"In the Splendor of 70mm": Part 2

As good as theatres and movie sound are getting today, something is often missing. The "Roadshow" films of the '50s and '60s had it. The"event" films of the '70s and '80s had it. It isn't digital sound- although the premiere of Oklahoma! sounded very good with the six-channel analog magnetic sound and tube amplifiers of its day. It isn't a bigger screen-today's 75- and 80-foot wide screens even surpass the famed huge screen at Radio City Music Hall. It isn't a big lamp-today's 6000-watt xenon arc lamphouses produce more light than most of the carbon-eating monsters of the past. It isn't a lack of good movies-every era has its block-busters, and we've been fortunate to have a lot lately. In case you haven't guessed, what's often missing today is "The Splendor of 70mm."

Recent Trend to Larger Screens and Closer Viewing Distance

Recent trends in theatre design have emphasized larger wall-to-wall screens with the audience sitting closer to the screen, so it fills their field of view. Every new megaplex boasts one or more screens wider than 50 feet, with some over 70 feet wide! Wider screens and closer seating layouts mean that the distance from the projector to the screen is decreasing, requiring very short focal length projection lenses with very shallow depth of focus, magnifying any projector unsteadiness or focus problems.

Low Screen Luminance Is a Problem, But So Is Heat

Unfortunately, recent surveys have shown that most of these huge screens also have unacceptably low screen luminance. Industry standard (SMPTE 196) specifies 16 footlamberts screen luminance, with an allowed range of 12 to 22 footlamberts. Even with a very large 6000-watt xenon lamp and curved gain screen, a 35mm projector can adequately illuminate a screen up to about 25 x 60 feet. Increasing power, reducing heat filtration or "hot-spotting" might get a bit more light, but at greater risk for heat damage to a 35mm print. At these power levels, heat-related "focus flutter" becomes a serious issue that degrades sharpness. You can only put so much energy through a piece of film smaller than a postage-stamp! Bigger xenon lamps are not the answer, as focus flutter and the risk of heat damage increase dramatically as power increases.

Advantages of 70mm Prints for Big Screens

One reason 70mm looks better on a big screen is that a 70mm print

allows"spreading out" the energy of the lamphouse over a much larger area of film. A 70mm frame is 0.870 x 1.912 inches, almost three times larger than a 35mm "scope" frame of 0.690 x 0.825 inches, and over four times larger than a 1.85:1 "flat" 35mm frame of 0.446 x 0.825 inches. This means that for a given size lamp, the risk of heat damage to the film is much less. There is significantly less heat-related "focus flutter," so the image on the screen is much sharper. Because the image on a 70mm print is so much larger, a longer focal length projection lens is used. Assuming a common image height on the screen, the focal length of the lens used for 70mm will be twice that of the equivalent lens used for 35mm 1.85:1 "flat." The "depth of focus" is much greater, further reducing the effect of "focus flutter" to improve sharpness. Steadiness is improved because the magnification of the image is less. Annoying jump and weave are significantly reduced. By spreading out the heat energy across a larger film area, using longer focal length lenses having greater depth of focus, and reducing unsteadiness, 70mm prints produce a significant improvement in the quality of the film image on large screens.

Brighter Is Better

Brighter is better. Low screen luminance produces dim, lifeless pictures, with murky shadows and dull colors. The larger image area of a 70mm print allows increasing the amount of light on the screen. Using the best of today's technology (large efficient lamps, heat "70mm prints produce a significant improvement in the quality of the film image on large screens."filtration, multicoated lenses and port glass, curved gain screens), it's very difficult to consistently achieve the SMPTE aim of 16 footlamberts on a 25 x 60 foot screen with a 35mm print. It is impossible to do it on a 35- foot high screen, short of burning the film to a crisp. By spreading the energy out over a larger area of film, much higher levels of light can be obtained with 70mm, allowing even the largest of today's huge screens to be uniformly lit to meet the SMPTE standard of 16 footlamberts.

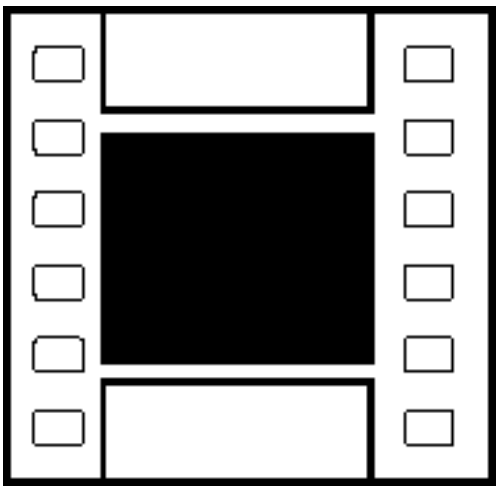
"Death by Digital"

Until 1990, 70mm was the premier sound format. The six magnetic tracks were capable of excellent sound, offering better frequency response, signal-to-noise, dynamic range and channel separation than any 35mm analog sound format. But magnetic sound had its problems. Striping and sounding prints was time-consuming and expensive, adding greatly to the cost of a 70mm print. Striping costs continued to increase, due to the added cost of meeting more stringent environmental standards for the solvents used. Magnetic tracks were easily damaged. Maintenance and alignment of the magnetic heads and"penthouse" in the theatre were problematic. The advent of digital sound

for 35mm prints in the early '90s made many distributors and exhibitors question the need for the much more expensive 70mm prints, since magnetic sound no longer offered an advantage.

The ever decreasing availability of 70mm prints has led many theatre circuits to leave 70mm capability out of their building plans, even for their "flagship" houses with huge screens and auditorium capacities exceeding 500 people. In older theatres having existing 35/70mm projectors, the 70mm capability has often not been maintained. It is ironic that fewer and fewer theatres are able to show 70mm when the need to present high-quality film images on huge screens is greater than ever.

A 70mm Rebirth?



35mm Anamorphic Print Image Area
.825 inches x .690 inches

What will it take to bring "The Splendor of 70mm" back to today's theatres? The first step has already been taken. The great success of the dozen or so 70mm engagements of "Titanic" last year again clearly showed that movie audiences prefer the quality of 70mm presentation on large screens. One theatre in Toronto ran a 70mm print of "Titanic" most of the summer to sell-out business, months after it had played out in 35mm engagements. DTS™ digital sound is now available for 70mm prints, eliminating the cost and hassle of magnetic sound while offering the superior quality of digital sound. If the theatre already has an existing DTS processor, 70mm prints only require an additional time-code reader head for the wider film. (70mm uses the same DTS disks as 35mm prints.)

What About 70mm Print Availability?

70mm Print Image Area
1.912 inches x .870 inches

Even though the cost and hassles of magnetic sound are a thing of the past, 70mm prints are still more expensive than 35mm prints. So what can exhibitors do to convince distributors to supply 70mm prints? Some savvy European exhibitors actually pay for their own 70mm prints, knowing that

70mm will significantly increase business. Others may prefer to negotiate having 70mm prints in their booking contracts, as a "win-win" for both distributor and exhibitor. First, let distributors know that you are fully equipped to properly play 70mm with digital sound. Show them that you can get a brighter, sharper, steadier image that draws big audiences to your 70mm theatre. It really helps to have 70mm capability in your largest auditorium, so you can point out that the print is being shown to the largest possible audience, rather than needing several 35mm prints for smaller houses. It also helps to have one smaller auditorium equipped for 70mm, so you can assure the distributor that they won't be stuck with a "homeless" 70mm print as the booking completes its run in a smaller house. Cooperate with the distributor in publicizing and promoting the 70mm presentation at your theatre. You might even dig out that "Presented in the Splendor of 70mm" banner! Finally, take good care of the print, so the quality shines on your screen, and those that follow.

The Time Is Now!

Look at the 1999 release schedule. The big pictures of the year certainly deserve "The Splendor of 70mm." Before it can happen, 70mm equipment must be in your theatre, and 70mm prints must be made. Now is the time to find those 70mm gates and "tune up" that Simplex 35/70mm or Cinemeccanica V8 projector, or to take those Norelco DP70 and Century JJ projectors out of storage. Now is the time to upgrade to digital sound. Now is the time to convince distributors that 70mm presents the best picture quality to appreciative audiences in large auditoriums, measured in increased box-office. "Size Does Matter," especially when filling "megascreens" in the "megaplex" with high-quality 70mm film images.

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