

# Film-Tech

The information contained in this Adobe Acrobat pdf file is provided at your own risk and good judgment.

These manuals are designed to facilitate the exchange of information related to cinema projection and film handling, with no warranties nor obligations from the authors, for qualified field service engineers.

If you are not a qualified technician, please make no adjustments to anything you may read about in these Adobe manual downloads.

[www.film-tech.com](http://www.film-tech.com)

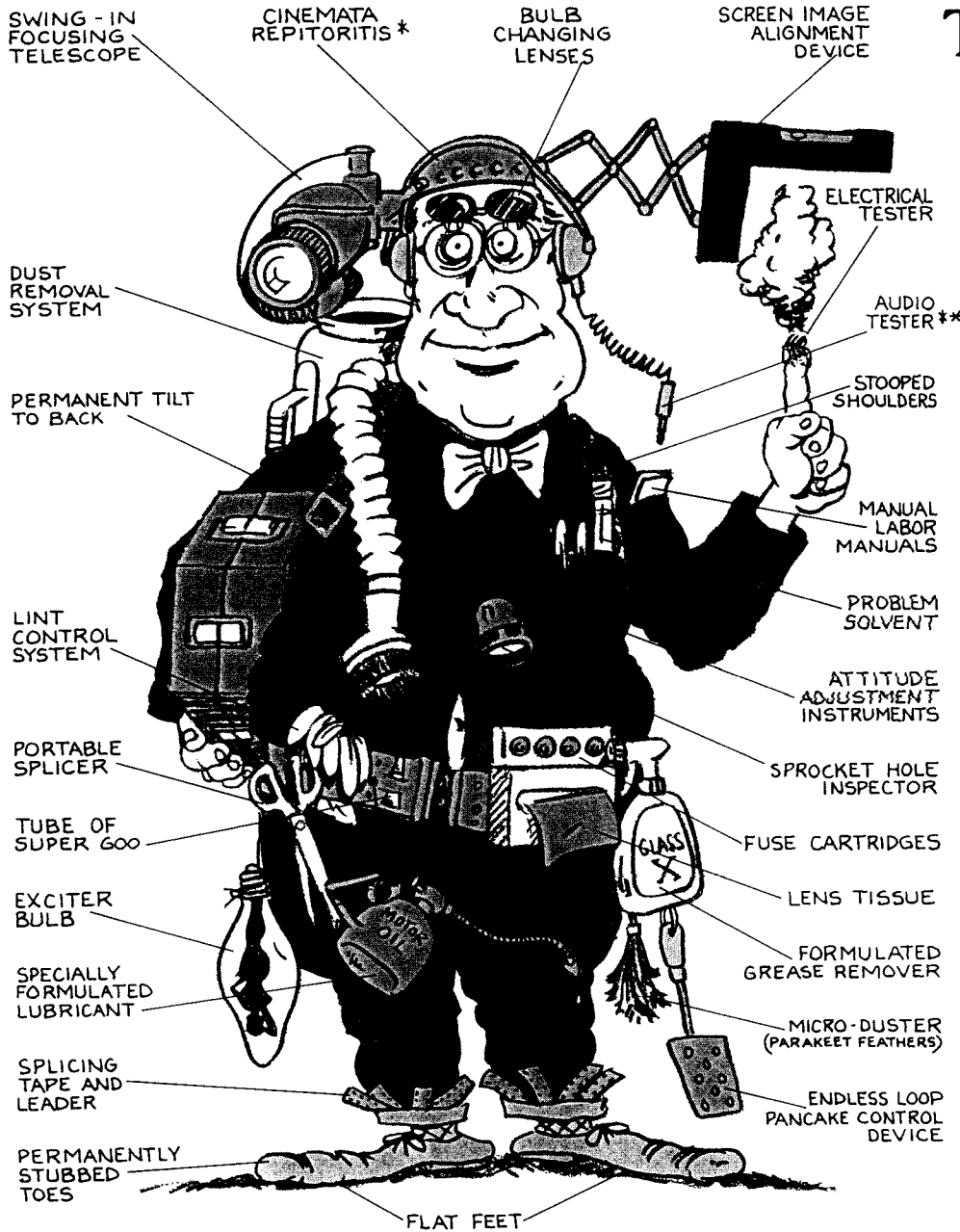
# FILM NOTES FOR THE REEL PEOPLE

H-50-19

A TECHNICAL SERVICE FOR FILMHANDLERS FROM EASTMAN KODAK COMPANY



## Troubleshooting for the Projectionist



Projection-related problems are infrequent, but on occasion—generally at the worst possible time—a projectionist's private fears are realized.

Most problems can be prevented by checking equipment and inspecting film regularly. But, avoidable or otherwise, when your show comes to an unexpected and embarrassing halt, you must act quickly to right what is wrong.

There is always a possibility your role will suddenly change from projectionist to troubleshooter. The troubleshooting guide inside this issue of *REEL PEOPLE* was prepared for those times, when a quick reference is needed in order to diagnose and correct the problem.

The guide lists almost everything that could go wrong, with straightforward remedies. In the event none of these suggestions work, we've arranged for "last-resort" emergency phone numbers to connect you with a troubleshooting expert.

We suggest you look over this information chart now, before you actually need it. "Be prepared" is still a timely maxim.

### IN THIS SPECIAL ISSUE:

**Projection Booth  
Emergency Call Guide**

**Projectionist's  
TROUBLESHOOTING Guide**

\*REPEATS LINES FROM CURRENT MOVIE SEEN MORE THAN 2000 TIMES

\*\*ALSO FITS INTO STEREO SYSTEMS

### The Complete Projectionist

**Problem**

**Probable Cause**

**Remedy**

**SCREEN**

<p>Vertical Unsteadiness.</p>	<p>Perforation damage. Inadequate or otherwise incorrectly formed loops. Gate Tension.</p> <p>Lack of proper lubrication.</p> <p>Deposits on trap rails.</p> <p>Intermittent sprocket. ("ticking" sound) Intermittent movement. ("clicking" sound before sprocket begins to move)</p>	<p>Get replacement print (footage). Rethread projector.</p> <p>Increase tension until intermittent sprocket is heard. If no setting helps, check the spring tension—replace if necessary.</p> <p>Lightly moisten thumb and forefinger with film lubricant and apply alternately to film edges before it enters the gate. <b>CAUTION:</b> This is an emergency measure. If possible, films treated this way should be cleaned and lubricated by a film laboratory before further shows are booked because oily edges collect DIRT.</p> <p>Remove deposits with plastic scraper. Clean rails with 50/50 water and alcohol solution. Wipe dry!</p> <p>Check for hooked teeth or wear at the base of the tooth. If present, replace sprocket or reverse present sprocket.</p> <p>Obtain "loaner" from your service representative and have your unit repaired or overhauled.</p>
<p>Horizontal Weave.</p>	<p>Lateral guide rollers in trap. Film guide rails in trap.</p>	<p>Check spring-loaded guide rollers for free operation. Adjust outside trap rail (sound-tract side) to be flush with fixed flange of lateral guide roller. Spring loaded inner flange should bear against film edge. Inner rail should allow slight clearance for splices.</p>
<p>Soft Image, Lack of Contrast (Halos around bright areas).</p>	<p>DIRT and oil deposits on rear element of projection lens. Deposits on optics from tobacco smoke. DIRTY port glass. DIRTY and/or cloudy inner lens surfaces.</p> <p>Separation of cemented lens elements.</p>	<p>Clean lens surface with an approved lens cleaner and lens tissue. This should be done on a regular basis to prevent deposits. Do Not allow smoking in the booth.</p> <p>Clean in the same manner as the lens, listed above. Interior lens elements should be thoroughly cleaned, but only by a professional optical technician who has the necessary lens assembly and alignment tools. Inspect lens for irregular patterns in the open areas.</p>
<p>In-and-Out of Focus (Rubber Screen).</p>	<p>Excessive heat from lamp.</p>	<p>Same as for flutter. Usually recovers after a sufficient number of runs. Image edges will remain out of focus. (Excessive heat can permanently damage the film and a replacement will be needed.)</p>
<p>Image Soft at Top or Bottom of Screen, Horizontal Lines Curved. Bad Keystoning.</p>	<p>Large projection angle.</p>	<p>In some instances, screen can be tilted to compensate. If not, maintain the best focus at or around the center of the screen.</p>
<p>Out of Frame.</p>	<p>Bad Splice. Foot loop slippage.</p>	<p>Hand check all splices by lightly placing thumb and forefinger on film edge during build-up, and inspecting as they pass through your fingers. Rethread projector using proper loop size. See "Projector" section, film slippage.</p>
<p>Dark Spots Randomly Moving Across the Screen.</p>	<p>DIRT on the film.</p>	<p>Use lint-free gloves when handling the print. Keep film off floor during threading. Use non-chipping device for marking reel endings. Clean booth floors daily. Cover prints and platters with platter covers when not in use.</p>
<p>Loss of Detail in Shadows and Dark Scenes.</p>	<p>Low light output (See "Lamphouse" sections).</p>	<p>See "Lamphouse" sections for causes and remedies.</p>
<p>Constant Flicker.</p>	<p>Excessive light output. (See "Lamphouses" sections).</p>	<p>See "Lamphouse" sections for causes and remedies.</p>
<p>Random Flicker.</p>	<p>Lamp burning characteristics. Voltage or current fluctuations. Cracked positive carbon.</p>	<p>See "Lamphouse" sections for causes and remedies.</p>
<p>Dark Corners or Dark Center Screen.</p>	<p>Incorrect mirror-to-light source distance and/or mirror-to-projector distance.</p>	<p>Check lamphouse manual and readjust. Corner luminance should be about 75 percent but never less than 62.5 percent of center luminance. See SMPTE Screen Brightness Standards.</p>

# Projectionist's TROUBLESHOOTING

Problem	Probable Cause	Remedy
Dark on One Edge, Top, or Bottom of Screen.	Mirror and/or lamphouse misalignment.  Incorrectly filed aperture plate.	Adjust mirror first. If not successful, check lamphouse alignment. If neither adjustment helps, check for vignetting by lens and/or port opening.  File lightly in effected area of aperture.
Soft Image, Cannot be Focused (Flutter).	Excessive heat from lamp.	Reduce current and change carbon sizes or xenon-bulb wattage if necessary.  Check mirror-to-light source distance and mirror-to-projector distance. Reduce the "hot spot".

## SOUND (see also Optical or Magnetic Sound Section for specifics of each format)

No Sound.	Amplifier malfunction. Speaker failure.  Wrong switch thrown. Improperly threaded projector. Individual circuit fuses blown.	Service check.* Service check.* (If one speaker has no sound the problem lies in the auditorium. If all of the speakers are malfunctioning the problem is in the booth equipment or the sound-track. Check your operating procedure. Rethread the film with the sound-track facing the correct way. Replace. Spares should always be kept on hand.
Loss of High Frequency Sound or Poor Quality Sound.	Amplifier malfunction. Speaker defect.	Service check.* Service check.*
Garbled Sound.	Misthreaded. Inadequate loop size from aperture to scanning point.	Increase to recommended loop size: Optical: 19-21 frames. Magnetic: 21-23 frames.
Crackling Sound (Frying Eggs).	Corroded socket connections, loose wiring, or loose terminal connections. Cracked diaphragm in one or more speakers . . . either high or low frequency.	Time for a service call and thorough checkup.  Replace. As a temporary repair, "super glue" will reduce the rattle.
Extraneous Noises.	Seasonal noise from vibrations transmitted by air conditioners, electric heaters, fans, etc. Heating, ventilating, and air conditioning system. Squeaking in duct work. Auditorium bleed-through.  Radio and C.B. transmissions. Amplifier feedback. Seats.  Lobby noise.	Isolate source, if possible use vibration absorbing mounts for fans, motors, etc.  If problem exists only on start-up, get system going before your patrons arrive. Caulk all reachable ducting. Monitor sound levels in auditoriums and how they affect adjacent theatres. Reduce volume as necessary. Install additional insulation in walls and ceilings. Shield wires to interrupt the antenna effect. Ground and shield wires. Lubricate all moving parts. This should be done on a regular basis. Replace bumper pad on spring if experiencing seat "flutter". Place holdout lines away from auditorium doors. Reduce volume level on arcade games and place away from auditorium doors.

## MAGNETIC SOUND

Loss of High Frequency Sound	Oxide buildup on heads. Worn pole pieces on heads.	Clean heads as specified in manufacturers manual. Service check.*
Garbled Sound.	Insufficient film tension on magnetic heads.	Rethread to adjust tension as indicated in manual.
Hissing Sound (Rain).	Magnetic tracks partially erased or subjected to spurious magnetic sources.	Exchange print.
Pop or Thumping Sound.	Magnetic contamination of sound track.	De-gauss equipment by qualified technician.

\*Service check, as mentioned here, means inspection, adjustment, rep

# LESHOOTING Guide

Problem	Probable Cause	Remedy
<b>OPTICAL SOUND</b>		
No Sound.	Exciter Bulb burned out. Faulty diode.	Replace. Spares should always be on hand. Check with ohm-meter. If no current, replace. If current exists consult qualified technician.
Loss of High Frequency Sound or Poor Quality Sound.	Scanning beam not properly focused on the film sound. DIRT or oil on scanning beam optics.	Adjust the fidelity focus until the best sound is heard. Use SMPTE sound test films if possible. Clean with approved lens cleaner and lens tissue. Process should be done on a regular basis.
Garbled Sound.	Film not being held securely at scanning point. Lateral guideroller pressure on sound drum insufficient. Dirt or oil on sound track.	Check roller tension spring and adjust if necessary.  Clean with film cleaner. Always wear lint-free gloves when handling the film.
Crackling Sound (Frying Eggs).	Loose bracket in photocell. Loose elements in photocell.	Tighten bracket to photocell. If the element is detached, service check.* Damaged element. Needs replacing.
Hissing Sound (Rain).	Scratches on sound track.	Exchange print. Prevention is the best remedy.
Extraneous Noises.	Extraneous light on photocell.	Shield from light.

<b>CARBON ARC LAMPHOUSE</b>		
No Light (Carbons do not strike).	Generator or rectifier not operating. Carbons do not contact.	Check power supply on unit, fuses, ballast, etc.  Replace short carbon, or both carbons.
Low Light Output.	Incorrect carbon trim and/or voltage and current. Internal lamphouse adjustments. Lightsource-to-mirror distance. Mirror-to-projector distance. DIRTY or clouded optical components. DIRTY screen.  Oversized screen image.  Stray light hitting the screen.	Check lamphouse manual and make necessary adjustments.  Check lamphouse manual and make necessary adjustments.  Make sure mirror, projection lenses, and port glass are clean. Clean with approved lens cleaner and lens tissue. Clean entire screen surface with feather duster or screen brush. When necessary use an approved screen cleaning solution. If problem still exists, replace screen. Increase light output to conform with SMPTE standards of $16 \pm$ footlamberts. Increase focal length of lens. Adjust screen masking if necessary to accommodate. Shield sources of stray light, exit lights, and exit doors.
Sputtering Carbon (Erratic Light Output, Cracked Positive Carbon Tip).	Excessive pressure on the clamping arm. Dropping carbon on hard surfaced floor causing a fine break. Current overload.	Adjust clamp to reduce pressure.  Carbons are very brittle; be careful.  Reduce current.
Random Flicker.	Lamp burning characteristics. Fluctuating voltage and current. Cracked positive carbon tip.	Check carbon trim voltage regulation. Check rectifier for deteriorating diodes. Burn-in or replace.
Gradual Decrease in Output.	Widening gap between carbons. Usually positive carbon drive too fast or too slow.	Readjust carbon feed according to lamphouse manual.
Excessive Light Output.	Incorrect carbon trim and/or voltage and current. Internal lamphouse adjustments. Lightsource-to-mirror distance. Mirror-to-projector distance.	Check lamphouse manual and make necessary adjustments.  Check lamphouse manual and make necessary adjustments.



**Problem**

**Probable Cause**

**Remedy**

**XENON ARC LAMPHOUSE**

<p>No Light.</p>	<p>Power Supply.  Igniter. Xenon Bulb.</p>	<p>Check circuit breakers and interlock safety system. Check lamphouse fan (must be operating before interlock will function). Check fuses and manual switches. Check manual bottom, fuses, or breaker. Change bulb using protective clothing.</p>
<p>Light Flicker.</p>	<p>Xenon bulb (uneven wear on electrodes). Power supply.</p>	<p>Change bulb. On new bulb, rotate 180 degrees at half its life expectancy, to improve the life of the bulb. Service diodes.</p>
<p>Low Light Output.</p>	<p>Internal lamphouse adjustments. Lightsource-to-mirror distance. Mirror-to-projector distance.  Operating lamp below recommended current. DIRTY or clouded optical components. DIRTY screen.  Oversized screen image.  Stray light hitting the screen.</p>	<p>Adjust according to lamphouse manual.  Increase current to recommended level as designated by manufacturer. Make sure mirror, projection lenses, and port glass are clean. Clean with approved lens cleaner and lens tissue. Clean entire screen surface with feather duster or screen brush. When necessary use an approved screen cleaning solution. If problem still exists, replace screen. Increase light output to conform with SMPTE standards of <math>16 \pm</math> footlamberts. Increase focal length of lens. Adjust screen masking if necessary. Shield sources of stray light, exit lights, exit doors, etc.</p>
<p>Excessive Light Output (Constant Flicker)—can also cause blistering or burning of film.</p>	<p>Internal lamphouse adjustments. Lightsource-to-mirror distance. Mirror-to-projector distance.  Operating lamp above recommended current. Lamp wattage too high. Undersized screen image.</p>	<p>Adjust according to lamphouse manual (see others).  Decrease current to level recommended by manufacturer.  Replace with lower rating xenon bulb. Decrease focal length of lens. Adjust masking if necessary to accommodate.</p>

**PROJECTOR**

<p>Travel Ghost (Bleeding Bright Image Areas into Adjacent Dark Image Areas, or Vice Versa).</p>	<p>Incorrectly timed shutter.</p>	<p>Adjust according to projector manual.</p>
<p>Film Loop Slippage. Loss of Loops.</p>	<p>Incorrectly seated pad roller. Too wide a gap between roller and sprocket.</p>	<p>Adjust to allow no more than double thickness of film to pass without lifting pad roller from sprocket.</p>
<p>Film Clatter at Gate.</p>	<p>Excessive gate tension.  Lack of proper lubrication.</p>	<p>Reduce tension until noise disappears or until vertical unsteadiness is apparent. If no setting helps, check film lubrication. See "Screen Image" section, vertical unsteadiness.</p>
<p>Noisy Sprockets.</p>	<p>Excessive feed or holdback tension.  Hooked or burred sprocket teeth.</p>	<p>Reduce reel tension to reduce noise.  Replace sprocket.</p>
<p>Transverse (Hashmark) Scratches on Film.</p>	<p>Film rubbing against badly misaligned roller flanges.</p>	<p>Align incoming and outgoing rollers on projector when using platter systems.</p>
<p>Longitudinal Scratches.</p>	<p>Protruding component in projector gate. Upper and lower fire rollers.  Sound drum drag.  Film riding on roller flanges.</p>	<p>Check for burred edges on aperture plate.  Check for non-rotating rollers due to flat spots. Clean out clogged rollers and lubricate sparingly. Check lubrication. If surface is highly polished, check with your service representative. Replacement may be necessary. Adjust film to ride smoothly. Institute operational procedure to check rollers prior to show starts.</p>



# NEW! Projection Booth Emergency Call Guide

Eastman Kodak is pleased to offer you this list of manufacturers and service technicians who have been kind enough to volunteer to assist projectionists by phone in case of emergency. However, out of courtesy to these individuals and their companies, we request that you be guided by the following suggestions:

1. Call only in case of a genuine emergency when you have nowhere else to turn.
2. Make no collect calls; all calls must be prepaid.
3. Write down the specifics of your problem before calling; the type of equipment, approximate age, model and serial number, and be as precise as possible as to the nature of the problem.
4. Always bear in mind that these kind-hearted souls are employed full time and do not have the time to simply "rap" or help you in routine situations. Be brief, be specific, and listen to their advice.

## AUTOMATION EQUIPMENT

**BALLANTYNE OF OMAHA\*** (402) 342-4444  
8:00-5:00 PM Central Time  
John Wilmers, Gene Poole

**CHRISTIE ELECTRIC CORP.** (213) 320-0808  
7:00-6:30 PM Pacific Time  
Lynn Shubert, Jack Kline, Stan Larsen

**CINEMECCANICA N.A. INC.** (813) 577-3211  
8:30-5:00 PM Eastern Time  
Robert Artmire

**EPRAD, INC.** (419) 666-3266  
8:00-5:00 PM Eastern Time  
Dave Carrol

**KELMAR SYSTEMS, INC.** (516) 421-1230  
9:00-5:30 PM Eastern Time  
Andrew Marglin

**KINOTONE (Norelco)** (201) 279-9700  
9:00-5:00 PM Eastern Time  
John Gallucci, Jim Evans

**L.P. ASSOCIATES, INC.** (213) 462-4714  
8:00-5:00 PM Pacific Time  
Leonard Pincus

**OPTICAL RADIATION CORP.** (818) 969-3344  
8:00-4:30 PM Pacific Time  
John Carter, Dale McMillan

**RANGERTONE RESEARCH INC.** (212) 753-5430  
8:30-5:00 PM Eastern Time  
George Zazzali

**XETRON CORP.** (201) 267-8200  
8:30-5:00 PM Eastern Time  
Ted Askew

## CARBONS

**MARBLE CO. INC.** (615) 227-7772  
8:00-5:00 PM Central Time  
Ronald W. Purtee

**XETRON CORP.** (201) 267-8200  
8:30-5:00 PM Eastern Time  
Ted Askew

## CONSOLES

**AMERICAN THEATRE PRODUCTS** (213) 462-7750  
8:30-5:30 PM Pacific Time  
Ed Burke

**BALLANTYNE OF OMAHA\*** (402) 342-4444  
8:00-5:00 PM Central Time  
John Wilmers, Gene Poole

**CHRISTIE ELECTRIC CORP.** (213) 320-0808  
7:00-6:30 PM Pacific Time  
Lynn Shubert, Jack Kline, Stan Larsen

**CINEMA FILM SYSTEMS, INC.** (714) 981-1398  
8:00-5:00 PM Pacific Time  
Bill Noyes, Dick Niccum

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8:30-5:00 PM Eastern Time  
Robert Artmire

**EPRAD, INC.** (419) 666-3266  
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Dave Carrol

**KNEISLEY ELECTRIC CO.** (419) 241-1219  
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Gary Kneisley

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## EXCITER LAMPS

**CANRAD-HANOVIA INC.** (714) 385-1433  
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**EDWARD H. WOLK CO., INC.** (312) 939-2720  
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Charles Wolk, Norm Lauterbach

## FILM TRANSPORT SYSTEMS

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8:00-4:30 PM Pacific Time  
John Carter, Dale McMillan

**RANGERTONE RESEARCH INC.** (212) 753-5430  
8:30-5:00 PM Eastern Time  
George Zazzali

## LAMPHOUSES

**AMERICAN THEATRE PRODUCTS** (213) 462-7750  
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**BALLANTYNE OF OMAHA/STRONG ELECTRIC\*** (402) 342-4444  
8:00-5:00 PM Pacific Time  
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George Zazzali

**XETRON CORP.** (201) 267-8200  
8:30-5:00 PM Eastern Time  
Ted Askew

## LEADERS

**N.T. AUDIO VISUAL** (213) 455-2560  
9:00-5:00 PM Pacific Time  
Tom McCormick

**SMPTÉ** (914) 761-1100  
9:00-5:00 PM Eastern Time  
Lynne Robinson

## LIGHTING EQUIPMENT

**CHRISTIE ELECTRIC CORP.** (213) 320-0808  
7:00-6:30 PM Pacific Time  
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9:00-5:30 PM Eastern Time  
Andrew Marglin

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Leonard Pincus

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Ted Askew

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PLEASE POST IN PROJECTION BOOTH

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8:30-5:00 PM Eastern Time  
George Zazzali

**STEREOVISION INTERNATIONAL** (818) 841-1127  
8:00-7:00 PM Pacific Time  
Chris Condon, Victoria Silliphant

**XETRON CORP.** (201) 267-8200  
8:30-5:00 PM Eastern Time  
Ted Askew

**EPRAD, INC.** (419) 666-3266  
8:00-5:00 PM Eastern Time  
Dave Carrol

**INTERNATIONAL PROJECTOR CO.** (305) 756-0699  
9:00-5:00 PM Eastern Time  
Steve Krams, John Bugholzer

**KINOTINE (Norelco)** (212) 753-5430  
9:00-5:00 PM Eastern Time  
John Gallucci, Jim Evans

**SPEAKERS**

**ALTEC LANSING** (405) 324-5311  
8:00-4:30 Pm Central Time  
Ted Uzzle, John Lanphere

**BOSE CORP.** (617) 879-7330  
8:30-5:00 PM Eastern Time  
David Bell, Mark Mayfield

**INTERNATIONAL PROJECTOR CO.** (305) 756-0699  
9:00-5:00 PM Eastern Time  
Steve Krams, John Bugholzer

**JBL INC.** (818) 893-8411  
8:00-5:00 PM Pacific Time  
Drew Daniels

**PLATTERS**

**BALLANTYNE OF OMAHA\*** (402) 342-4444  
8:00-5:00 PM Central Time  
John Wilmers, Gene Poole

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Ted Askew

**SPLICERS**

**EPRAD, INC.** (419) 666-3266  
8:00-5:00 PM Eastern Time  
Dave Carrol

**NEUMAIDE PRODUCTS CORP.** (914) 725-4900  
9:00-5:00 PM Eastern Time  
Ron Jones

**SCREENS**

**CINEMA FILM SYSTEMS, INC.** (714) 981-1398  
8:00-5:00 PM Pacific Time  
Bill Noyes, Dick Niccum

**HURLEY SCREEN CORP.** (301) 836-9333  
8:00-4:30 PM Eastern Time  
Timothy Joel

**TECHNIKOTE** (718) 624-6429  
9:00-4:00 PM Eastern Time  
Mitchell Schwam

**UNITED STUDIOS** (415) 451-0394  
8:00-4:30 PM Pacific Time  
Jack Craig

**SPROCKETS & GATES**

**LAVEZZI PRECISION INC.** (312) 832-8990  
8:00-4:30 PM Central Time  
Worth Baird

**POWER SUPPLIES**

**CANRAD-HANOVIA INC.** (714) 385-1433  
8:00-5:00 PM Pacific Time  
Pat Moore

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Dave Carrol

**KELMAR SYSTEMS** (516) 421-1230  
9:00-5:30 PM Eastern Time  
Andrew Marglin

**KINOTINE (Norelco)** (212) 753-5430  
9:00-5:00 PM Eastern Time  
John Gallucci, Jim Evans

**KNEISLEY ELECTRIC CO.** (419) 241-1219  
8:30-4:30 PM Eastern Time  
Gary Kneisley

**L.P. ASSOCIATES, INC.** (213) 462-4714  
8:00-5:00 PM Pacific Time  
Leonard Pincus

**OPTICAL RADIATION CORP.** (818) 969-3344  
8:00-4:30 PM Pacific Time  
John Carter, Dale McMillan

**XETRON CORP.** (201) 267-8200  
8:30-5:00 PM Eastern Time  
Ted Askew

**SOUND SYSTEMS**

**BOSE CORP.** (617) 879-7330  
8:30-5:00 PM Eastern Time  
David Bell, Mark Mayfield

**CHRISTIE ELECTRIC CORP.** (213) 320-0808  
7:00-6:30 PM Pacific Time  
Lynn Shubert, Jack Kline, Stan Larsen

**CINEMA FILM SYSTEMS, INC.** (714) 981-1398  
8:00-5:00 PM Pacific Time  
Bill Noyes, Dick Niccum

**CINEMECCANICA N.A. INC.** (813) 577-3211  
8:30-5:00 PM Eastern Time  
Robert Artmire

**DOLBY LABORATORIES INC.** (415) 558-0266  
8:30-5:00 PM Pacific Time  
Sam Chavez

**EPRAD, INC.** (419) 666-3266  
8:00-5:00 PM Eastern Time  
Dave Carrol

**INTERNATIONAL PROJECTOR CO.** (305) 756-0699  
9:00-5:00 PM Eastern Time  
Steve Krams, John Bugholzer

**TEST FILMS**

**N.T. AUDIO VISUAL** (213) 455-2560  
9:00-5:00 PM Pacific Time  
Tom McCormick

**SMPTE** (914) 761-1100  
9:00-5:00 PM Eastern Time  
Anne Semnara

**3-D**

**STEREOVISION INTERNATIONAL** (818) 841-1127  
8:00-7:00 PM Pacific Time  
Chris Condon, Victoria Silliphant

**XENON BULBS**

**CANRAD-HANOVIA INC.** (714) 385-1433  
8:00-5:00 PM Pacific Time  
Pat Moore

**CHRISTIE ELECTRIC CORP.** (213) 320-0808  
7:00-6:30 PM Pacific Time  
Lynn Shubert, Jack Kline, Stan Larsen

**OPTICAL RADIATION CORP.** (818) 969-3344  
8:00-4:30 PM Pacific Time  
John Carter, Dale McMillan

**OSRAM** (914) 564-6300  
8:30-5:00 PM Eastern Time  
Steve Henry

**PROJECTION EQUIPMENT**

**BALLANTYNE OF OMAHA\*** (402) 342-4444  
8:00-5:00 PM Central Time  
John Wilmers, Gene Poole

**CENTURY PROJECTOR** (818) 969-3344  
8:00-4:30 PM Pacific Time  
Phil Latchaw

**CHRISTIE ELECTRIC CORP.** (213) 320-0808  
7:00-6:30 PM Pacific Time  
Lynn Shubert, Jack Kline, Stan Larsen

**CINEMA FILM SYSTEMS, INC.** (714) 981-1398  
8:00-5:00 PM Pacific Time  
Bill Noyes, Dick Niccum

**CINEMECCANICA, N.A. INC.** (813) 577-3211  
8:30-5:00 PM Eastern Time  
Robert Artmire

**EDWARD H. WOLK CO. INC.** (312) 939-2720  
9:00-5:00 PM Central Time  
Charles Wolk, Norm Lauterbach

**KELMAR SYSTEMS** (516) 421-1230  
9:00-5:30 PM Eastern Time  
Andrew Marglin

**KINOTONE (Norelco)** (201) 279-9700  
9:00-5:00 PM Eastern Time  
John Gallucci, Jim Evans

**KINTEK INC.** (617) 894-6111  
9:00-5:00 PM Eastern Time  
John Townsend

**N.T. AUDIO VISUAL** (213) 455-2560  
9:00-5:00 PM Pacific Time  
Tom McCormick

**RANGERTONE RESEARCH INC.** (212) 753-5430  
8:30-5:00 PM Eastern Time  
George Zazzali

**RGM INDUSTRIES** (305) 269-4720  
8:00-4:30 PM Eastern Time  
Ronald Goigel, Chris Duffey, Mel Phillips

**THX/LUCASFILM** (415) 662-1946  
9:00-12/1:00-6:00 PM Pacific Time  
Clyde McKinney

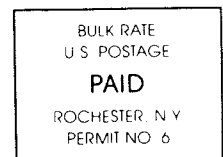
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EASTMAN KODAK COMPANY  
343 State Street  
Rochester, New York 14650

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