

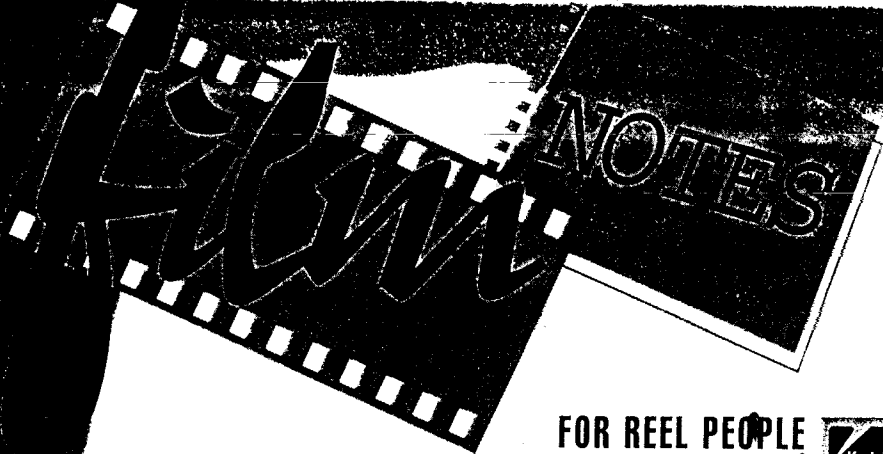
Film-Tech

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H-50-38

FOR REEL PEOPLE

A Technical Service For Filmhandlers From Eastman Kodak Company



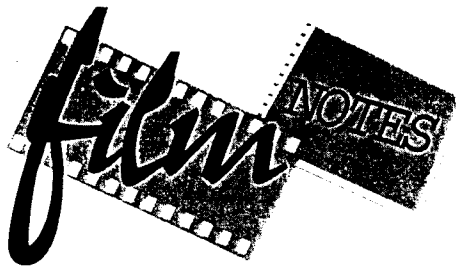
February 1996



INTERVIEW WITH RON HOWARD

LET THERE BE LIGHT

ENVIRONMENTAL UPDATE



February 1996

11-50-38

Pytlak's Practical Projection Pointers



JOHN PYTLAK
Senior Technical Associate
Motion Picture Systems Development Group

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UPDATE

If you have any questions or comments, please write to:

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During the 1995 holidays we received a number of calls from theatres and technicians that were encountering platter feed problems and occasional film jams with a particular movie, evidently due to static attraction of the film to itself as it fed into the payout control arm ("brain") of the platter.

We were able to visit a Sony Theatre near Rochester to see the problem first hand and capture the unusual film behavior with a video camera.

Projectionists reported no unusual problems during the inspection and makeup of the prints onto the platter. But after a few showings, the prints would begin to "act up." During the last reel or two of the six-reel feature, the film coming off the inside of the roll going into the payout control arm would tend to stick to itself, sometimes drawing an extra convolution of film toward the control arm. This would cause the control arm position to fluctuate erratically, with corresponding variations in the platter rotation. At times, the platter would get way ahead of itself, with several free loops of film

around the "brain" of the platter. Most of the time, the platter recovered with no loss (except for the composure of the projectionist watching the platter gyrate wildly). Unfortunately, in a few cases, the film stuck together enough to pull two layers past the control arm "fingers," causing a jam and shutdown. In other cases, the variations in platter rotation caused the film roll to get off-center, or to begin a "brain wrap" where multiple layers of film built up around the payout controller or "brain" of the platter and eventually jammmed.

Static electricity appears to be the cause of the film tending to stick to itself. At the Sony Theatre near Rochester, we were able to alleviate the problem by blowing ionized air from a corona discharge air ionizer at the area where the film separated from the inside of the roll on the platter. (Ionized air is conductive, and helps discharge static buildup.)

Continued on page 11

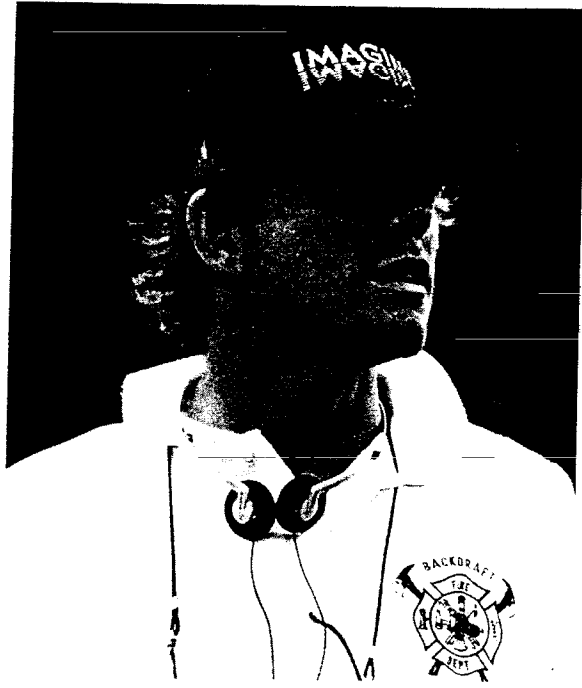


Interview

Most of us remember images of Ron Howard as a child on *The Andy Griffith Show*, or as an adolescent on *Happy Days*. Both were long-running television series where he was either the thoughtful child trying to do the right thing, or the only teen who seemed to have his feet on the ground. From infancy, it appeared that Ron was destined to be in front of the camera, where he has made numerous film and television appearances. In the mid-seventies, he graduated from being in front of the camera to taking a place behind it. That has been fortunate for the movie-going public. In Ron Howard's work as a director, we see many of the same elements that drew us towards him as an actor. Very much like the man himself, his films embody the human spirit, its strengths and weaknesses. His directing credits are enviable: *Cocoon*, *Splash*, *Parenthood*, *Backdraft*, and *Apollo 13*, to name a few. We talked to Ron about his career.

Q: What are some of your earliest movie memories?

A: The first movie I remember seeing was *Frontier Woman*, which I was in. It was a Grade C Western and my dad played a villain. My mom was also in it. It only played drive-ins in the south. That was back in the 50's, and it was about Davy Crockett's daughter, so you can imagine how obscure this movie was. I remember my dad getting shot and falling forward through the banister in classic bad-guy form. I was just a baby. They needed some kid to cry in a scene. I don't remember seeing myself, but they told me I was in it. The first film that really captivated me was *Around the World in Eighty Days*. It had some amazing scenes. I haven't seen the movie since, but I still have vivid memories of it.



Ron Howard, Director

Q: When did you realize you wanted to become a director?

A: We had a lot of actors who turned to directing during the *Andy Griffith Show*, particularly Bob Sweeney, Lou Phillips and Richard Crenna. They directed a number of episodes one year. There was just something about the job that looked interesting to me. I used to like hanging around with the actors, which was fun, but I was always fascinated by what the crew was doing and the mechanics of getting the story on film. It didn't take me long to see that the director was the person who seemed to hang around and play with everybody. Somehow the job seemed right to me. I used to watch my dad direct plays, so I began to understand what the role of the director was. It didn't seem too far-fetched to imagine

that I could do that someday. I never really had a performer's personality. I just fell into it as a kid. There wasn't a deep burning need to be noticed. What I really fell in love with while working on TV shows and movies was the process, not the glamour of it.

Q: Do you see your films in a theatre with an audience?

A: Yes. I screen previews before we've finished editing a film using both regular and recruited audiences. Once a film is finished I make the rounds on opening night to see how people are responding. It's not unusual for me to sit through the whole film just to see how it plays. I learn from it, and I can enjoy the places where the picture seems to connect with the audience for whatever reason. It is a powerful inducement to keep doing this job.

Q: Do you always get the reaction from the audience you want, or are you often surprised?

A: In every movie there are some aspects, some moments, where the audience reaction totally mystifies me. Sometimes it's an unexpected laugh or gasp. On occasion audiences have become emotional to the point of tears, when I never expected that kind of impact. I try to ferret out the awful surprises, where there's miscommunication or something isn't registering. The preview process is essential for me in communicating with the audience.

Q: How critical are you as a film watcher? How do you react to the presentation, especially with all the state-of-the-art equipment in theatres?

A: I am a very forgiving moviegoer the first time through a film. I'm like everyone else, liking some movies better than others, but I enjoy getting lost in the experience. I will notice that one theatre has a bad presentation. I'm aware of that, but it doesn't destroy the experience for me. I'm interested in the story first and foremost, and I appreciate good presentation. I remember seeing the first *Robocop* at a dollar house with a terrible print that had scratches all over it. I



Ron Howard explains a set-up to Michael Keaton in Universal Pictures *The Paper*

thought it was an outstanding movie, and I was completely riveted. I was very aware of all the technical problems, but the story worked so well that it held me.

Q: How do you feel about what you see on most screens today in terms of presentation ?

A: I think there's been a great resurgence in the last decade in movies as an art form. There are a wider range of films being presented to a larger audience, and the venues are getting better. They still have a way to go. Oddly enough, I think that home video has been the catalyst in this revitalization. People are more interested in movie actors and movie directors than they were ten years ago, thanks in part to the media coverage today. People don't want to wait for the video; they see the movie in theatres. All of these factors have been very good for the theatre-going experience.

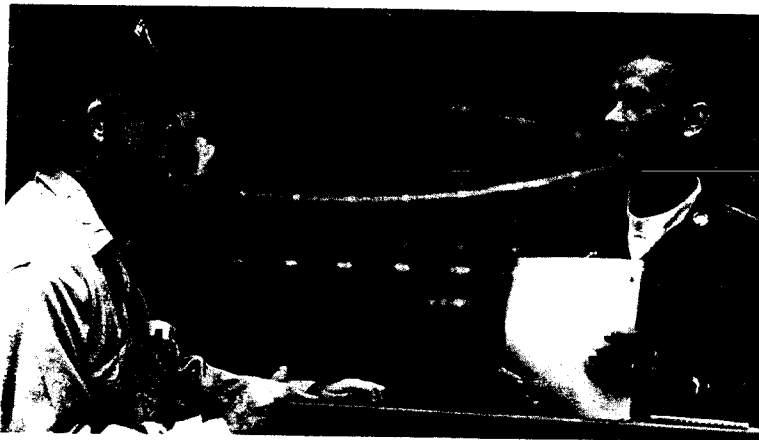
Q: What would you like to see in terms of theatre improvements?

A: I would like to see better quality control. The technology is there. We literally invest millions of dollars into putting the final finish on a project. Well-timed prints, carefully lit and presented, often get undermined by the lack of a quality presentation. The sound is pretty good and consistent in many places, but there are still reel changes that jump, and you get scratches

two or three days into the run. Things that you work hard to avoid start showing up because of oversight and mechanical problems.

Q: In the creative process, how do you select projects ?

A: I look for subjects that I make some sort of connection with or have a personal interest in. I dig around and explore the project and the possibilities of the story. It's got to be something that I'm going to enjoy working on and that I'm willing to commit to. It's a lot of mental and physical work, so it helps to be excited by the subject. I think it's a great job. I get to use these projects as a catalyst for my own growth as a



Ron Howard directs Tom Hanks in Universal Pictures *Apollo 13*

person, to learn how the world works as well as learn about myself. I look for stories that will do that, but I never lose sight of the audience. Is this a movie I would want to see? Is this a movie I would enjoy sitting through? That's what it boils down to at the end. I'm not making movies for myself. I hope that large numbers of people will go and enjoy and get something out of it. I'm disappointed when they don't. I always feel good when people show up and share the experience.

Q: How different was *Apollo 13* for you to make in comparison to your other films?

A: It was an extraordinary movie and a unique creative process. It was the first time I had dealt with a true story. On a degree of difficulty scale it was a ten plus for me. I really enjoyed it. I was

fascinated by the talent involved with the project: the astronauts, and actually going weightless on film. It was very challenging, and the fact that the movie wound up having a broad appeal was more than gratifying.

Q: Many of your films have dealt with visual effects: *Willow*, *Backdraft*, *Apollo 13*, etc. Do you enjoy working in the digital realm?

A: I'm not all that technologically inclined, but I am amazed by what's been achieved. Therefore, I'm not the right person to challenge the system to go further. Whenever you're working on a specific shot you will always run into some limitation. It's far too expensive or unwieldy to

put camera movement into a certain kind of effect. So we are waiting for the day when the computer motion control aspects are more flexible. The thing I'm most looking forward to are low cost image enhancements and digital matte painting. You can do great digital matte painting now, but it's very expensive. When you can actually enhance the image, shift it, and make a shot that you made in the middle of the day look like a dawn shot, it will give filmmakers so much more latitude.

You are constantly bumping your head into these logistical barriers. Digital post production work can sometimes allow you to present to the audience what it is you really have in your head. That's very exciting, and it's what I'm looking for.

Q: How do you go about choosing a cinematographer?

A: Much the same way I pick an actor for a lead role. I'm looking for a key collaborator. Someone I can work with who offers some inspiration and has something creative to offer every day.

Q: Do you go back and look at their previous work to get a specific look?

A: Yes, sometimes you choose a cinematogra-



Director Ron Howard guiding Nicole Kidman through a scene from Universal Pictures *Far And Away*

pher because you know they can achieve the look you have in mind. With Dean Cundey (*Apollo 13*), I was interested in tapping into his motion picture problem-solving reservoir. He's pretty much done and seen it all when it comes to problem solving.

Q: It sounds like you put a lot of faith into your cast and crew.

A: I really depend on them for inspiration. I always figure that I can come to work with a solid enough plan that we'll be on fairly firm ground. But I really count on people to contribute. In these contributions a lot of the great details and ideas are generated. I find that whole process very invigorating, and I really thrive on that.

Q: Do you give your actors a lot of leeway ?

A: I try to, within the framework of what is needed to tell the story. I don't just put everything up for grabs. I try to talk about what I think we ought to go for, and sometimes people change my mind, and that's a good thing. I'm not easily moved, but when I can be, it's usually for the better. Sometimes I've been steered in the wrong direction and I kick myself later. It's a cliché to say that movies take on a life of their own, but it's a cliché that comes true. It's a fun

ride to go on if you can relax and let it carry you over a little bit.

Q: How difficult was it to do your first film?

A: Well I haven't seen the movie (*Grand Theft Auto*) since it came out, but I probably ought to look at it. I think I did all right with that movie. I was surprised by some things and disappointed with others. We had to make the movie quickly. In some ways making a movie is a brand new experience every time. I know that I've accrued some wisdom and some experience that benefits me, and I'm sure that five years ago I wouldn't have been able to think of some of the things that we pulled off in *Apollo 13*. Five years from now hopefully I'll be better than I am today. In a lot of ways I think that each project has its own set of challenges and maybe I wouldn't have done as good of job on *Grand Theft Auto* today as I did then. I don't really know how to measure that. I just try to move forward.

Q: What can you tell us about *Ransom*, without giving too much away?

A: It's a crime story about a kidnapping, but it's also an emotional survival story. It's about enduring a terrible crisis and the toll that it takes on everybody. In addition to being every parent's nightmare and very suspenseful, it's also shaping up to be a pretty interesting character drama, and an examination of a certain kind of dilemma. I'm still just figuring this movie out.



Director Ron Howard discusses a key scene in Universal Pictures *Backdraft* with Robert DeNiro

Technology



LET THERE BE LIGHT

A User-Friendly Guide Toward Optimal Screen Brightness

1. Always Operate Xenon Lamps Close To Their Published Rated Current.

All xenon lamps darken to some degree during their operating life. This is caused by evaporating electrode material collecting on the lamp walls. This blackening blocks some of the light created by the xenon lamp and thereby reduces light on the screen. To minimize the effects of lamp envelope blackening and to compensate for light loss, the operating current to the lamp can be increased to generate more light. The lamp's operational current (amperage) can be increased incrementally during its life. This ensures a consistent high-light output throughout the lamp's rated life. The range of current adjustments for most lamps can be found in the company literature. However, please be advised that rated lamp-life aging can be accelerated with excessive operation at increased current levels. Operation outside the recommended current range can shorten lamp life and could cause premature failures.

Operating a xenon lamp at or below the low end of its allowable current range may cause ignition difficulties and other instabilities. This is especially true of horizontally-operated lamps. Operation at currents in excess of allowable current limits can cause premature electrode wear. Excess current can also cause early lamp darkening, lamp seal failures and can increase the possibility of a lamp explosion. To ensure the correct amount of current is provided to the lamp, lamphouse ammeters should be periodically calibrated.

A xenon projection system should allow a new lamp to be operated at 85% of its rated amperage and still provide proper illumination. As lamps

age and darken, the system amperage can be increased to allow it to maintain the proper light level. This can be done until the lamp reaches its maximum allowable operating amperage. If the lamp does not provide the proper light at its maximum rated operating amperage, it should be replaced. Operating a xenon lamp in this manner will generally result in the lamp's longest useful life possible.

2. Horizontally-Operated Xenon Lamp Rotation As Needed.

The primary reason to rotate the lamp is due to uneven blackening of the lamp. In a horizontally-operated lamp, the area above the electrode blackens due to evaporation of the electrode material. This blackening, concentrated in one area, can reduce light on the screen. The blackening can also cause localized envelope heating which will accelerate lamp wall deterioration (devitrification): This condition can increase the possibility of a lamp explosion.

Formerly, lamp manufacturers recommended that horizontal lamps be rotated 180 degrees at 1/2 the lamp's rated warranty life. However, due to the enormous advances in electrode materials and technology, we now find that it is not always necessary to rotate the lamps at 1/2 warranty life. In many cases, severe lamp darkening normally does not occur until well after 1/2 warranty life. We suggest, however, that the lamp be visually inspected at 1/2 warranty life to determine if blackening has occurred. If the lamp remains clear, continue to operate the lamp in its present, (non-rotated), position until blackening is clearly evident on the upper part of the lamp envelope.

Occasionally a lamp can experience arc instability after rotation. It usually takes a short time for the arc to re-establish itself. This period of instability can be reduced by operating the lamp at the maximum current range for a short period.

3. Arc Stabilization Should Always Be Used With Horizontal Xenon Lamps Where Required.

When xenon lamps are operated horizontally, there is a natural tendency for the arc to burn on the upper part of the electrodes. Some xenon lamp types have designs that will allow them to operate satisfactorily throughout their life without external magnetic stabilization. There are other horizontal lamps, however, that require a magnet to be installed in the lamphouse so that the arc will remain in the center of the electrodes. If the lamphouse is designed to operate more than one type of lamp, it is possible that a magnet was not installed by the manufacturer. If a magnet was missing, one should be requested from the lamphouse manufacturer as needed. When required, magnetic stabilization must be used to assure that the manufacturer's warranty of the xenon lamp is maintained. Improper arc stabilization can cause lamp ignition difficulties, arc instability and increased possibilities of a lamp explosion. If the magnet is installed backwards, instead of holding the arc down it can actually push the arc up, which can cause poor lamp ignition and operational problems. Using properly-positioned magnetic stabilization with lamps that do not require it could potentially further improve arc position and/or arc stability.

4. Lamp Connections Should Be Clean And Tight.

Xenon lamps typically operate at high temperatures and high currents. These conditions cause severe strain on electrical connections, especially when the connection is made directly to the lamp. The heating and cooling of the lamp can cause lamp connections to loosen or to build up a layer of oxidation. Loose connections or oxidation will result in poor electrical connections. These can cause the lamp base to overheat, often leading to lamp failure. When overheating occurs, the lamp and the connector are usually destroyed. If the defective socket/connector is not replaced after overheating, it can destroy the replacement lamp. Poor electrical connections are one of the most common causes of premature lamp failure.

Importantly, lamp failures due to poor electrical connections are not covered by xenon lamp warranties.

If possible, use xenon lamps that have pre-installed cables. When using the lamp with a pre-installed cable, typically an improved mechanical/electrical connection can be made. The electrical connection is, therefore, more reliable. In applications where a lamp without a cable is used, you should periodically inspect the lamp to make sure the lamp connector is properly tightened.

5. Be Sure Your Xenon Lamp Is Clean.

Just like other optical components in the projection system, the xenon lamp can get dusty and dirty. As with dust and dirt on other components, this condition can reduce the light on the screen. A heavy build-up of dust and dirt will not only reduce light output, but could cause the possibility of a lamp explosion. Excessive dirt contamination can, over a period of time, damage the lamp envelope wall. In some projection booths, airborne oil contamination from popcorn machines and other equipment can attach itself to the lamp, resulting in external contamination.

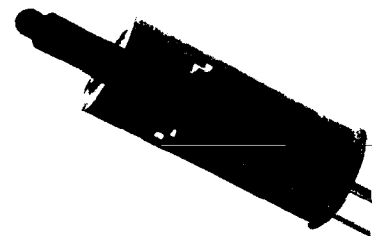
Most lamp contamination can be removed by wiping the lamp with a dust-free cloth and denatured alcohol. During cleaning, or whenever handling a xenon lamp outside its protective safety cover, always wear adequate safety clothing (leather gloves, face mask, etc.) and exercise extreme caution. In the interest of safety, never directly exposure of the xenon lamp to eyes or skin.

6. Investigate All Premature Lamp Failures.

If you are using a quality xenon lamp, you should obtain, at a minimum, the lamp's published warranty life. Repeated premature lamp failures are not normal and indicate that there is something wrong with the equipment or its operation. After a premature failure, the equipment should be completely checked. There have been occasions when theaters have experienced multiple premature lamp failures before having their equipment checked. Many times it has been found that the subsequent failures could have been avoided with proper and timely service to the lamphouse and related equipment.

XENON ARC LAMPS

There are a number of reasons why a lamp may not give satisfactory performance. The following may help you locate and correct the more common problems that can cause failure, and ensure longer life for the replacement lamp.



SYMPTOM: Connector base discoloration.

FAULT: Connector base overheated; above 230°C, due to:

- Faulty electrical connection
- Improper lamp cooling
- Misaligned optical system
- Improper operating current

REMEDY: Check electrical connections:

- Tighten or renew
- Check system cooling
- Check/adjust optical system
- Check operating current



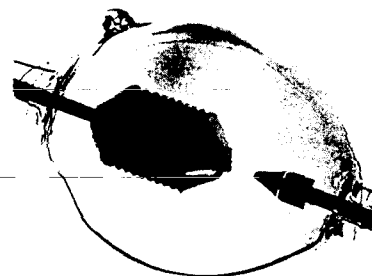
SYMPTOM: Blackening or clouding of quartz lamp.

FAULT: Operational air infiltration due to:

- Crack in graded seal typically caused by overheated connector base, maximum temperature of 230°C exceeded.

REMEDY: Ensure proper operational current, as noted for overheated base. Check electrical connections:

- Tighten or renew
- Check system cooling
- Check/adjust optical system
- Check operating current



SYMPTOM: Electrodes damaged, with premature darkening of lamp envelope.

FAULT: Improper or poor quality operational current.

REMEDY: Have power supply checked.



SYMPTOM: Severe cathode electrode damage, gray/brown deposits on quartz envelope.

FAULT: Reversed polarity due to:

- Electrical feed incorrectly supplied to lamp
- Faulty wiring

REMEDY:

- Check polarity, transpose connections if necessary
- Lamp anode should always be on top if lamp is used in vertical burning position



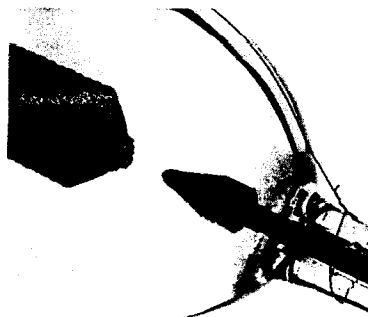
SYMPTOM: Abnormal anode electrode deterioration, blackening of lamp.

FAULT: Arc instability due to:

- Lamp operated outside current control range
- Lamp operated with poor quality operational current
- Improper magnetic stabilization
- Improper forced cooling

REMEDY:

- Correct current setting
- Check meter
- Check magnetic stabilization
- Ensure proper quality current
- Ensure forced cooling



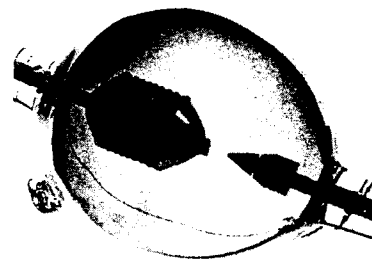
SYMPTOM: Quartz devitrification

FAULT:

- Lamp service life exceeded
- Lamp operated above current control range

REMEDY:

- Correct current setting
- Check hour meter. Ensure the lamp's accumulated hours of operation are within manufacturer's advisements.
- Clean lamp as advised by manufacturer.



SYMPTOM: Asymmetrical blackening of lamp (horizontal burning position).

FAULT: Lamp operated too long in same position.

REMEDY: Turn horizontal operating lamp 180 degrees after half service life as required by warranty.

Information in this article provided courtesy of Osram-Sylvania

Environmental Update: FPC-FILM SENSE

FPC, Inc., a wholly owned subsidiary of the Eastman Kodak Company is offering the motion picture industry an innovative way to recycle and reuse acetate and polyester based motion picture film.

This is an environmentally-safe disposal plan for theatrical film prints involving recycling, reusing, and converting waste to energy. This effectively prevented more than 10 million pounds of materials from being dumped into landfills worldwide in 1995.

FPC has diverted the equivalent of 250 tractor-trailers fully loaded with film prints from landfills in the U.S., Canada and Europe. This ten million pounds of film represents about one-third of the total volume of print film consumed on an annual basis.

How does FPC recycle and reuse it?

- Some of the films are washed, which removes the emulsion, then recycled to create new acetate base.
- Some films are washed for use as leader, or coated with magnetic stripe for sound post-production film.
- Others are chopped burned in clean waste to-energy programs.

It is important to note that each full-length feature released can generate more than 25 million feet of print stock-or nearly 5,000 miles-of film. Kodak, in conjunction with FPC, offers a "cradle-to-grave" plan for film used in the entertainment industry. FPC maintains a "zero landfill policy" that mandates that none of the print film it receives at its Hollywood site, Tennessee plant, or its European facility will go into the ground.

Another advantage, in addition to the obvious environmental benefit, is the certified destruction of materials. All images, sound recordings and other copyright-protected materials on the film are destroyed. This security measure is important because video piracy continues to cost the industry more than one billion dollars annually.

fpc INC.

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Continued from page 2

Projectionists noted that the problem got worse during the later shows of the day. (The radiant energy from the lamp tends to drive some moisture from the film each time it is projected and drier film is less conductive and more prone to static buildup.) The problem tended to be worse on platters with non-metallic surfaces. (A metal platter surface is conductive, and helps discharge the film.) The problem prints tended to be in the Northeast and Midwest, in November and December, where building heating causes low relative humidity. (Low humidity aggravates static problems.) Although we have heard of similar static-related problems, this particular problem was especially widespread.

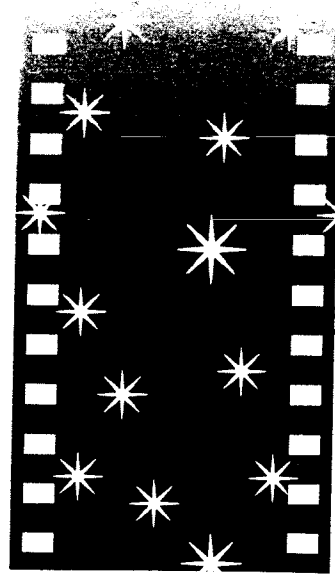
To help those projectionists who called us, we suggested the measures that were detailed in the December 1994 issue of *"Film Notes for the Reel People"*. Try to maintain a relative humidity of 50 to 60 percent in the projection room. Low humidity reduces the conductivity of the film, so static problems are aggravated. Add moisture to the air by adjusting the balance of the theatre HVAC system, or using evaporative humidification. Don't use cold mist or ultrasonic humidifiers that may deposit a white powdery residue of mineral salts from the vaporized water. If it is impossible to raise the relative humidity of the entire projection room, cover the film on the platter with a protective sheet of polyethylene plastic overnight, and place a damp sponge in a dish near the center of the platter to add moisture to the film roll as it sits overnight. Be sure not to let the film or platter mechanism actually get wet, and NEVER put water on the film itself (wet emulsion is very soft and sticky, and will cause the film to stick together as it dries).

Treat any non-conductive surfaces (platter surface, plastic rollers, guide bars, etc.) with an antistat, which increases the conductivity to help dissipate static. Antistats are sold for use around computers and sensitive electronic components (check out your local computer store or electronic supply company). You can even use laundry products that reduce "static cling" such as "Static Guard"™ spray or

"Bounce"™ sheets. We don't recommend putting antistatic chemicals on the film itself, because they can cause dye fading or other damage. Be sure all equipment is properly grounded, so the static charge doesn't accumulate.

Consider the use of ionized air to help dissipate static. Industrial air ionizers generate both positive and negative air ions, which make the air conductive, helping discharge any charged surface the ionized air passes over. Other static-control aids include conductive metal garland and conductive brushes in consult on static-related problems are usually listed in the Yellow Pages™ under "Static Controls".

Static Control



Motion Picture
&
Television Imaging
Eastman Kodak Company

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