused by dirt on the film. Scratches are extreme examples of abrasion. The presence of scratching should lead you to investigate the cleanliness of pad rollers, gate, intermittent pressure pads, and sound idler rollers as well as the other channels through which the film passes.

Contact between the film and dirt or other foreign particles can be minimized in a number of ways:

1. Clean the entire film path after each performance;
2. Do not allow the film or leader to contact the floor during threading;
3. Use platter covers to protect the film and platters when not in use;
4. Keep food and cigarettes away from film handling areas;
5. Keep the floors and work areas of the projection room clean by frequent damp-wiping;
6. Keep the film from touching any surface that may have dirt on it. Remember, any dirt particle will be magnified hundreds of times when projected on your screen.

Figure 5



Rollers

All rollers should be monitored for easy rotation. Flat spots can develop if the rollers do not turn freely and are not properly lubricated *(Figure 5)*. Even if the roller rotates freely, it should be replaced immediately if it has flat spots. With the exception of the optical sound drum, there should be no contact between projector components and the image area of the film. The abrasion caused by film passing over a flat roller can be extensive, especially on a new print with a softer emulsion. Rollers, with bearings that do not rotate freely must be replaced; others may be disassembled and cleaned.

After threading and before starting the projector, the entire film path should be re-examined *(Figure 6)* and advanced by hand

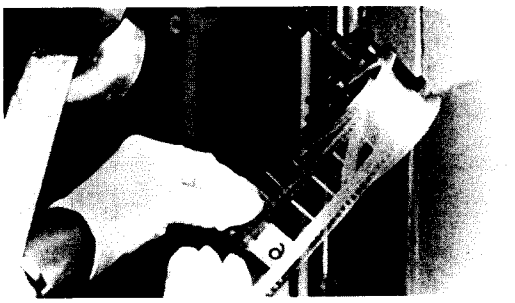


Figure 6

to check for proper thread-up. The film should be positively seated between the rollers' flanges. Allowing the film to ride over a flange can cause a scratch for the entire length of the print. Make sure all of the adjustable rollers are correctly aligned. Severe scratching and abrasion can occur if film is allowed to drag across one or more out-of-line roller assemblies.

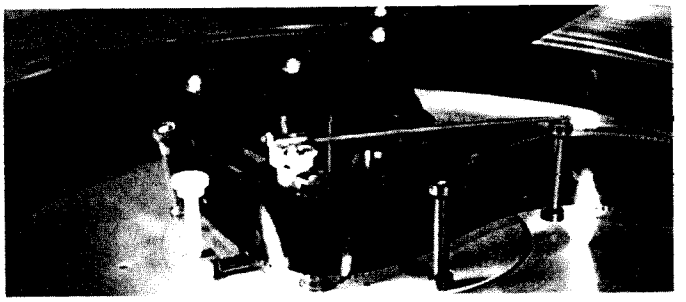


Figure 7

Platter

Resist pulling the film quickly through the platter centerpiece during thread-up *(Figure 7)*. The film may become tightly wound

around the centerpiece causing a "brainwrap," which will result in abrasion. If the feed platter has not been turned on, the same result will occur if thread-up is attempted.

Improperly positioned guide rollers may allow the film to rub on the platter surface and be scratched. Adjust the roller to the take-up platter to avoid contact between the platter and the film edge until it contacts the take-up ring *(Figure 8)*. Do not over-correct or the film may ride up and spill off the ring.

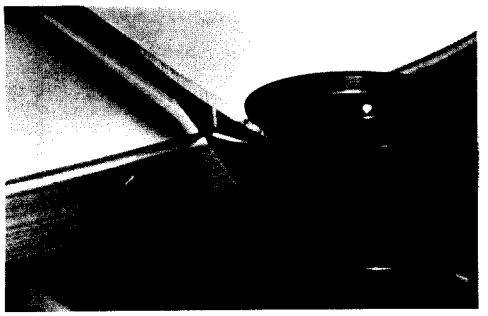


Figure 8

Winding

During build-up and tear-down the potential for scratching is considerable. The film path from the autowind to/from the platter should be as direct as possible with no twist *(Figure 9)*. The speed dial should be placed on the minimum setting. Prior to increasing the speed, the entire film path should be checked and the alignment of the rollers should be examined *(Figure 10)*.

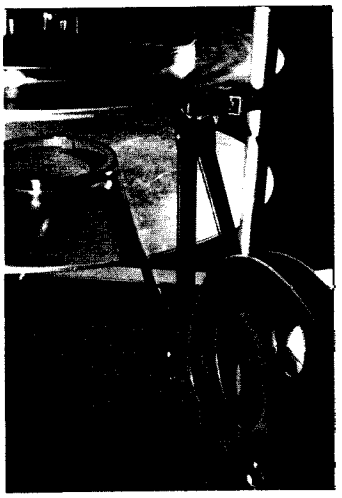


Figure 9

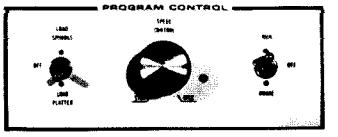


Figure 10

Gradually increase the reel speed. Abrupt accelerations of the reel cause convolutions of the film to rub against themselves, causing small scratches known as "cinch marks." During the rewind process, maintain a constant winding speed. If the speed is allowed to fluctuate, loose laps of film may develop. During rewinding, film convolutions can slip against one another and cause abrasion.

Never tighten a loosely-wound reel by pulling on the film end. Maintain sufficient tension during winding so the film does not slip against itself during start and stop.

As the reel end approaches, reduce the winding speed. The tails of the reel should not be allowed to continue revolving unnecessarily. This could result in scratching and battering of the film.

Misalignment

Check the alignment of the film as it enters the feed sprocket and as it leaves the hold-back sprocket. Misalignment of the film in the gate can also cause abrasion and scratching.

Film Cleaning

Film cleaning at the theatre should remove dirt and dust, but if done improperly, will scratch the film. When utilizing a dry-web system, the film cleaning process should be monitored closely to ensure that the web does not become loaded with dirt, to the extent that it acts like a piece of sandpaper and scratches the film. Never try to clean a print by running it through a dry cloth. The rubbing action will generate a high static charge that will hold any dirt and attract even more. And scratching the film is almost a certainty!

Short sections of a print may be cleaned using a cloth or plush pad moistened with film cleaning solvent. The area should be well ventilated and safe handling procedures should be utilized when using film cleaning solvents. NEVER use extremely hazardous or flammable solvents, such as tetrachloride, benzene or kerosene.

Scratching can also affect your sound quality. Deep scratches in the soundtrack area are objectionable, especially when the scratches become partially filled with dirt and cause random noise.

A motion picture is an illusion created by many people involved in a variety of arts and sciences. Preserve your theatre's patrons' total involvement in this illusion by projecting film that is free from scratches and dirt as well as maintaining the highest quality sound and optimum screen brightness. Remember that if patrons are to enjoy a film fully, each film handler should try to keep that film in top condition throughout its useful life. A film will look best to your patrons if it has been properly cared for and has ALWAYS been handled in a clean environment and projected by carefully maintained equipment.

Patrons say thanks for your efforts by coming back! ●

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