Sandcastle 5 Productions, Inc.

September 29, 1993

Dear Theatre Manager and Operator,

I am very pleased that you are showing SHORT CUTS, and I wish you a very successful engagement. The part you play in the success of the film is very important. Given this, I have outlined some guidelines for you in order to present the picture properly.

Please not that all prints have been timed to be presented at the SMPTE standard of 16 footlamberts. Please ensure that your projection system is capable of providing at least 16 footlamberts of screen illumination (as measured in the center of the screen).

A note about automated film-handling systems: if you are using a platter, please use clear tape rather than opaque tape to join the reels of your print when you are building it up. Be careful not to mark on the image when identifying the joins. Although these procedures may take some extra time, they are plainly in the interest of our audience.

35mm Prints

SHORT CUTS was shot at 2.35:1 in Super-35mm. The 35mm release prints are "SCOPE". The optical soundtrack on all 35mm prints is DolbyStereo "A" type. It contains important information on all channels, including the surround channel, and should be presented at standard fader setting--for example, 7 on DolbyStereo systems. If you have a mono sound system, please raise the level of your fader the equivalent of 3 db's to ensure proper dialogue level.

70mm Prints

The 70mm prints SHORT CUTS were blown up from an anamorphic 35mm negative. The image fills out the normal 2.21:1 aspect ratio of the 70mm frame. The magnetic soundtrack was recorded in six-track DolbyStereo "A" type, with mono surrounds. As with the 35mm prints, set the fader level at 7.

If you have any questions or problems with your presentation of SHORT CUTS, please call the TAP HOTLINE at 800 545-2525.

Sincerely,

Robert Altman
Director

RBA/cic

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MINIMUM REQUIREMENTS
70MM SOUND SYSTEM

1. The combination of head(s) and preamplifier(s) must be able to play the encoded characteristic on the film (3180 and 35 microsecond time constants, 185 nW/m reference level) within plus or minus 2 dB from 100 Hz to 10 kHz and within plus or minus 3 dB from 50 Hz to 12.5 kHz on recorded channels 1, 3, 5, and 6. The preamplifier shall not clip at less than +16 dB over 185 nW/m at 1 kHz. The signal-to-noise ratio shall be better than 58 dB below 185 nW/m reference input measured with CCIR weighting and rms detection.

2. Channels 1, 3, 5, and 6 must decode the recorded noise reduction characteristic (Dolby A) within plus or minus 3 dB at any level or frequency from 50 Hz to 10 kHz either statically or dynamically.

3. Channels 2 and 4 must have a low-pass filter of 12dB/octave at a nominal frequency of 200 Hz.

4. Equalizers must be provided to meet the standard of ISO 2969 (the standard calls for response flat from 50 Hz to 2kHz, with -3 dB/octave from 2kHz to 10 kHz at a minimum, all plus or minus 3 dB). This requirement means that 1/3-octave equalization is required.

5. There must be left, center, and right wide range loudspeakers at the front of the room. There must be provision for playing boom channels, either left extra and right extra loudspeakers, or subwoofer(s). There must be surround loudspeakers.

6. The combination of power amplifier and loudspeakers must be capable of playing without audible clipping distortion at 105 dB Sound Pressure Level in each octave band from 63 Hz to 1 kHz and at 100 dB Sound Pressure Level from 2 kHz to 8 kHz.

7. The background noise level of the theatre is preferably below NC-30. Consult an acoustician as required.

TAP
Theatre Alignment Program

Theatre Alignment Program
SHORT CUTS

800 545-2525
October 1993

70mm Service Instructions

NOTE
These instructions are not identical to TAP instructions for other films, so be sure to read and perform all the services required!

TEST FILMS AND REQUIRED EQUIPMENT

1. Picture Test Film: SMPTE 70-PA (commonly called RP-91 after the document which specifies it). This test film allows you to check focus, jump and weave, matting, and shutter ghosting per the following and the enclosed SMPTE instructions. It is striped and degaussed and is also used to check for potential soundtrack damage due to magnetization. Be certain to use fresh film obtained from TAP, since copies are known to exist which do not give good results.

2. Sound Test Films: Enclosed are three pieces of film: one with Dolby® Tone for level setting, one with Pink Noise for frequency response, and one high level film for checking clipping.

3. Equipment:
   - Screen brightness meter calibrated in footlamberts
   - Dual Trace oscilloscope capable of XY operation
   - 1/3-octave-band Real Time Spectrum Analyzer
   - Voltmeter, DC and AC
   - Pink Noise Generator (Dolby® Cat. No. 85 Card)
   - Magnetometer
   - Adjustment tools as required for each projector
   - 910 ohm and 100 ohm 5% 1/2-watt resistors

PICTURE QUALITY

1. Projected image: SHORT CUTS was photographed "SCOPE" at 2.35:1 in Super-35mm. The 35mm negative was blown up to 70mm and the image fills out the normal 2.2:1 aspect ratio of the 70mm frame.

To display the correct image area on the screen, two factors are involved: screen masking and aperture plate cutting. Project SMPTE 70-PA. Start without an aperture plate and adjust the masking and lens focal length if necessary to produce the largest picture that will fit within the available screen area. For 70mm pictures, the projectable image dimensions are 1.912 x 0.870". Pull in any adjustable masking so that the projectable image dimensions are masked off consistent with parallel edges. DO NOT COVER THE LEFT AND RIGHT LOUDSPEAKERS WITH CONVENTIONAL MASKING. Finally, install the aperture plate. If the image spills more than 6" onto the masking, cut a new aperture plate. Be sure that the edges of the plate are sharp and not fuzzy and that it is firmly in place and does not wiggle.

2. Screen brightness: Check for an optimal level of 16 fL with a minimum of 12 fL measured at the center of the screen from the center seat of the theatre with no film in the projector(s). The distribution of light should be even, with points 10% in from the edges, top, and bottom having 75% of the center brightness (this looks to the eye like it is more even, since the high-contrast

edge makes the edges of the picture seem brighter). For high gain screens and unusual theatre configurations, see SMPTE RP-98. Multiple projectors to be used during changeover shall match at center screen within 2 fL. Change the bulbs and clean the lamphouse as necessary to achieve the standard as closely as possible.

Films are made to a nationally and internationally standardized viewing screen brightness. Additionally, they are monitored at the laboratory at these standards. If you are unable to meet the standard, please take whatever measures are necessary within your organization to change the required components so that these standards can be met.

3. Check for flicker which shall not be noticeable on a sample reel. (You can look at the screen with no film in the projector.) If condition 2 above is met, shutter rate flicker should not be objectionable, so other sources of fluctuation, usually the lamp stability, should be examined if variation of brightness with time is observed.

4. Color temperature: Check for 5400° ± 400° Kelvin. Projectors used during changeover should match within a total range of 400° Kelvin. Xenon lamp sources should match this easily. There is no easy way to check this without a three-color color temperature meter, but you can check by eye that the projectors match reasonably well. Cases where they do not match could occur if there have been changes to reflectors.

5. Stray light: Check for less than 1% of that measured in 2 above. This can be measured with the projection lens capped for stray light due to sources in the room and by using the method in SMPTE PH.22-196-1978 for light from the projection lens illuminating the wrong part of the screen. Make certain that lighting sources such as exit lights, lobby lights when the doors are open, audience lights, and especially sunlight cannot reach the screen. Correct if at all possible.

6. Sharpness: Check that at least 68 horizontal and vertical line pairs/mm of the targets of the 70-PA test film are visible at center, 48 line pairs/mm at the edges. The focus shall not drift with time or temperature.

7. Jump: Check for less than 0.2% (one vertical square equals 1.0% on 70-PA); Weave: Check for less than 0.25% (one horizontal square equals 0.46% on 70-PA).

8. Cropping: Check for less than 10% of any dimension. Image distortion such as keystoning shall yield a difference in width or height over the size of the picture no more than 5% of any dimension.

9. Check for no visible shutter ghost on 70-PA. Check all parts of the screen as some shutter ghosts occur only in parts of the screen.

10. Triple check the film path for scratching film, either picture or sound emulsion. Sound emulsion scratching, due to worn gate bands for example, can ruin an entire $18,000 print in just a few passes! Scratches visible to the audience are often used to justify why the industry should change over to all video. Patrons are not paying to see a scratched print. They do notice it, and they don't come back to a theatre that repeatedly scratches film!

SOUND QUALITY

A. A-Chain Alignment

1. Check the film path for magnetized components. Include the platter if present and all metal or plastic rollers and parts in close proximity to the film including the path between the platter and projector. (Many plastic rollers have steel centers.) With a magnetometer, check for no more than 2½ gauss at the film plane anywhere in the path. Then run the degaussed film and listen for any build-up of "ticking" or "thumps" indicating magnetized parts. Do this before running your other test films, and demagnetize parts as needed. If you can't reach an acceptably low level of magnetization with the hand demagnetizer, try removing the offending parts and taking them to an automobile generator rebuilding shop for stronger demagnetization.

2. Adjust head mounting for best head contact and track alignment using the enclosed Pink Noise test film.

3. Set azimuth on an oscilloscope capable of an XY operation using the Pink Noise test film. Start with tracks 3 and 4, then trim for best azimuth with tracks 1 and 5.

4. Set preamplifier response adjustments for flat output playing the Pink Noise test film within ± 2 dB from 50 Hz to 12 kHz. *Dolby® MPU Preamplifiers may require a modification to reach the time constants which became standardized in April 1986. This is covered by Dolby Field Bulletin No. 149.*

5. Select format 40 (70mm noise reduction out) and set preamplifier gain for Dolby® level playing the Dolby® level loop. The loop is a pure 1 kHz tone which can also be used for a flutter test by listening.

Also, set up the 35mm optical A-Chain following sound system manufacturer procedures in case there is print damage to the 70mm print and a 35mm print is substituted at any time during the run.

B. B-Chain Alignment

1. Adjust the Dolby® system equipment using the normal method. Play a Pink Noise Generator (Dolby Cat. 85 card) so that a fader setting of 7 produces 85 dBC as measured on a slow reading meter for each channel in turn. If the sound system is of another make, it shall be adjusted so the normally used fader setting yields 85 dBC from a Pink Noise test film for each channel. This movie has been carefully made and tested before audiences at this fader setting. We find it far more common for films to be played too soft rather than too loud, so please ensure that it is played at this level.

2. The room response shall be equalized according to procedures outlined in the ANSI/SMPTE Standard 202M-1991.

3. If the stereo processor is a CP-100, follow the instructions in the CP-100 manual. Remember that Le and Re are 91 dBC each with the Cat. No. 105D in. If the stereo processor is a CP-200, follow these instructions from the installation manual:

(a) Move the toggle switch on the Cat. No. 142 Equalizer Filter card to the 'Off' position (down). Select Le on the Pink Noise Generator and adjust the Le trimpot on left Remote Fader card (53) for a sound pressure level of 85 dBC measured with the "slow" reading characteristic. The shape of the response will depend on the auditorium and speaker characteristics (the accessory unit has provision for adding equalizers in the Le, Re, S, P and Q channels; these equalizers are aligned following the Accessory Unit instructions).

(b) Repeat for Re and S channels.

(c) Select Le again on the Pink Noise Generator, and move the toggle switch on the Equalizer Filter card Cat. No. 142 (36) to the center or 'On' position, and observe the real time analyzer display of signal in the auditorium. The spectrum should roll off sharply above about 200 Hz. Switch filter in and out by toggle switch to check filter operation, and note the auditorium level with filter out. If the low frequency end of the spectrum is also curtailed, remove Equalizer Filter card and check that the two soldered links are in place. (These links are removed if a separate subwoofer channel is used.)

(d) Set format 04 on an unused preselector, and press 'GO' to switch the Cat. No. 142 into the optical mode.

(e) Set format 42 on the same preselector, and press 'GO' to switch the Cat. No. 142 into the magnetic mode.

(f) Adjust Magnetic gain control on the Equalizer Filter card to give a level of 91 dBC SPL. If you cannot reach this level, add more gain on the Remote Fader card to achieve 91.

(g) Also on the Equalizer Filter card are three controls affecting the setting of a variable dip equalizer. This "parametric" equalizer is intended to remove the effect of a single, large peak in the response, often found in large rooms. The controls of a parametric equalizer adjust: 1. the depth of the dip, 2. the frequency of the dip, and 3. the 'Q' (relative sharpness) of the dip.

(h) Adjust the parametric equalizer controls as follows: first set the 'cut' control to minimum and note the frequency of the single, largest peak in the auditorium response.

(i) Set the 'Q' control to minimum, and the 'depth' control to maximum. Adjust the 'frequency' control until the dip is set to the same frequency as the peak resonance.

(j) Alternately adjust the 'cut' and 'Q' controls until a smooth response characteristic is achieved.

(k) Switch the filter in and adjust the Magnetic Gain control until the level with the filter in is 91 dBC SPL.

(l) Repeat steps (c) – (k) for Re channel; note however, optical and magnetic gain control *should not* be readjusted since a single control is used for both channels. If there is a difference in levels between Le and Re after both the dip filters are adjusted, *small* changes can be made to the Le and Re Output controls.

(m) Move the toggle switch on the Cat. No. 142 Equalizer Filter card to the up or 'Auto' position. Leave it in this (normal) position.

(n) Remove the Pink Noise Generator and replace it with the switch card Cat. No. 141. Use mute control to avoid thumps in auditorium speakers. If P and Q channels are provided in the auditorium, follow the procedure in the CP-200 manual. Set the level for each surround channel to 82 dBC, or, if you have a mono surround, to 85 dBC. (These procedures are equivalent since the left and right surrounds together should sum to 85 dBC.)

4. If there is a subwoofer, adjust for 91 dBC SPL as contained in the section on magnetic subwoofer alignment in the CP-200 manual.

There should be no clipping or distortion audible when reproducing the film at the standard fader setting. The film has been mixed very carefully and checked in theatres before audiences. Please make certain there are no rattles, buzzes, scraping voice coils, or the like while reproducing the film at several dB above the normal fader setting. If there are bad drivers, the best procedure is to replace them, or, failing that, to disconnect them and report the facts to TAP.

C. Testing and Final Conditions

1. With projectors stopped, check the sound system for clicks or hum originating from changeover. For example, a Zipper changeover module solenoid located too close to the magnetic heads can induce substantial hum during the time it is energized. If you find such hum, repair it by orientation or by adding magnetic shielding until it is inaudible.

2. Leave the theatre with the volume control set to standard setting 7, and in format 42 for the processor.

Thanks very much. Please let us know if you have any difficulty following these directions and obtaining good results.

Theatre Alignment Program
800 545-2525