

Production Process

- 1) **Shoot 65mm negative at 60 frames per second**
- 2) **Process 65mm negative**
- 3) **Contact print 65mm negative to 70mm print stock**
- 4) **Develop 70mm print stock**
- 5) **Synchronize 70mm print to 35mm soundtrack**
- 6) **Project 70mm print with 35mm soundtrack interlocked**
- 7) **Select takes for reduction**
- 8) **Break down rolls of 70mm and 35mm soundtrack**
- 9) **Reduction print 70mm to 35mm 24 fps negative**
- 10) **Develop 35mm negative**
- 11) **Contact print 35mm negative to 35mm positive print stock**
- 12) **Develop 35mm print**
- 13) **Code 35mm and 70mm print corresponding to soundtrack**
- 14) **Synchronize 35mm print to 35mm soundtrack**
- 15) **Project 35mm print with 35mm soundtrack interlocked**
- 16) **Edit 35mm print and 35mm soundtrack**
- 17) **Assemble 60fps 70mm print to correspond to 35mm cut**
- 18) **Project 70mm print with 35mm soundtrack interlocked**
- 19) **Cut 65mm negative**
- 20) **Make 65 mm answer print**
- 21) **Project 70mm answer print and 35 soundtrack interlock**
- 22) **Make 65mm Interpos & 65mm Interneg and answer print**
- 23) **Create master for magnetic striping (several steps required)
(including 35mm 6 track Dolby SR stereo mix)**
- 24) **Make final composite release prints**

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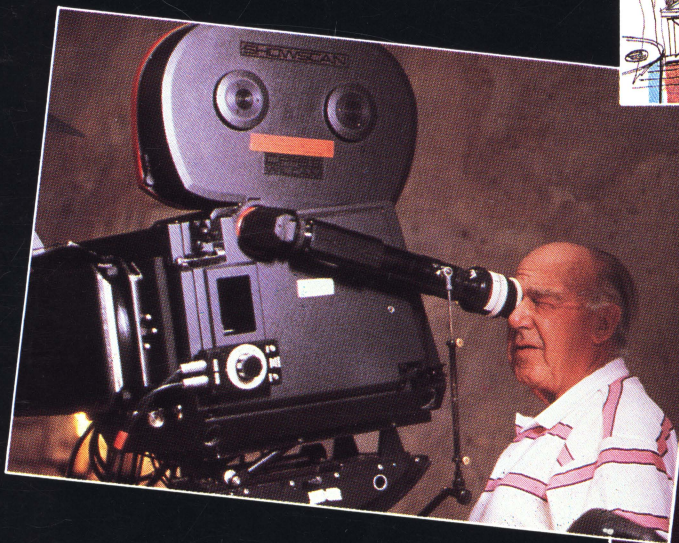
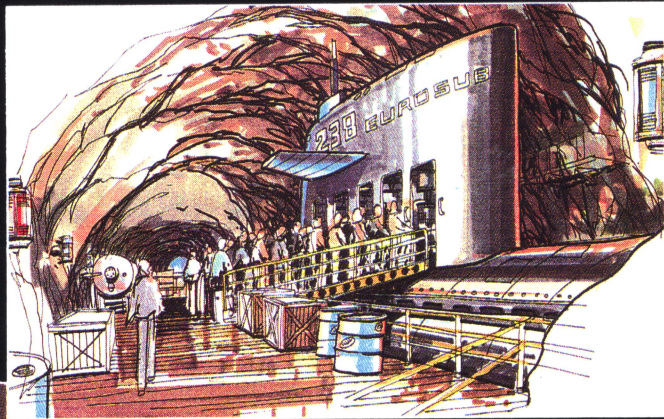
SHOWSCAN[®]

ENTERTAINMENT FOR THE NEW DECADE

Showscan is the first major advance in motion picture technology in 60 years. Utilizing 70mm film, photographed and projected at 60 frames per second, Showscan produces an image with amazing depth and clarity, far superior to standard film. Showscan...you will never look at film the same way again.

CONCEPT DESIGN AND DEVELOPMENT

Showscan's in-house creative staff of writers and storyboard artists have experience in complete theme park development. We constantly strive to use Showscan and our projects to push and stretch the boundaries of audio-visual experiences.



FILM PRODUCTION

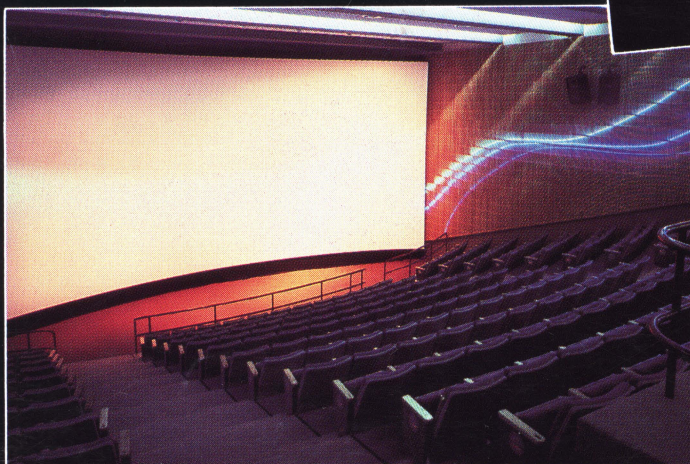
Showscan's production management staff is experienced in the requirements of filming all over the world; from Europe, the Pacific Rim, to major studios of Hollywood. A series of Oscar-winning directors, cinematographers, production designers, and editors have all used Showscan.



**SHOWSCAN
WORKS IN
COOPERATION
WITH
INTAMIN**

DYNAMIC MOTION SIMULATORS

The DMS creates the ride of a lifetime. Made with the world's leading amusement ride manufacturer, Intamin AG, the DMS features hydraulically-actuated seats synchronized to on-screen action. This ultimate ride experience is being installed worldwide.



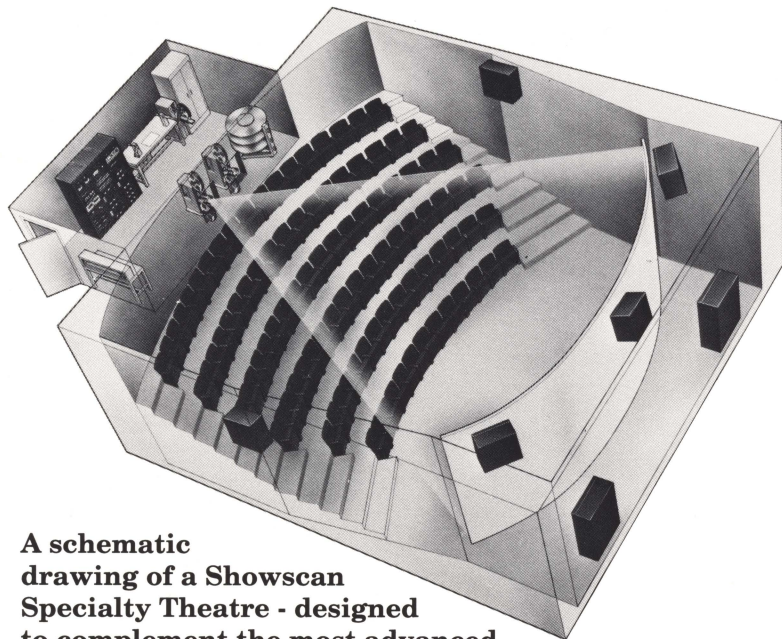
SPECIALTY THEATRES

Our multi-format Specialty Theatres fully exploit the Showscan process with raked seating for 100-700, Showscan/Dolby SR Sound, and a screen that covers the entire fourth wall of the theatre. A Showscan theatre is the optimum viewing environment.

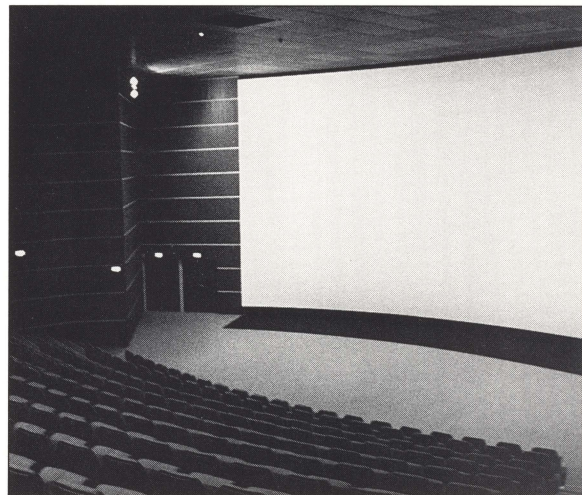
SHOWSCAN
FILM CORPORATION

Marketing
3939 Landmark Street Culver City, California 90232
Telephone (213) 558-0150 Facsimile (213) 559-7984

SPECIALTY THEATRES



A schematic drawing of a Showscan Specialty Theatre - designed to complement the most advanced film technology in the world today.



The Showscan Specialty Theatre at Futuroscope, a theme park located in Poitiers, France, has been hailed for its innovative design.

Locations:

Australia	Japan
Belgium	Korea
Canada	New Zealand
France	U.S.A.
Italy	

Films Available:

The Magic Balloon
France
Leonardo's Dream
Call From Space
Celebrating Us
Kiwi Magic
Niagara Wonders
Deep Sea Rescue
Earthwatch
Discovery
Let's Go
New Magic
Big Ball
Night of the Dreams

The Ultimate Theatre Experience:

The patented 70mm/60fps Showscan film process creates an image that is far brighter, clearer and more realistic than conventional film.

The ideal Showscan theatre is designed to take advantage of this, with the entire front wall taken up by a floor-to-ceiling screen (2.21:1 aspect ratio). The projection booth is equipped to show both 35mm and 70mm films, and all of the equipment that is installed is the very best that is available.

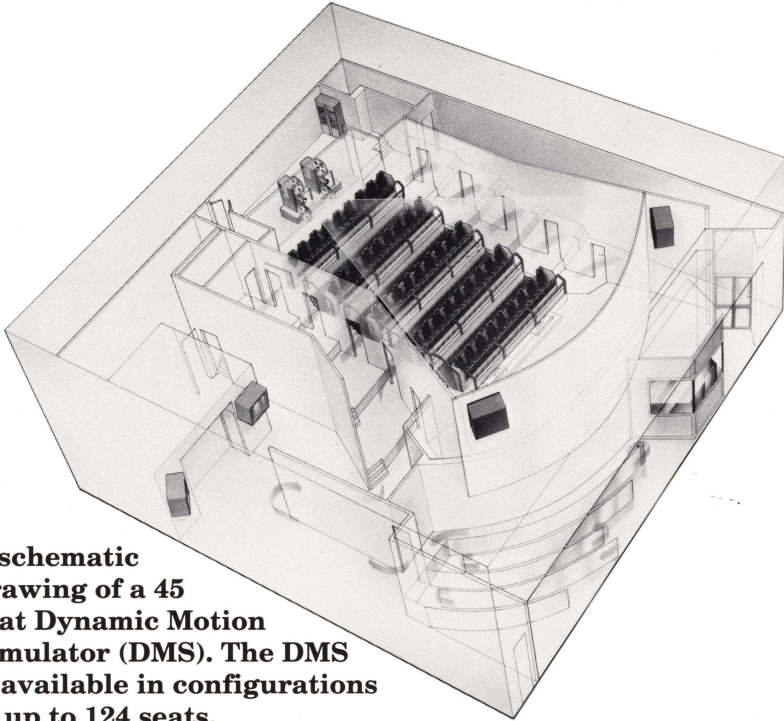
The shape of the theatre is almost square, and the seats are steeply ranked to provide each person with an optimum view of the screen. This configuration is also ideal for audio purposes and the 6 channel Dolby SR Surround Sound System makes your Showscan experience larger than life. When an image is being projected; the large screen seems to disappear, creating the powerful illusion that we are looking beyond the theatre into the film that is being shown.

Showscan's experienced staff will address the necessary design and engineering considerations to ensure that your theatre is truly a cinema of the future. The result is a state of the art venue that improves the movie-going experience...an ideal theatre in which to showcase the best film technology in the world today.

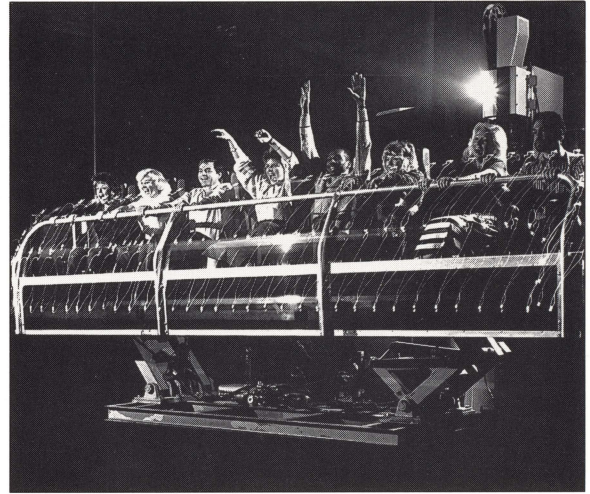
SHOWSCAN

3939 Landmark Street
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DYNAMIC MOTION SIMULATOR



A schematic drawing of a 45 seat Dynamic Motion Simulator (DMS). The DMS is available in configurations of up to 124 seats.



A ride on the DMS...where anything can happen, and everything is real!

Locations:

Australia France
Japan Taiwan
Italy U.S.A.
Singapore

Film Library:

Roller Coaster
Whitewater Rafting
Beach Buggies
Revolution
Ninja
Police Chase
Alpine Raceway
Olympic Bobsled
Downhill Racer
Runaway Train

Entertainment for the New Decade:

Showscan is the most effective film technology available in the world today, with an unrivalled clarity and impact. Intamin AG is the world's leading amusement ride manufacturer, with a reputation for developing safe and exciting rides for all their customers. These two world leaders have combined to produce the Dynamic Motion Simulator (DMS), a fully automatic ride where anything can happen, and everything is real!

Showscan's incredibly clear 70mm/60fps image is perfectly synchronized to the movement of Intamin's hydraulically actuated seats, allowing us to recreate any adventure that can be filmed. Imagine having a thrilling roller coaster that takes up one-quarter the normal space. With the flick of a switch, this roller coaster can become a bobsled run, an alpine raceway, or a surging torrent of water waiting to be rafted. A complete film library already exists, allowing you to pack more thrills than most amusement parks have - into a single building.

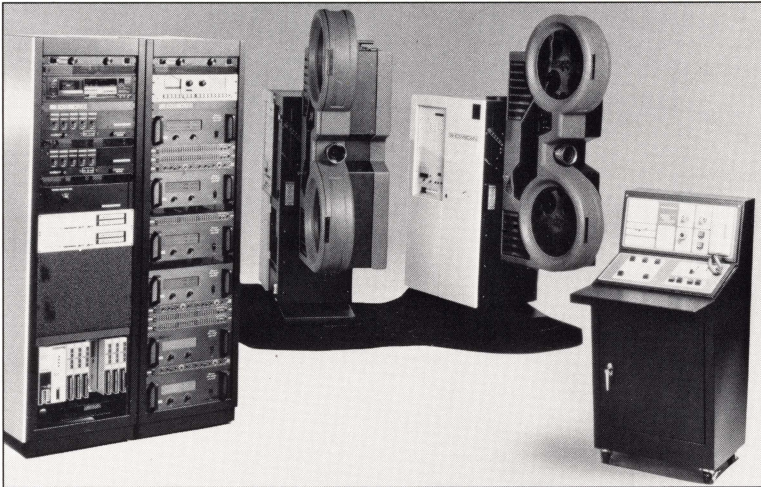
This is possible because all of the elements of the DMS are the best that are available - Showscan is far more than just a film image; the Intamin seats have an incredible range of movement, and the Dolby 5 Channel SR Sound System makes the experience larger than life.

It's safe, reliable and it's working at locations all around the world! Showscan and Intamin...we have the technology.

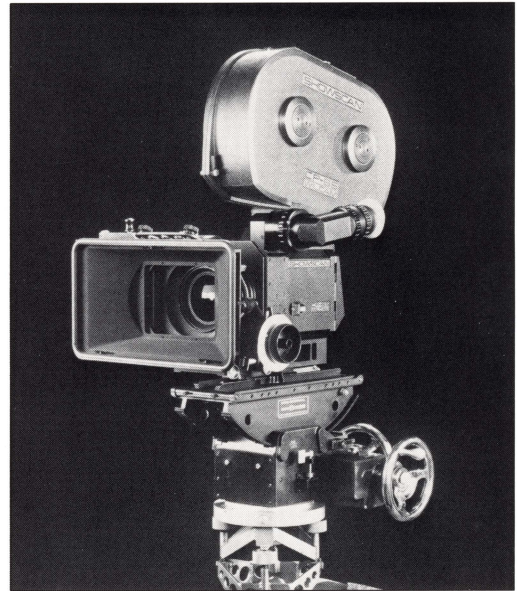
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EQUIPMENT



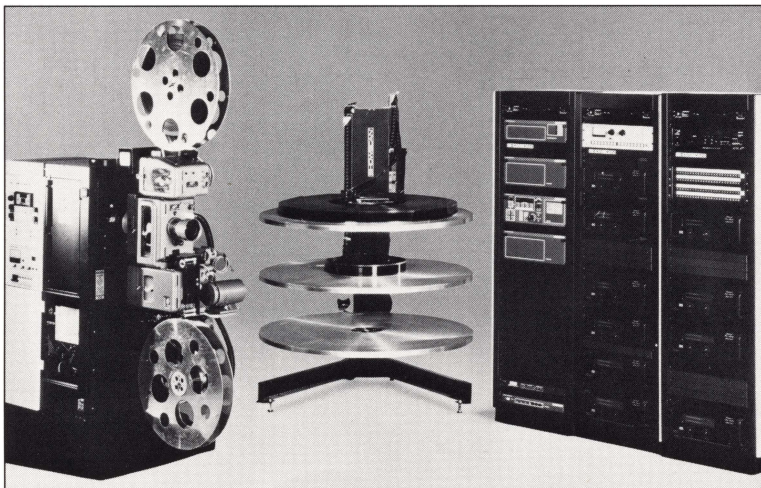
◀ The Showscan Dynamic Motion Simulator (DMS) is a fully automatic system controlled by the Operator's Console (right). The equipment package includes dual 70mm electronic projectors, manufactured by Cinema Products (center), and a state of the art 5 channel SR Surround Sound system provided by Dolby (audio rack shown left).



▲ The Cinema Products CP-65 camera utilized by Showscan is one of the finest cameras available in the world today.

The Best Technology, Backed By The Best Equipment:

Every item of equipment that Showscan installs has been fully tested in theatres and in the laboratory, to ensure that it provides high quality, reliable service. Every component you receive is the very best that's available - to complement the best film technology that has ever been developed. All of our suppliers are world leaders in their field, and each item is fully guaranteed and backed by our reputation, and the reputation of our suppliers.



◀ The Showscan Theatre equipment package includes (left to right) a Century JJ-3S 70/35 Projector, an ORC maxi-platter, a 6 channel Dolby SR Sound System (audio racks shown in photograph), and a wall-to-wall floor-to-ceiling custom built Stewart filmscreen (not shown).

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SHOWSCAN OPENINGS IN 1994/1995
(Chronological List)

PROJECT	LOCATION	OPENING DATE	
TONGDO FANTASIA	Kyungsangnam-do, SOUTH KOREA	May 1994	
NORDSJAELLANDS SOMMERPARK	Virum, DENMARK	July 1994	
BAVARIA FILM STUDIO	Munich, GERMANY	July 1994	
BOOMTOWN BILOXI	Biloxi, Mississippi US	July 1994	
NAMCO	JAPAN	July 1994	
TROCADERO	London, ENGLAND	July 1994	
RENAISS KANAZAWA	Kanazawa, JAPAN	August 1994	
PONTIAC DEALER SHOW	Las Vegas, Nevada US	August 1994 (temporary)	
BUFFALO BILL'S	Jean, Nevada US	September 1994	
MACHIDA CITY	Tokyo, JAPAN	November 1994	
FANTASY ISLAND	SINGAPORE	November 1994	
JILLIAN'S	Boston, Mass US	November 1994	
SANDTON CITY	Johannesburg, SOUTH AFRICA	December 1994	
1995			
SHANGHAI	Shanghai, CHINA	January 1995	
LOTTE SKY PLAZA	Pusan SO. KOREA	August 1995	
UA THEATRES	MALAYSIA		

SHOWSCAN'S SPECIALTY THEATRE FILM LIBRARY

NATURE REDISCOVERED

Running Time: 22 Minutes

Set in a series of national parks, this un-narrated ode to the natural world unleashes the drama of the earth's lands as well as the evolutionary behavior in the animal kingdom. The film's majestic score parallels the visual images in its beauty and scope.

CONCERTO FOR THE EARTH

Running Time: 16 Minutes

This film celebrates the diversity and beauty of the natural world, showing the dramatic changes in the environment brought about by the rise of human technology. Through music, not words, it explores the relationship between humans and nature.

THE MAGIC BALLOON

Running Time: 45 Minutes

This classic children's fantasy follows the adventures of a boy and girl as they are taken on a magical trip around the world pursued by an evil magician. Stars Frank Langella and Henry Gibson.

LEONARDO'S DREAM

Running Time: 24 Minutes

Leonardo Da Vinci has a dream. The anguished inventor fears his life's work is meaningless until a dream lands him in 20th-century Milan and right into the middle of a festival celebrating his own inventions.

CALL FROM SPACE

Running Time: 27 Minutes

James Coburn hosts a scientific experiment gone bad. When Coburn invites a young girl to help him with a scientific demonstration, he learns he is not the one giving the experiment. An enterprising alien zaps the girl away for an adventurous lesson in time travel. Charlton Heston is the voice behind the alien.

FRANCE

Running Time: 40 Minutes

All the grandeur of France in this sensual glimpse of the past and present. See the National Assembly in the full glory of the revolutionary period as they light the flame of freedom for a nation making a new beginning and influencing the world in the process.

CELEBRATING US

Running Time: 17 Minutes

A vivid, brilliant and breathtaking breeze through Australia which you will never want to end. The pageantry and people of New South Wales welcome you home in a film produced for this country's bicentennial.

KIWI MAGIC

Running Time: 25 Minutes

A hilarious tourist-comedy starring Ned Beatty and comedian Billy T. James. James plays the wacky tour guide who leads Beatty on an unforgettable tour by jeep, plane, toboggan, jet boat, raft and helicopter through New Zealand.

NIAGARA WONDERS

Running Time: 23 Minutes

Niagara Falls, North America's greatest natural wonder, as you have never seen it. Surging, dramatic and full of mystery and myth.

DEEP SEA RESCUE

Running Time: 5 Minutes

Witness a deep water rescue within a specially designed submersible simulator.

EARTHWATCH

Running Time: 7 Minutes

The stoic, volatile beauty of Canada. See a giant icebreaker glide across the frozen water. Drop off a mountain ridge in a small plane and live to talk about it with the people of Canada as they celebrate Expo '86.

DISCOVERY

Running Time: 16 Minutes

A young girl joins a space creature named Zargon and together they soar over British Columbia's endless majestic beauty. A rapture for the eyes.

LET'S GO

Running Time: 17 Minutes

The touching and comical story of a young boy's relationship with a robot. A technological adventure for the eyes.

NEW MAGIC

Running Time: 23 Minutes

See the full spectrum of the Showscan® process. Magic sequences, special effects, miniature photography, high speed thrills and suspense. Exciting, blood-pumping fun.

BIG BALL

Running Time: 22 Minutes

The down and dirty hometown boys are challenged to a game of dune buggy soccer. This colorful action-thriller will have the audience rooting for the home team until the last hit of the Big Ball.

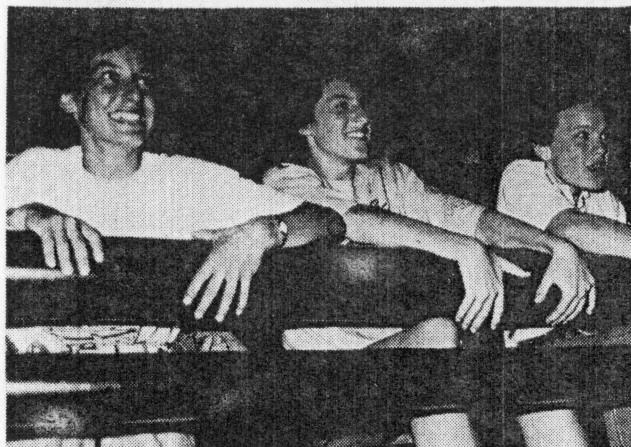
NIGHT OF DREAMS

Running Time: 12 Minutes

Fantasies become nightmares and dreams become reality in this spellbinding story of a young boy and his family.

Moviegoers are in for a shock when they visit this theatre

BUCKKING SEATS!



★ Moving movie seats . . . hanging on to a padded bar.

MOVIEGOERS, you are about to be scared right out of your cinema seats!

You will be pitched and rolled in high-technology seats which are computer-linked to thrilling on-screen scenes such as roller coaster rides and shooting rapids.

To make sure you don't fall out of your seat during exciting moments on-screen there'll be a bar at the front to hang on to and even seatbelts to make sure you are strapped in properly.

Dynamic Motion Simulators (DMS), a revolutionary movie-watching experience, will make its debut in Sydney in October 1990 and shortly after will be in operation in all of Australia's major cities.

But be prepared for long queues outside cinemas where the DMS system is installed because there will be seats for only 45 customers.

"The first two DMS theatres will be installed at Darling Harbour in Sydney," according to Ken Stevens, the Australian representative of Showscan Film Corporation (USA).

"After Darling Harbour we'll be arranging for another two for Surfers Paradise, then Melbourne and eventually in major cities all over Australia."

DMS theatres will be restricted to showing short features which are virtually thrill rides. Members of the audience sit in DMS seats which can move forward, backward or roll from side to side.

"Watching action scenes in movies through DMS is quite an incredible experience," Ken Stevens told POST. "I was in the audience with a group of very laid-back business executives the other day and the film we saw scared the daylight out of them."

"We were watching a thrilling car chase through the Austrian Alps. You really felt you were a passenger inside a car screeching around the edge of a mountain road."

Ken Stevens explained that the realism was provided not only by the DMS hydraulically-activated seats but also by the new Showscan process.

Showscan was developed by Douglas Trumbull, the special effects genius behind blockbuster movies 2001: A Space Odyssey and Close Encounters Of The Third

By ALAN VEITCH



★ The Dynamic Motion Simulator takes its excited audience on a wild roller coaster ride.

Kind. Trumbull battled for more than 10 years before he persuaded Hollywood moguls to get involved with his exciting concept. Normal feature films are shot on 35 mm film which rolls through projectors at 24 frames a second. This hasn't changed much since sound was introduced to film in the 1920s.

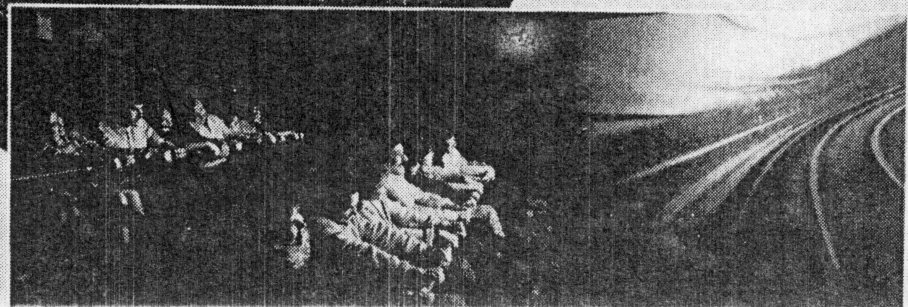
Showscan movies are photographed on 65 mm film and are projected, using 70 mm film, at 60 frames a second.

"Three feature-length Showscan films are now in production in America," said Ken Stevens, and they will be released in specially-converted American theatres by the end of 1990.

"Most theatres can be converted to use Showscan projectors, but obviously it will take time." With

the feature films, the DMS hydraulically-activated seats will not be installed. The seats for feature movies will be the same as they are now. But the screen will be much larger. "We're building up an extensive library of film 'rides', Ken told POST, "like rafting on white water, travelling in runaway trains and flying screaming jets".

★ The seats are computer-linked and moviegoers feel as though the action is real.





Merlin's Magical Motion Machines

Dynamic Motion Simulator is a trademark of Showscan Film Corporation and Intamin Co.

Los Angeles Times

SUNDAY, MARCH 11, 1990

Merlin's rides will be white-knucklers at Excalibur

Excalibur Hotel-Casino, the world's largest resort hotel with 4,032 rooms, will have the first Dynamic Motion Simulators in the United States when it opens in June.

Showscan Film Corp. of Culver City will be installing the two 48-seat simulators, also known as Merlin's Magical Motion Machines.

The Dynamic Motion Simulators provide filmed "rides" that com-

bine patented Showscan technology for "experiential entertainment" with hydraulically actuated seats synchronized to the on-screen action.

Along with seats that move, the system uses a Dolby five-channel sound system and 70mm film photographed and projected at 60 frames per second, instead of the standard 35mm film at 24 frames per second. The result, according

to reviewers who have exper-

enced DMS, is a film that seems far more realistic. In "Olympic Bobsled," filmed in Canada's Olympic Park in Calgary, Alberta, DMS viewers experience the speed and thrills of the sport, according to the Excalibur.

The Dynamic Motion Simulators will be housed in the Excalibur's Fantasy Faire level.

The Excalibur is taking room reservations at (800) 937-7777 or (702) 597-7700.

RISING FROM THE LAS VEGAS DESERT THIS JUNE

EXCALIBUR®

HOTEL/CASINO ON THE STRIP

THERE HAS BEEN NOTHING LIKE IT SINCE CAMELOT

Knights, sorcerers, castles, battlements, drawbridges, moats, jugglers, mimes, jousting and sword fighting... A medieval colossus replete with: a 1,000 seat amphitheater hosting 2 spectacular dinner shows every night • 7 marvelous restaurants • a multi-level entertainment center and 100,000 square ft. casino • an authentic renaissance pleasure faire • a medieval village and shops • Merlin's Magical Motion Theaters • beautifully furnished, spacious rooms • rates from \$45 per room Sun.-Thurs. - from \$55 per room weekends. Come and be a part of the world's largest and most exciting hotel and casino.

Showscan and Intamin are pleased to welcome the Excalibur to our family of film attractions.

Showscan Film Corporation
3939 Landmark St.
Culver City, CA 90232
TEL (213) 558-0150
FAX (213) 559-7984
Contact: Cindy Aylward

Intamin USA
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Millersville, MD 21108
TEL (301) 987-5404
FAX (301) 987-5078
Contact: Peter Schnabel

THE HOLLYWOOD REPORTER®

FEATURING *Weekender*

60th year

Friday, February 2, 1990

75¢ (California) \$1.25 (Elsewhere)

BUSINESS

Showscan Film revenue swells 77%

By ROBERT MARICH

Showscan Film Corp. reported revenue jumped 77% in the third quarter ended Dec. 31 because of higher sales of its Dynamic Motion Simulators, although its net loss remained unchanged.

For the nine-month period, Showscan weighed in with a sharply narrowed loss on a 318% gain in revenue. The Culver City, Calif.-based Showscan markets a sophisticated motion picture projection system.

Looking to the future, Showscan

said its small but growing sales from royalties and licensing — presumably high-margin revenue — are forecast to cover the company's fixed costs within 18 months. If overhead coverage materializes, it will bolster profitability.

In the third quarter alone, Showscan's net loss was \$1.5 million, or 52 cents a share, virtually unchanged from the same period a year ago. Revenue rose to \$1.9 million, from \$1.1 million a year ago, reflecting the 77% hike.

Roy Aaron, Showscan president,

said he's not completely satisfied with the third-quarter earnings, but added "several major accomplishments" occurred outside earnings. He said manufacturing capabilities were strengthened, quality control improved and the Bank of America increased the company's secured revolving credit facility to \$7 million from \$2 million.

For the nine-month period, the net loss narrowed to \$1.4 million, or a loss of 47 cents a share, from \$3.2 million, or a loss of \$1.11 a share a year ago. Revenue spurted to \$17.4 million, from \$4.2 million, reflecting the 318% hike.

The company was heartened by growth of high-margin licensing-royalty revenue. "Royalties and licensing fees for the nine months more than tripled, to approximately \$1.6 million, an important indicator for our company," said James Sorenson, chief financial officer, in a statement.

Business Day

The New York Times

Bringing the Movies to Life

By RICHARD W. STEVENSON

LOS ANGELES
MOVIES today boast spectacular special effects, the latest in sound systems and ever-improving color and clarity. But Douglas Trumbull is not impressed.

The special effects whiz behind "2001: A Space Odyssey" and "Close Encounters of the Third Kind," Mr. Trumbull has been trying for a dozen years to convince Hollywood to embrace a new film-making and projection process he developed called Showscan. Mr. Trumbull contends — and almost everyone who has seen it agrees — that the payoff for the first major change in film format in 60 years would be a far brighter, clearer and dramatically more lifelike picture.

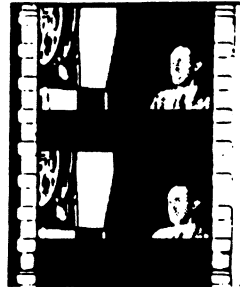
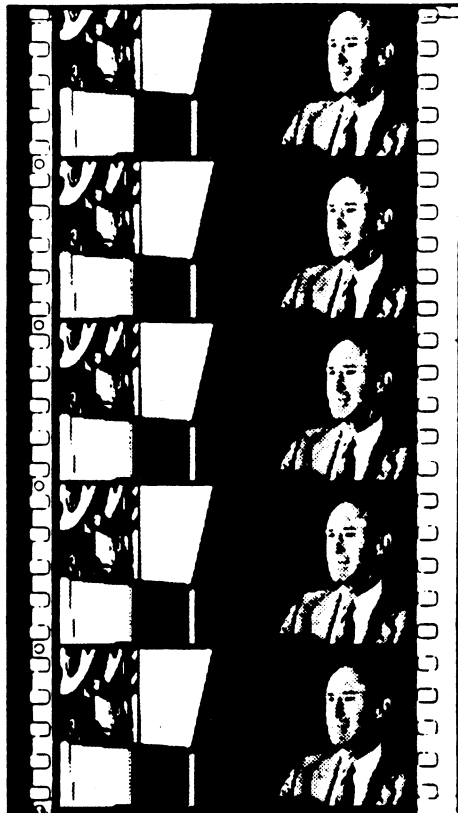
Roger Ebert, the syndicated film critic, described Showscan as "incomparably more realistic than anything I had ever seen before on a movie screen." Showscan, said David Picker, the outgoing president of Columbia Pictures, "is not just a movie, it's an event."

To adopt Showscan, however, the industry would have to abandon two historic standards: the use of the 35-millimeter film format invented by Thomas Edison in 1890 and the operation of cameras and film projectors at 24 frames of film a second, which began when sound was introduced in the 1920's.

Showscan movies are photographed on 65-millimeter film and, with the addition of the sound track, are projected using 70-millimeter film, a technique first attempted in the 1950's to get clearer pictures on large screens. But the big difference is that Showscan is filmed and projected at 60 frames a second.

The faster filming speed reduces blurring. It also eliminates the current need to project each frame twice, a practice that compensates for the flicker that viewers would see if the actions photographed at 24 frames a second were projected just once. Thus, because Showscan projects 60 different images per second instead of 48 images of 24 shots, the viewer receives much more visual information in a given time period.

In addition, the faster projection speed allows the use of projectors with much brighter lights, which present more vivid colors. These lights would melt conventional film. There is also more room on the film for the sound track, which means that a greater dynamic range of sound can be used.



The New York Times/
Bart Bartholomew

Looking at the Big Picture

Showscan's 65-millimeter film is represented, actual size, on left, with standard 35-millimeter film above. Five Showscan frames are projected in 1-12th of a second, compared with two conventional frames in that time. Photo used to represent filmed image is of Roy H. Aron, Showscan's president.

By using 70-millimeter film, Showscan is geared toward huge screens, providing a more striking presentation for the viewer. Some film makers seeking to exploit the appeal of bigger screens already enlarge their 35-millimeter films to be shown at 70 millimeters, but such adaptations produce a grainier picture. Other film-technology companies share Showscan's appreciation of huge screens. IMAX, for example, shows documentaries and specialty films on screens as high as seven stories, though at the traditional projection rate of 24 frames a second.

There is also an emerging consensus in Hollywood that the 24-frame-per-second rate is on the way out, probably in favor of a 30-per-second rate that would provide a moderate improvement in picture brightness and clarity and also be more compatible with television, which creates new pictures 30 times a second. One Showscan competitor on the horizon is a process called Futurvision, which employs 70-millimeter film at 30 frames a second.

A change-over to Showscan would not come cheaply. It would require extensive theater modifications that could cost several hundred thousand dollars each. The changes would include new or modified projectors, improved sound systems and reconfigured seating to allow a bigger screen.

Theater owners say they are willing to make the investment, but only after the studios start making Showscan films. For their part, the studios are waiting for the theater owners to commit themselves to the modifications before they start shooting in Showscan — a Catch-22 situation for Mr. Trumbull.

Moreover, the studios have been pushing Showscan to perfect the cameras and other equipment needed to make a full-length Showscan movie. The required changes have not been monumental technological problems — a prototype of a high-speed Showscan camera compatible with standard equipment has been built by the Cinema Products Corporation — but the development process has moved slowly.

Studios remain concerned about cost, as well. At the higher frame rates, two and a half times as much film stock is used in making and printing the film; a typical \$15 million movie would probably cost an additional \$2.5 million to make in Showscan.

Like many technological advances in areas where existing products are not clearly deficient, Showscan has seemed on the verge of success for several years without ever breaking through. Its scientific underpinning was established in the mid-1970's when Mr. Trumbull, then doing research for Paramount Pictures, discovered that the optimum film speed, at least as far as the viewer's ability to absorb visual information is concerned, is 60 frames a second.

Ownership of the process has changed hands several times. At one time it was backed by a chain of pizza parlors that saw Showscan as a draw for its restaurants. Showscan is now controlled by a group of executives that formerly owned the Plitt theater chain. These executives created the Showscan Film Corporation, and since 1984 have been predicting that a Showscan feature film was just around the corner.

Instead, the last few years have been marked by frustrations and efforts to raise more financing, culminating in a public offering of just under half the company's shares last summer. Now, Showscan Film hopes it is finally nearing success. Columbia Pictures, a unit of the Coca-Cola Company, which has a 6 percent stake in Showscan Film, has said it is developing projects specifically for the Showscan process.

Paramount, a subsidiary of Gulf and Western, is also interested. The studio sold its rights in the technology to Mr. Trumbull in return for future royalties and licensing rights.

Showscan's executives think they can persuade owners of 150 theaters in the nation's biggest cities to convert to the format over the next several years. Theater owners, they say, will recoup their investment by attracting bigger crowds and perhaps by raising ticket prices for Showscan films.

Showscan proved to be a big draw at the World's Fairs in Vancouver, British Columbia, and Tokyo, where the company has shown action-oriented and special effects-laden short films. A similar Showscan facility recently opened in Niagara Falls, N.Y., and more are planned.

"People are looking for something they can't get in their living room," said Roy H. Aron, president of Showscan Film.

**15TH ANNUAL
INDEPENDENT
FILM, TV & MUSIC
SPECIAL SECTION**

Showscan Hopes To Bring New Pic Format To Showbiz

By **DREW VOROS**

For Culver City-based Showscan Inc., all the pieces have begun to fall in place. The company is attempting to redefine the entertainment industry and bring a new film format to the motion picture business.

In the last quarter of fiscal 1989 ended March 31, Showscan recorded its first profitable period, a net of \$339,000 (12¢ a share) versus a year-ago loss in the quarter of \$518,000, and the company's four business divisions — specialty theaters, specialty production, simulation and business systems — are off and running toward the financial black.

Founded by Douglas Trumbull, who was responsible for the special effects magic in "2001: A Space Odyssey" and "Close Encounters Of The Third Kind," Showscan is far from being content.

After nearly 15 years of perfecting by Trumbull and years of r&d by the company, the Showscan process, a patented format in which 70m film is used for photography and projected at 60 frames a second compared to the standard 35m filmed format and 24-frames per

second projection rate, is in sight of making its mark.

The result is an image Showscan says is four times brighter and four times larger than standard projection, giving enhanced clarity and an almost 3-D effect.

Now company has four features in production with the goal being to show the practical uses of the process for feature films.

"Experimental entertainment" is the term chief Showscan exec officer and president Roy H. Aaron prefers to use when talking about his business.

"Our entertainment is nothing like other passive entertainment, the audience become interactive because of the process' clarity and resolution," he said. The intensity of the experience is not limited to perspective shots of speed or flight, either.

"Leonardo's Dream" is currently in coproduction with Instituto Luce, the state-owned film production arm of the Italian government. The \$3 million pic is what Aaron calls a "soft picture," where normal action and a linear script will demonstrate that the higher technical quality of the process is as impressive in a more traditional picture as it is in "experience films."

The latter, which feature the likes of rollercoaster rides and downhill skiing, are now playing in the com-

pany's 10 specialty theaters throughout the world.

But revolutionary change in the motion picture industry is only a slice of the pie Showscan is baking. Aaron and his company have a broader concept of entertainment than strictly feature films.

In fact, Aaron uses the Walt Disney Co. as an analogy for where he wants Showscan to go. In addition to someday having a full feature production wing and string of specialty theaters in operation, Aaron is driving the company to be a complete entertainment concern.

Along with the specialty productions and theaters, the company's simulation wing has cut its first domestic deal to install its Dynamic Motion Simulator. Project will be part of the new luxury Excalibur Hotel & Casino in Las Vegas being built by Circus Circus Enterprises.

The simulator combines the Showscan technology with hydraulically activated seats that give the audience a real feel for the action on screen. Designed as a type of ride, simulator offers screenings only a few minutes long but comprising a unique film experience.

Last month, the company announced new contracts of \$6.4 million for motion simulators, which brings to 20 the total number of simulators operating, installed or on order worldwide.

But still, Showscan doesn't plan to stop there. The company has a business system wing that produces industrial footage using the Showscan process. It's also actively researching and developing HDTV.

"It's no coincidence that the Showscan process transfers directly to HDTV," Aaron said. HDTV has been in the back of his and Trumbull's minds since the Showscan process' inception. The Showscan process' 60-frames-per-second projection rate was designed to match that of HDTV.

"We are on the edge of having the technology become accessible," he commented. Aaron said Showscan's wide screen and com-

mercial programming sources to evaluate the competing technologies."

One of the larger financial impacts of HDTV for Showscan would be felt in its library of films that are now ready for HDTV. With four feature productions slated and a slew of "experience" films currently being exhibited, the value of the library could have dramatic appreciation.

Aaron won't predict where Showscan will be in the entertainment industry 20 years from now.

"We are a conservative and cautious company and if we stay driven by our specialty theaters and production, simulation, business

'It's no coincidence that the Showscan process transfers directly to HDTV.'

patibility with HDTV will put the company in thick of HDTV, which he believes in 10 years will be as integrated into the entertainment industry as homevideo has become this decade.

Showscan has been working with Zenith, Phillips, Sony and is a member of the subcommittee on test materials and evaluation for the Federal Communications Commission Advisory Committee on Advanced Television Service.

Company recently told shareholders that it "expects Showscan films to be used as one of the prin-

systems and HDTV divisions, we will get where we want to go," he said.

The next step for the company is a larger presence in Hollywood. Aaron sees every studio as a potential customer for the Showscan process. To make the company's presence felt, future plans call for premieres of the company's feature film productions, including "Leonardo's Dream."

"We haven't rushed the technology, we've been patient, but now the technology is ready," Aaron said.

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OMNI Magazine

June 1987

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"DEVIL'S MINE RIDE" FILM AWARDS

DATE	FESTIVAL	COUNTRY	AWARD
Feb-93	IMAGINA	Monaco	Simulation & Visualisation, First Prize European Grand Prix Imagina 93
Apr-93	ART FUTURA 93	Spain	Public Award
May-93	SINTESI 93	Lugano	Computer E Arte Award
Jun-93	ANNECY FESTIVAL 93	France	Final Selection
Jun-93	INT. ELECT CINEMA FEST 93	Switzerland	Final Selection
Jun-93	COMPUTER GRAPHICS INT.	Switzerland	Final Selection
Jun-93	ARS ELECTRONICA 93	Austria	NICA Audience Prize
Jun-93	COMPUTER ANIMATION 93	Geneva	Final Selection
Jul-93	MONITOR AWARDS	USA	Nominated in the SFX Category
Aug-93	SIGGRAPH	USA	Final Selection (Electronic Cinema)
Sep-93	IMAGE DU FUTUR 93	Canada	Final Selection, SFX
Oct-93	EUROGRAPHICS 93	Spain	Final Selection
Nov-93	NICOGRAPH	Japan	NICOGRAPH CGI Grand Prix

American Cinematographer

Showscan: Doug Trumbull's new 70mm Format

Motion pictures proved to be a pleasant diversion for a paying public when they were first shown at penny arcades via Thomas A. Edison's peep-show device, the Kinetoscope. That was in 1894. A year later, the Lumiere brothers of Paris expanded the possibilities of the movies enormously by projecting them on a screen. Within a few years the motion picture became not merely a novelty but a practical way of telling stories visually to an increasingly eager public. It became, eventually, an enormously powerful industry in which technology and artistry are exploited to sometimes marvelous effect.

Technology and artistry are the tools of Douglas Trumbull, whose latest contribution to the movies is a striking process called Showscan.

Trumbull first gained fame as a creator of special visual effects whose work was vital to the realization of *2001: a Space Odyssey*, *The Andromeda Strain*, *Close Encounters of*

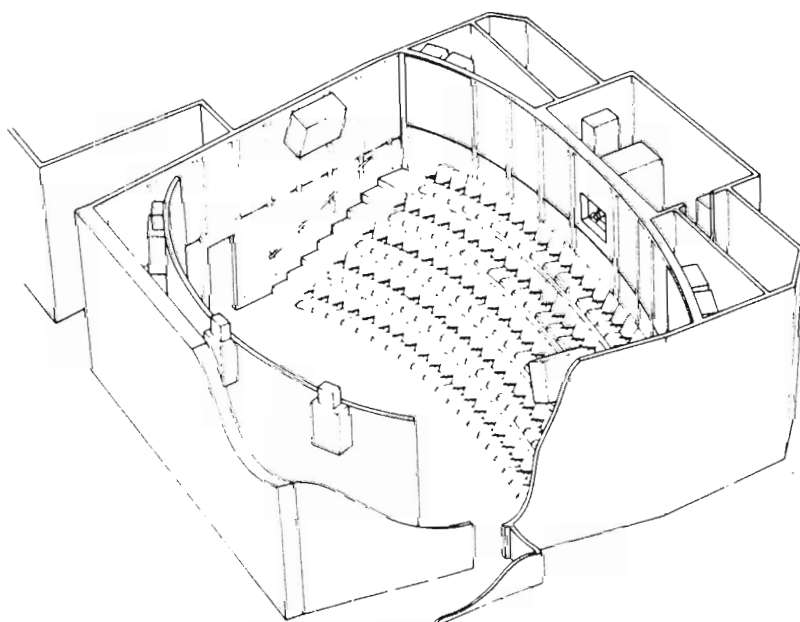
the Third Kind, *Star Trek: the Motion Picture* and *Blade Runner*. He directed *Silent Running* and *Brainstorm* and founded Entertainment Effects Group (EEG), an outstanding visual effects company at Marina del Rey, California.

"One thing that has diminished movies is a lack of showmanship," Trumbull believes. "All the other entertainment industry technologies are going crazy, but movie exhibition hasn't done a thing to make movies better. Most of the people who go to movies today have never seen Cinerama or Todd-AO. The theaters that run 70mm prints are showing, for the most part, 35mm productions that have been enlarged for 70mm projection. Also, many theaters are running 70mm on small screens with inadequate projection.

"A decision to go out to a movie means considering more than just the cost of a ticket. It must include accessibility, baby sitters, parking, and so on. It's so easy to stay home and



Left: Douglas Trumbull and the Panavision 70 camera adapted for Showscan. Below: Plan of a Showscan theater.



watch TV. High resolution television is definitely coming, although it will require from 1250 to 2000 lines of resolution to even approach the quality of 35mm movies. The gap between television entertainment and theatrical films will continue to grow narrower and narrower, so to compete with TV we must create a *bigger* difference. It would take a hundred high resolution TV channels banked together to present our kind of quality."

As regards developments in the film medium itself, Trumbull believes that the industry has permitted stagnation. "Some fine movies have been made, but nothing of importance has happened for some time," he said. "The great movements have been sound, color, and, more recently, Dolby sound; but since that, no major steps have been taken to really push the boundaries forward. Some of the technical improvements have led to a degraded technique by making things too easy - zooms instead of dolly shots, for example."



Above: Set up for the magic mirror shot in which the actor's hand breaks the surface of a liquid mirror. **Below:** The Showscan camera mounted on a dune buggy.

New Magic, which is now being exhibited at Showscan theaters in Dallas, Springfield, Missouri, Fairfax, Virginia, and Huntsville, Alabama, is designed to showcase the special qualities of the system. It has a running time of only 22 minutes, yet its audience impact is undeniable.

Showscan is not intended for showing in normal theaters but in specially designed, intimate showplaces called SuperCinemas that seat from 60 to 100 patrons. These houses are being built in many areas of the United States at Showbiz Pizza Place entertainment centers, which are owned by Brock Hotel Corporation.

The theaters are practically square and the seats are arranged on curved tiers in close proximity to the screen — which is made of a special material developed by the Stewart Film-screen Corporation — is 17' x 34', about three times as large as the screens in the average theater. There is no proscenium; the curved screen fills the front wall from floor to ceiling and wall to wall.

The movies are photographed on 65mm film using a height to width ratio of 1:2.21 in specially designed

cameras running at 60 fps. The projection prints are on 70mm.

"Ever since the talkie era began it has been the rule that 24 fps is the way to make movies," Trumbull explained. "Nobody breaks the frame rate rules. We decided to test different frame rates to see how it affected photographic quality and audience response. We used encephalographs and other scientific methods to test audience reactions through brain waves, pulse and skin responses. Our demonstration films were shot at frame rates up to 96 fps. Data analysis showed that the standard 24 fps stimulated relatively low physiological responses, but as the frame rates increased viewer responses jumped. After we passed 60 fps the intensity levelled off.

"That," Trumbull said, "is why we settled on 60. It seems to be the optimum speed at which the eye can receive information and transmit it to the brain. We think 60 fps approximates the speed at which the eye normally senses reality, and so it gives us an incredible illusion of reality."

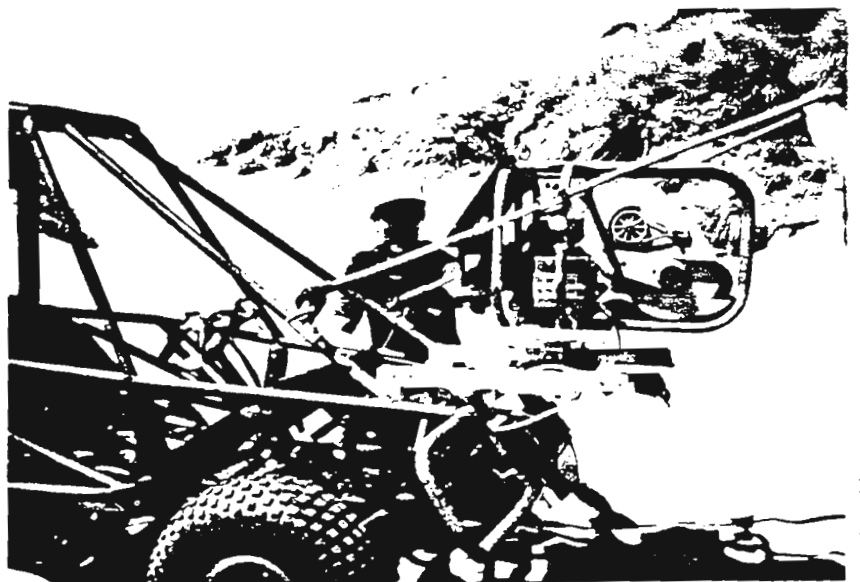
Trumbull is quick to point out that Showscan is not a 3-D process, but that it produces a sense of depth not present in normal cinematography. His interviews with scientists taught him that stereoscopic vision is dominant only to about 10 feet from the eyes. Beyond that, other factors determine the effect of depth: linear perspective, velocities, relative sizes, atmospheric perspective, and the movement of one object in relation to others.

"Because our image is so sharp, the viewer subconsciously constructs a three-dimensional model of the world, resulting in a powerful feeling that the surface of the screen has vanished and he's looking into a deep world."

Development of the system required a great deal of special equipment. The camera was adapted from a 65mm UltraParavision camera and geared to a constant speed of 60 fps. A newly designed 70mm projector with custom lenses includes a special lamp system that greatly increases the amount of light thrown to the screen. The sound is a separate six-track, magnetic system with a decibel range from zero to 130 — well beyond the limits of human hearing. These elements are integrated precisely to the design of the theater to heighten the sense of reality and audience participation. Speaker placement and acoustical details are identical in all Showscan theaters.

Trumbull has definite ideas about the proper length for special presentations such as *New Magic* and a second production, *Big Ball*. "Movies started with loops and one-reelers and by now the attention span of the audience has changed. I believe that for this type of show it is well under the length of a theatrical feature, somewhere between 22 minutes and an hour."

New Magic opens with some shots from a documentary about a fireworks show. The film is scratchy, the noises from the back of the theater



Ron Raschke

suggest it is being run on a projector which was oiled once several decades ago, and the projectionist's attempts to adjust the focus are rambunctious. Then the film jams in the gate and burns. The apologetic mumblings of the projectionist, Jeremy, – played by Gerrit Graham – mingle with his clumping footsteps as he is heard walking down the left side of the theater. He emerges *behind* the screen and turns on the backstage lights while he gets another film, which he promptly spills.

The effect of the backstage as seen through the translucent screen is strikingly realistic, particularly convincing are scenes in which he seems to touch the screen, creating ripples that do not appear to be part of a projected image but of the theater screen itself.

Jeremy then discovers an illusion device invented by his boss, Mr. Kellar. Pressing buttons recklessly, he sets into motion a series of breathtaking moving images – a scene photographed in the Showscan process from an airplane soaring among icy mountain peaks, undersea creatures, a driver's-eye view from a sports car speeding over a hairpin road, a closeup of a pretty girl, and more. He presses one button too many; the building shudders and a steel door opens, revealing a room filled with magical paraphernalia ranging from the tools of ancient necromancy to miracles of the computerized, laser-beamed age.

A number of strange adventures follow. A mirror proves to be a pool of water hanging on a wall; Jeremy ripples the surface with his fingers and, an instant later, a killer whale leaps out and seems to swallow the camera. Encounters with lightning machines, a giant spider, robots, talkative ventriloquist's dummy and a guillotine cause Jeremy to holler for help. A knife slashes down the screen and bolts of lightning announce the arrival of Kellar – none other than the tall, sepulchral-voiced Christopher Lee. Kellar shows the promised fireworks show in brilliantly photographed detail, then explains briefly how the process works. As he talks, he moves closer and closer to the camera, to be seen at last in possibly the most detailed extreme closeup of an actor's face that has ever been presented to an audience.

Needless to say, viewers are fairly bowled over by such a barrage of images and sound. It is a curious fact that the general effect upon the viewer is that he has seen a much longer show. This is due, in large part, to the fact that he has received a great deal more visual and aural information than is usual during a brief span of time. The degree of audience involvement also is greater, which tends to elongate time in the viewer's mind.

Trumbull described the distinctive qualities of the Showscan images accurately:

"Water movement, such as ripples and splashes, have a smoother quality, showing details of water never seen before in films shown with a 'slow motion' effect. Lightning is seen as it appears in life. There is no strobing at all, even in a rapid pan or tilt shot, yet there is no blurring of the image."

The most remarkable effect, visually, is the convincing impression that there actually is a man behind the theater screen and that the screen ripples and wrinkles at his touch. The sound reproduction is superbly realistic in its detail, capturing directional subtleties and even Doppler effects with no suggestion of contrivance.

"We keep the sound system separate from the film the pictures are on," Trumbull pointed out. "We aren't trying to shove it down the side of the frames. It's a six-track Dolby system, made to be heard from front channels, surround speakers and subwoofers for subaudible vibrations. It's recorded on a 35mm perforated tape that's interlocked electrically with the picture. The theater walls are covered with sound-absorbing surfaces which, along with the acoustically ideal design of the theater, contribute to what someone called 'the awesome reality' of our sound."

American Cinematographer visited the set at Laird International Studio in Culver City while *New Magic* was being filmed. The stage was cluttered wildly with a collection of props that included some of the electrical machinery created by the late Kenneth Strickfaden and seen in the *Frankenstein*, *Flash Gordon* and *Fu Manchu* movies of the early Thirties. Trumbull, cinematographer, James R. Dickson; producer, Peter Beale; special effects supervisor, Eric Allard; and magic con-

sultant, Ricky Jay were the key personnel overseeing the operation. Jay, a noted magician-illusionist, supplied many of the bizarre props from his collection of historic gadgets.

Dickson, appropriately, has worked in special photographic effects as well as production photography. He was half of an animation and optical effects company in partnership with Nick Vasu and photographed numerous commercials for Texaco, Datsun, Toyota and others. He photographed special effects for seven films shown at the the 1963 World's Fair and his work is much in evidence in *2001 – A Space Odyssey*, *Cosmos*, *Star Trek*, *Blade Runner*, and *Brainstorm*.

"Our camera is an Ultra Panavision 70 on the outside and there is an old Mitchell inside," Dickson said. "It was specially adapted for us by Panavision, the camera used in filming *Lawrence of Arabia*. It's crystal controlled at a perfect 60 fps. Surprisingly, even with the wide film, there have been few troubles with the high speed. Most of that has been ironed out, but any cameraman can expect to have some troubles at 60 fps, even if he's shooting 35mm or even 16mm."

Lighting on the set seemed little if any brighter than would be necessary for normal 35mm photography despite the reduced exposure necessitated by high speed work. "We're using Eastman 94 for the interiors and shooting at f.4 with fairly normal light levels," Dickson noted. "MGM Lab has been very good about helping us cope with the new technology."

In filming the mirror-water gag, a wall was built parallel with the floor and the water tank was set into a frame. The actor, riding in a body form concealed under his clothing, was lowered on a teeter until he seemed to be standing in front of the "mirror." The camera, positioned above him on another crane, photographed the action as the actor thrust his hand into the water. A sudden cut to a previously photographed scene in which an orca leaps up toward the camera, gives the impression in the edited film that the whale has burst out of the "mirror."

Eric Allard, husky and energetic, provided on-the-spot special effects work. A five-ton truck filled with equipment, a production assistant and

five special effects men were brought to the stage by Allard, who tries to be prepared for *anything*. "I can go anywhere and rig anything on any location," he said. "We only had three days to rig the effects for this film. We came on stage with the materials, but none of the props or gags had been prepared, and we put in four 16-hour days in a row. We put 60 feet of flying tracks in the rafters, made a lot of heavy-looking debris, such as wooden beams out of balsa, for the earthquake sequence, built a miniature brick wall for a miniature car to crash through, and made other strategic use of plaster and break-away glass. Allard rented the belly pan for the water gag from Disney Studio. His car-through-wall sequence was shot by Pete Slagle, a specialist in miniature work.

Allard, like all special effects men, is typically untypical. He was a demolitions engineer in the American Special Forces - "You'd be surprised how many of those A-Team riggings I've applied to special effects," he revealed. He was a set carpenter at Disney as assistant to Danny Lee on *The Black Hole*. He also worked with another master, Chuck Gaspard, on *Sudden Impact*, *Deal of the Century* and *Ghost Busters*. Today he free-lances, but keeps himself on call for Trumbull, for whom he did a great deal of work on *Brainstorm*. He is versatile, doing his own designs and storyboards, and even miniature construction and optical effects when necessary.

"I always work in a certain sequence, step by step," Allard explained. "First there is a planning phase, putting the designs and plans on paper. Second, the setting up - purchasing materials and so on. Finally, the execution, for which you must be ready to deal with everything foreseeable as well as any directorial inspirations that come up on the set. If you have time to prepare, there is no excuse for anything not to work. Working for Showscan is special; the vivid image creates problems for everyone."

Trumbull echoed the last sentiment. "It especially is tough on the makeup artists; you can't put a pencil line under a man's eye without it showing up. We had to make great improvements in light projection because

there's about 300 percent more area to project. We tried to make everything compatible with normal movie techniques as to lights, film, set construction and so on, but there are some differences. It has more voyeuristic quality than other processes. It doesn't seem to jump out at you, like 3-D systems, but sort of opens up to invite you in.

"The Showscan camera sees *everything*, including every flaw. The actor can be more subtle and you're able to keep camera movements fairly simple, with no need to cut to closeups. It changes your way of directing. Even the basic 'over the shoulder shot,' which has always been one of the most common setups for conventional films because it makes the viewer feel that he's part of the experience, becomes obsolete. In Showscan, looking over somebody's shoulder makes the viewer feel that he's being left out, because he already feels involved and wonders why he isn't being included. It's more like live theater, with the actors playing to the audience - that is, to the camera."

As to Showscan's future, Trumbull remarked that "a minimum of 200 theaters are planned, but we hope for many more than that. We now have the first high-speed 65mm reflex crystal sync camera, we invented a new underwater housing for our system, and we plan to get new lenses made that are sharper than any in existence. We have an experienced management team now and I can devote my time to supervising the creative aspects of the film program." He indicated that a number of producers and directors have become interested in utilizing the process in future film work.

"Recently I went over Variety's list of the top 50 films at the boxoffice," Trumbull noted. "Seventy-five percent of the pictures were heavy on special visual effects to a significant degree. An audience sees *Star Wars* and it says, 'what's next?' The more bizarre it is, the more interesting. I want to combine Showscan with my past knowledge of special effects and push them to the limit. Showscan may be cumbersome and difficult, but the process works. I've been working with it for eight years and it *works*." ■

AVideo

(Formerly Audio Visual Directions)

Showscan: the Ultimate Presentation

by
Sam Stalos

The next time your marketing director wants to impress the sales force at a regional meeting, using adjectives such as "motivating," "totally absorbing," and "captivating" to describe the kind of program he or she has in mind, respond with a new word of your own: "Showscan®."

This new film format is guaranteed to make an impression. It will not only grab you, it will twist, push, flip, and pull you along — and it doesn't even need your permission. It's that powerful. Showscan was researched and developed by Doug Trumbull to do one thing: maximize the viewing experience. And while the format stops short of mind control, it's certainly mind-bending.

Before examining this format's possible applications in the industrial market, let's take a brief look at its technical aspects.

First, the film rate has been increased to 60 frames per second. The standard frame rate for 35mm and 16mm film is 24 fps.

Second, the picture is shot on 65mm negative and printed on 70mm positive film. By comparison, most features are shot on 35mm film.

Third, six discrete audio channels are used for dialogue, music, and effects. Virtually all 16mm films are monaural, as are most 35mm films.

Fourth, the image size in a Showscan theater is about three times that in a conventional facility. Present theaters seat only 60 to 100 people, although a 500-seat facility is under construction. Within that environment the seating arrangement and acoustics are carefully controlled. While the screen isn't dome-shaped (as in Omnimax theaters), it's slightly curved. Now that you know what Showscan is and, having read the previous piece in this magazine (September *AV Video*), what it can do, let's find out what Showscan offers your marketing director.

When the marketing VP turns to you and says, "Give 'em a call and find out what you can about costs, lead time, facilities, etc.," your initial contact should be Peter Beale, Executive Producer and President of Showscan Film Corporation. So let's give Beale a call at (213) 827-7541.

We: Good morning, Mr. Beale. "I'd like to discuss the production of a Showscan film for our company's upcoming sales meeting. In that we have no script prepared at this time, we can develop a theme and outline with the system's limitations in mind.

B: Fine. Ask away.

We: How about the maximum length of a program? Considering the film's size, the speed at which it moves, and the subsequent size of the reels, are there any restrictions here?

B: If you wanted automatic projection, a kind of hands-off projection, you would limit the length of your program

to about 25 to 30 minutes. If your program were an hour long, you'd need two projectors. If you'll only be showing the program for a short time, say for a few days at a sales meeting, you wouldn't need an automatic projector. Instead, you'd have just one projector and a projectionist using a platter system.

We're presently designing a projector with automatic rewind, so that by the time you clear the theater and get the next 100 people seated, we'll be ready to go. If you had two films you wanted to show back-to-back and you only had one projector, you'd need to allow about 6 to 10 minutes between the two shows, but having two projectors is really a very small cost factor.

Production Criteria

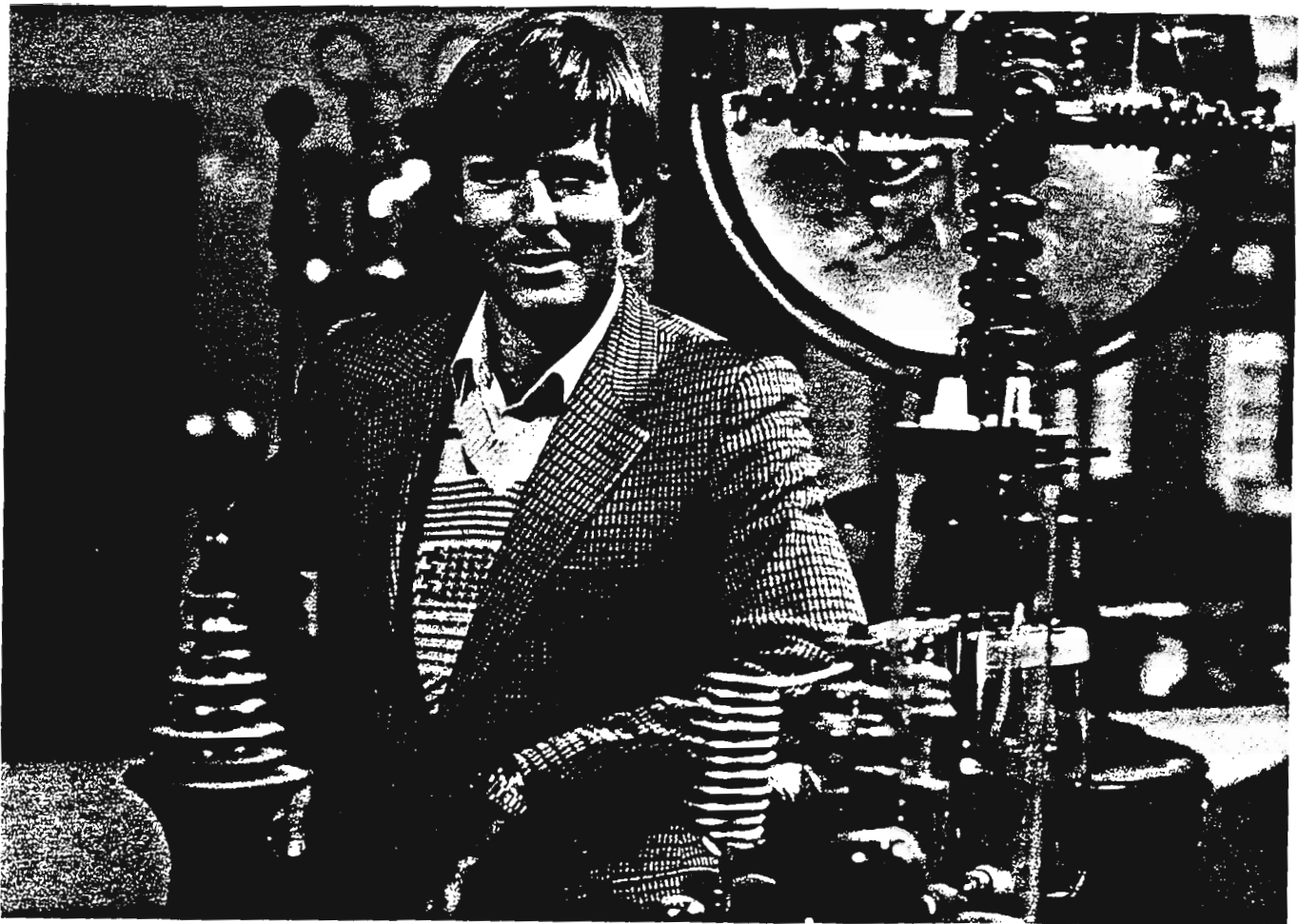
We: We understand, Mr. Beale, that your format requires using specialized production equipment. Does this mean other producers won't be able to find such equipment, or are you prepared to offer this equipment and expertise to other production houses? Would you prefer to offer a complete package that included equipment and producer services, or can we contract for your services in a consulting capacity?

B: First of all, we use standard 65mm Panavision cameras that have been adapted for us. We have an understanding with Panavision on use of that equipment. We'd prefer to produce the film in its entirety because we feel our expertise in this format, and in movie-making as a whole, is highly advanced when you consider the experience of Doug Trumbull and myself. We don't make our services a condition but before we license others to use our system we'd like to make sure the proper people are doing it. If you have your own producers and directors, we would be very happy to act as consultants, to make sure the proper equipment is available for your use and to help you exploit Showscan's potential by offering our technical expertise.

Editing Facilities

We: Considering the film size and frame rate, does editing the material require specialized equipment? Would we have to come to California for all the post production?

B: As far as editing is concerned, we would probably have to do a certain amount of work for you in converting the dailies to the 24 frames/35mm standard. The conversion from 60 to 24 fps is done through step printing. In this process we print every other frame and drop one occasionally. If we're given responsibility for the entire production, then of course the editing phase, which includes the conversion and editing facilities, would be covered in that agreement. Anyone who has any experience in 35mm film will have no trouble with this format. The soundtrack is recorded on a Nagra, then dubbed to the standard 24-frame rate. You loop,



Peter Beale: producer of quite a show

foley, dub, score, all in the conventional manner. We then conform the 60-frame workprint to the 24-frame workprint, review the 60-frame workprint to verify the edits and effects, then conform the original negative to that final workprint.

We: How about editing on video?

B: There's no reason why this wouldn't work. We haven't yet made a film chain to handle the 70mm/60-frame format, nor am I aware of a flying spot scanner that could convert the original negative. However, you can certainly tape the workprint right off the screen and use that for editing purposes.

We: What if we want to have a video conversion of our program for distribution in that medium as well?

B: While this is technically possible to accomplish, we aren't eager to have video versions of the Showscan process in distribution. That is, we don't want the name "Showscan" appearing with a video conversion simply because you can't get the same effect — the same impact — from a video presentation that you can with the original film presentation. We want to protect and identify the superior potential of the Showscan system. This superiority isn't demonstrable in the video medium for obvious technical reasons. If someone wanted to make a Showscan film that would also

would also have a video counterpart for use later on, we would want the Showscan name taken off the video program.

Location Restrictions

We: Are there any limitations to the settings in which these cameras can work, Mr. Beale? For example, can we shoot underwater?

B: You certainly may shoot underwater. In fact, we have developed an underwater mount that I would venture to say produces the finest underwater photography ever seen by anyone. The primary restriction is that a magazine of film running at this speed lasts for only 3 minutes, 20 seconds. We have extensive experience in aerial photography — fixed-wing, helicopter, you name it. And when it comes to doing animation and special effects with this format, of course you just happen to have one of the real masters at your disposal, Doug Trumbull. Therefore, there are no location or creative restrictions with Showscan.

Soundtrack Specifications

We: How do we go about scripting for six channels of sound? Is it true that original music is required, or is there library music available in this format? What's the availability of recording and

mixing facilities that can accommodate a six-channel mix?

B: First, we aren't doing anything radically new in preparation of the soundtrack that technically hasn't been done by many people before. Monitoring the mix in six discrete channels is already an option at several studios here in California, and this requirement easily could be accomplished by other studios across the country. Again, there are certain nuances to our system that should be observed, which is where our experience and expertise will be invaluable. From a technical consideration, the six discrete channels are played back from an interlocked 70mm six-track. In the not-too-distant future we hope to be in a completely optical-digital format, bypassing the magnetic digital options. At present our recording and mixing are analog using standard equipment.

Regarding the availability of music libraries already mixed in this format, I would say that the use of standard two-channel mixes produces acceptable (though not ideal) results. There are also libraries that will do a custom six-channel re-mix from their masters to your specifications. In the use of either a pre-mixed stereo track or a re-mixed six-channel track, the sound is embellished, effects are added, specific sounds are placed throughout the audible spec-

trum, and the overall impact is considerably enhanced. There's no demand that a custom music score be created. However, from both a creative and technical perspective, and if budget will permit, there are obvious advantages in developing a custom music score. But it isn't a technical requirement of the Showscan system.

Presentation Requirements

We: Let's assume, Mr. Beale, that production costs have been agreed upon. Since audience involvement is directly related to screen size, seating arrangement, and acoustic control, let's discuss our options here regarding presentation

// The audience will be escorted into a theater designed as a space shuttle and be subjected not only to the visual and audio cues of an outer-space excursion . . . but they'll also experience the actual G force encountered by our astronauts during blastoff. //

facilities. How adaptable would the presentation requirements be for a convention center or hotel? Are we limited to using Showscan theaters already in place, which would restrict our viewing audience to no more than 100 people at a time, or are there other theaters easily adaptable to your system?

B: Let me say that you can't just go into a conventional cinema and expect it to work. Most cinemas are designed long and thin. Some are suitable for adaptation and some aren't. However, there's no reason why you shouldn't be able to go into any convention center or hotel and build a temporary theater suitable to Showscan's requirements. There's a theater here in this building that was constructed in just 48 hours. The 70mm projectors are the same size and weight of any standard 70mm projectors and require only a four- or five-man team to transport. A 70mm projector is perhaps 10 percent larger than a 35mm projector, so there isn't a big difference in handling requirements. You're obviously talking some manpower here, but not any special transportation arrangements that wouldn't normally be used with a 35mm projector. The sound system is actually heavier and more expensive than the projector.

We: Let's look at the option of using

a Showscan theater already constructed for our presentation.

B: Fine. There are theaters in Huntsville, Alabama; Springfield, Missouri; Fairfax, Virginia; and Dallas, Texas; and a preview theater here in the office at Marina del Rey in California.

Theaters at the first four locations are an integral part of the ShowBiz Pizza Place franchise. They were built in an agreement with Brock Hotel Corporation, the franchise's parent company. Arrangements for using the facilities can be made through us and Brock. A 500-seat theater is under construction for the 1985 World's Fair in Japan, with plans for another 100 theaters to be built in America within the next year. In addition,

we are negotiating the conversion of theaters with owners in South Africa, Japan, Australia, England, and, of course, the United States.

Production Costs

We: Can you give me any kind of cost comparisons for a film produced in the Showscan format versus a film done in the standard 35mm format?

B: The film and lab costs are considerably more than a conventional 35mm film, and the shorter the film the higher the proportionate costs. For a 30-minute film, you can reasonably anticipate a couple hundred thousand dollars more for the film and lab costs. Otherwise, there's no appreciable difference in the cost at all. The shooting time is the same, the editing time is the same, the dubbing time is the same, etc. The film and lab costs are the only significant increases you'll encounter. I should add that there will be a licensing fee for use of the Showscan system. But this fee will be very nominal since we're eager to promote the system.

Generic Showscan

We: Are there any Showscan films already produced that could be considered generic in nature, or that could

be customized at relatively low costs?

B: At this time, no. However, that's certainly on our agenda. Doug is currently directing our first industrial film, one loosely described as a celebration of humanity and the sciences. This film was commissioned by the Japanese World's Fair and will be available to this market in the latter part of 1985.

We: What other projects are either under way or at least on the drawing table?

B: We are in serious discussion with a major brewery for production of an industrial film and construction of a theater to their specifications. We are also involved with a Canadian company to develop the software, sound system, and projection system for a flight simulator available to the general public. This Canadian project, which combines our expertise with Interactive Entertainment and Rediffusion of England (a well-established pioneer in large-scale flight simulators), will, we hope, be completed this December. The project is called "Tour of the Universe" and involves construction of a "movable" theater at the base of the C.N. Tower in Toronto. The audience will be escorted into a theater designed as a space shuttle and be subjected not only to the visual and audio cues of an outer-space excursion (supplied, of course, by the Showscan system), but they'll also experience the actual G force (gravity) encountered by our astronauts during blastoff. The movable theater will pitch and roll and vibrate just like a real spacecraft. This bit of realism, combined with the realism obtainable via the Showscan system, should provide for an extraordinary experience.

Making the Ultimate Decision

We: Thank you, Mr. Beale. I'll give this information to our marketing director, although I'm sure there'll be no immediate reply one way or the other.

B: I don't think I understand.

We: Well, regardless of the decision, I'm sure our marketing director will want to fly to California and meet with you personally. It's still a heck of an excuse for a round of golf at Pebble Beach. After all, you can't discuss the making of an Ultimate Presentation unless you're playing on the Ultimate Golf Course. You do play golf, don't you, Mr. Beale? **AW**

CALENDAR

MOVIES

TRUMBULL'S FOUND A WAY TO PACK MORE FUN INTO FILM

By CHARLES CHAMPLIN

Douglas Trumbull commenced to win international huzzahs for his special effects on Stanley Kubrick's "2001: A Space Odyssey" and extended his claims to fame on Robert Wise's "The Andromeda Strain" and Steven Spielberg's "Close Encounters of the Third Kind."

His own "Silent Running," which he also wrote and directed, was not a major hit in first release in 1972 but is now a frequently revived science-fiction classic, admired not only for its special effects and rich invention (including squat mini-robots that foreshadowed those in "Star Wars") but for its power as an ecological parable and a psychological study of madness begat by solitude.

Trumbull, who wants less than ever to be pigeonholed as a special-effects whiz, is in fact currently up to his eyes, and ours, in a rousing and subversive attempt to introduce the first fundamental change in motion-picture projection and exhibition in decades.

He sees the new system, which he calls Showscan, as an urgently required antidote to the continuing threat to theatrical motion pictures posed by cable, videocassette recorders, rock videos and, as always, good old commercial television itself.

But Trumbull also regards the system as an overdue resumption of the technological evolution of movies, and above all as a way to infuse new excitement into film making (and film audiences).

(At press time, Showscan Film Corp. was in the final stages of negotiations with Plitt Theater Corp. for one of the Plitt Century City theaters to be converted to Showscan for summer exhibition—the first theatrical house to try the new process.)

The movies have continued to evolve, in their halting and generally reluctant way. Sound arrived, amid a few noisy cries that it added nothing and wouldn't last. Color became the norm, instead of a hand-painted novelty.

Responding to the competitive impact of television, the movies experimented with many (costly) wide-screen systems—Cinerama, Todd-AO, VistaVision, CinemaScope and Panavision—and the screen has stayed wide. Film itself is faster, subtler and, in 70-millimeter, capable of majestic and amazingly detailed images.

More recently, the emphasis shifted from sight to sound: Sensurround, Dolby, George Lucas' THX multispeaker system introduced on a widespread basis with "Indiana Jones and the Temple of Doom."

But what has remained the same since the last years of the silent age is projection at 24 frames per second, though with each of the frames flashed twice, thus presenting the eye with 48 images per second. It has seemed the best speed to capitalize on the phenomenon of the persistence of vision, to create the illusion of continuous motion without flickering.

It is an upwardly shifted rate of projection that, along with other refinements, Trumbull has wrapped into a system called Showscan and on which, a few days ago, he received a patent, first applied for in 1976.

The patent, which caused the breaking out of wine and the raising of cheers in



Douglas Trumbull, special-effects wizard on "2001: A Space Odyssey," has created Showscan, which he hopes will revolutionize exhibition of films.

the Showscan offices in a new industrial park in Marina del Rey, is the consequence of nearly a decade's work.

In 1975, Trumbull and Paramount formed a joint venture called Future General to explore the technological horizons of the movies. (Investment in research and development by the major studios all but dried up after production was divorced from exhibition under the anti-trust consent decree of the early 1950s.)

One of Trumbull's several free-thinking lines of inquiry was in fact the frames-per-second question. Was 24/48 the ideal; did it evoke the highest visceral responses from the viewer?

To find out, he conducted some elaborate tests: shooting the same content at a wide range of frames per second, then showing the various footages to viewers who were wired to record pulse rates, respiration, skin tension.

What he discovered, Trumbull says, was that visceral response to the images appeared to peak at 60 (unrepeated) frames-per-second and level off thereafter.

Paramount, meanwhile, lost interest in Future General, and Trumbull had a potentially significant discovery and no place to go with it. It was clear—and indeed still is—that the major studios are

not going to start making films in a new system that no theaters are equipped to project. It remains to be seen (from the Plitt experiment) whether exhibitors will invest millions in new equipment to show films that do not yet exist. Trumbull had invented his own Catch-60.

He had not then reckoned with the pizza parlor as an entertainment center, but a Kansas lawyer turned Texas entrepreneur named Robert Brock had.

Having parlayed a driving range in Kansas into a Holiday Inn franchise in the mid-'50s (it became the first of his 56 Inns, totaling 10,500 rooms), Brock in 1980 branched out into pizza operations that offered not just food (and beer and wine) but baby-sitting rooms while parents ate, and separate entertainment attractions for before or after eating.

Trumbull thought he could improve on the robotized entertainment parlors were providing, and in 1982 he and Brock became partners.

By now, Brock has built four Showscan theaters adjoining pizza parlors in Dallas, Springfield, Mo., Huntsville, Ala., and Fairfax, Va. Each, Trumbull says, is profitable.

The theaters are equipped to project Showscan's 70mm, 60-frames-per-second film with its modified Dolby six-track sound. The surroundings also reflect Trumbull's careful planning. There are between 60 and 100 seats in steeply

raked tiers, each seat precisely sited for an optimum view of the 30-foot-wide curved screen. Because of the relatively short throw from the projector and the closeness of seats to the screen, the images appear relatively larger and more embracing than in more conventional cinemas.

Thus far, Trumbull has made two short films in the Showscan format, both created to be entertaining in their own right but also to show off the capabilities of the system.

"Big Ball" is kids' fare, a kind of outsized soccer game played up and down sand dunes with big-bumpered beach buggies pushing around a ball five feet in diameter. There are good guys and bad guys, mean tricks (non-injurious) and some truly stomach-clenching action shots from the driver's point of view.

"New Magic" is even more a showcase, a wonderful narrative in which an inept projectionist appears to have loused up the showing of a terrible old documentary on a family that makes fireworks. The projectionist is disclosed behind the screen, trying to keep the audience from leaving by fiddling with a console of tricks being developed by the theater's weird owner (Christopher Lee at his most sepulchral).

The lad sets off psychedelic displays, an ocean storm, an Alp-grazing aerial sequence, and finds himself in a chamber of special-effects horrors. It is a tour de force half-hour.

While it is not 3-D as such (with 3-D's sometimes paradoxical feeling of being deep but unreal and not continuously deep at that), Showscan does have a greater sense of roundness and depth ("enhanced dimensionality," the Showscan people like to call it) than any other 2-D film I've seen. Unlike some big-image formats, it handles close-ups, miniatures and, needless to say, all the special effects you can throw at it. A straight, high-voltage drama like "Virginia Wolf" would work in it, I have no doubt. (Whether it would go in a pizza parlor is, of course, another question.)

In a way that probably is felt more than it is comprehended, you do seem to be in the presence of the action, and the feeling that you are watching the projectionist fumbling around behind the screen is eerily persuasive.

Ironically, "Brainstorm," Trumbull's recent and remarkable film that gained its unsought notoriety as Natalie Wood's last appearance, was written with the Showscan process in mind. And there is no doubt that its extraordinary visual effects, creating as they did unsettling ambiguities over what is "real" and what is not, who is good and who bad, what is meant against what is not, would have been overwhelming in Showscan.

The roller-coaster rides in the first Cinerama (and now again in "Indiana Jones") can induce nausea; Showscan introduces a subtler confusion over what is "true" on the screen. Trumbull insists that some viewers, children especially, "have been sure what they see in "New Magic" is "real." I'd have to say there has never been a stronger case for being uncertain, and that's no mean praise.

At the theater at Showscan HQ just off the Marina Freeway, Trumbull and his

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PENNY GLADSTONE / Los Angeles Times

TRUMBULL PACKS MORE FUN IN FILM

Continued from 21st Page

associate Peter Beale, president of Brock/Trumbull Entertainment Corp. (Trumbull is co-chairman), are showing the films to such studio executives as can be persuaded to come by, to exhibitors and, most successfully, to film makers like Spielberg who see the process as exciting not simply for features but for short films.

"Films," Trumbull says, "needn't be two hours. The short film, like the short story, is very hard to do, but when it's right it's perfect. I find it fascinating to experiment with the short film: how to condense, how to decide what you don't need."

Once again, as an earlier innovation, wide-screen, at least slowed the slippage of the audience in the war with television. Trumbull thinks technological updating can get the customers off their sofas.

But he thinks that, on creative terms, the short film may be ideally suited for the attention span of an audience that has been nourished (so to speak) on sitcoms, "Laugh-In," "Sesame Street," commercials (with their own kaleidoscopic flow of swift images) and indeed rock videos.

The return of the short film would not thrill exhibitors, of course. They killed shorts, from necessity, with the construction of the double-feature to lure

customers in the dollar-short Depression. They forestalled the return of short films when the single feature returned, but had to play as often in a day as the running time permitted in order to maximize revenues.

Trumbull will have to play tell-and-show with the industry, demonstrating amid the aromas of pepperoni and anchovies that the system works, is economically viable and alluring to the customers, and can be profitable at feature length.

He and Beale hope that they can expand the present four pizza-with-Showscaan locations to 150 in the next 12 months, looking eventually to perhaps 400 in the United States, still others in Japan, the United Kingdom and elsewhere.

Short films in Showscaan are relatively expensive ("New Magic" cost \$1.5 million), but in those additional venues they should pay for themselves quickly, Trumbull has no doubt.

Trumbull's other corporation, Entertainment Effects Ltd., has been doing visual effects for "2010" and "Ghostbusters," but by now he has little to do with the day-to-day operations.

He is concentrating on Showscaan because, he says, "I want to be taken seriously as a film maker. I also think the advance of television is inexorable. I'm not railing against the medium. It's just that I love the cinema, and the communal experience it is, and I want it to survive and flourish." □

TECHNOLOGY

For a few companies, the movie theater of the future is already here. Now they just have to convince Hollywood.

By RICHARD TURNER

HOLLYWOOD—They may not make movies the way they used to, but they sure show them the same way. True, instead of going to the old downtown Bijou, you now head for the multiplex in the mall outside town. And yes, you can buy capuccino with the Jujubes at the concession stand.

But the *real* stuff hasn't changed all that much. The color, the sound, and the print quality have all been refined slightly, but it is still basically a dark room, celluloid running through sprockets, and a blank sheet up on the front wall.

"There hasn't been a change in the basic technology since 'The Jazz Singer' in 1930," says Roy H. Aaron, president and chief executive of Showscan Corp.

Mr. Aaron has a vested interest in making that point: Showscan, based in Los Angeles, is one of three companies that sell a movie theater of the future. So far, the theaters are on the fringes of the entertainment world—in theme parks and casinos, for instance, and museums. But proponents believe it is only a matter of time before they move into the mainstream. Sharper images, giant screens, advanced sound—this is the movie-going experience of the future, they say.

Little Choice?

Hollywood, they figure, has little choice but to invest in the new technology. Although box-office totals have been increasing, that has been due solely to rising ticket prices. Attendance has been flat for about a decade—and has been declining as a percentage of the population. Moreover, as movie theaters stand technologically pat, other forms of movie delivery seem to change daily: home video and cable, laserdisk and high-definition TV, CD-ROM and interactive media.

"We've got to give [audiences] more than real butter on their popcorn," Mr. Aaron says.

That's the theory, anyway. And Hollywood executives agree that they have to make movie-going more special, that a movie has to be an "event" to get people to abandon their cable and VCRs. But for a studio executive, the idea of an "event"



KELLY ALDER

is primarily a marketing concept, like the Batman logo sweeping the culture before the movie opens, emblazoned on T-shirts or shaved onto people's skulls. An event is a barrage of television commercials.

All of which frustrates Mr. Aaron and his counterparts at Iwerks Entertainment and Imax Corp. For them, a *real* event has to start with something more basic: the experience of going to a movie itself. At the least, they say, more movies should be shot in 65 millimeter rather than the usual 35 millimeter. Because the frame being projected isn't blown up as much, the picture is much crisper, much cleaner.

But the process, used to spectacular effect in films such as "Lawrence of Arabia," hasn't been used in a Hollywood movie since "Ryan's Daughter" in 1971. Instead, big-ticket movies are often filmed in 35 millimeter, then enlarged for the 100-odd screens around the country capable of projecting a 70-millimeter image. (A 65-

millimeter negative allows room for the addition of the soundtrack.)

Spago vs. McDonald's

A case in point: the film "Out of Africa." "It had every great shot you could want," recalls Mr. Aaron, "and you ate your heart out to see how lousy they looked blown up on the big screen. Compared to 'Lawrence of Arabia,' it's the difference between Spago and McDonald's."

Brian Grazer, a successful movie producer, agrees. Mr. Grazer is executive producer of "Far and Away," due out this summer and shot in 65 millimeter. The movie, starring Tom Cruise and directed by Ron Howard, is a sweeping love story that begins in Ireland, then moves to the Oklahoma land rush.

With 65 millimeter, "you don't see those little grey bubbles," says Mr. Grazer. "It's like holding up a postcard."

So why don't filmmakers use it? Some

deep pockets as well as production money to use one of the new processes. Expectations for futuristic theaters rose over the past couple of years when Sony Corp. and Matsushita Electric Industrial Co. acquired Columbia Pictures and MCA Inc., respectively. Both Japanese giants have a great interest in technological hardware, and both studios have stakes in theater chains. But nothing much has happened.

In fact, many believe that studios will move in the opposite direction. Rather than using more advanced film, studios have talked of using high-definition video and delivering movies to theaters by satellite, doing away with the time and expense of developing hundreds of prints in a laboratory.

For a video image to have the high resolution of film, however, a new, better-lit projector must be invented. It also requires viewers to be closer to the screen, where it is brighter.

Still, the futurists continue to dream. Just as Imax needed "the greatest rock and roll band in the world" for its first feature project, Mr. Aaron needs the right movie for Showscan. He says he has been approached, but has turned down filmmakers whom he feels were just looking for a gimmick for marginal projects.

"We need a big family picture, a 'Superman,' 'Star Trek,' 'Top Gun' or an 'Out of Africa'—something with broad appeal," he says.

Mr. Aaron says he has learned a lesson from those who have come before him. He notes that a new three-dimensional process got a lot of attention in the early 1950s, but failed to take the world by storm. He thinks a large part of the problem may have been the film they chose to launch the technology. It was "Bwana Devil." ■

MR. TURNER IS A STAFF REPORTER IN THE WALL STREET JOURNAL'S LOS ANGELES BUREAU.



VARIETY



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50 Cents

Plitt Theater Circuit And Trumbull Join Forces To Form Showscan Film Corp.

By JAMES GREENBERG

After several months of negotiations, Plitt Theater chain and filmmaker Douglas Trumbull, inventor of the Showscan process, have agreed in principle to create a new company, Showscan Film Corp., which will give the 70m total-environment process its first outlet in regular motion picture theaters, as well as an ongoing involvement in theme parks, tourist centers, world fairs and other special outlets.

The new company will acquire the patents and rights to the Showscan process from Brock/Trumbull Entertainment Corp., which has been presenting short films in specially designed theaters adjacent to a number of ShowBiz Pizza parlors.

The Showscan Film Corp. is expected to develop an exclusive chain of theaters in the next 18 months. Current plans call for 30 of a planned 100 screens to open in 1986 in domestic and foreign markets.

Plans for the first Showscan feature are underway to inaugurate the first theaters, with scripts in development and ongoing talks with several "eminent filmmakers."

Henry Plitt, chairman and chief executive officer of Plitt Theaters, will be chairman of the new company, with Trumbull serving as co-chairman. Roy Aaron, president of Plitt Theaters, will be vice chairman. Peter Beale, formerly president of the Brock/Trumbull enterprise, becomes president and chief exec of the new company. Showscan Film Corp. plans to raise addi-

tional capital through a public offering in the Summer of 1985.

In addition to the theatrical application of the Showscan process, Plitt and Trumbull will be partnered in a number of other ventures incorporating the 70m high speed photography and projection and state-of-the-art sound system designed by Trumbull.

Showscan will make its camera equipment available to selected filmmakers during the next year, allowing them the chance for experimentation and familiarization with the process, as part of the overall plan to encourage a broad application of the new medium.

In addition to the previous completed half-hour films, "Big Ball" and "New Magic," Showscan has recently completed principal photography on "Let's Go" in Munich. As part of the company involvement with international expositions, a 500-seat theater has been designed in Japan for the 1985 International Exposition as well as a theater in Vancouver, B.C., for Expo '86. A short Showscan film is being directed for the Vancouver Expo by Canadian filmmaker Phillip Borsos.

The company's other activities include use of the Showscan projection and audio system for the 1985 "Tour Of The Universe" project in Toronto. Project consists of a special Showscan space film to be shown in 40-passenger space simulation capsules which will provide the actual dynamic motion of flight in space.

The company also has an ongoing research and development program to support the creative advances of

the process and has already developed an automatic electronic projector and laserdisk digital sound system for use in both Showscan and conventional theaters.

The Plitt Theaters being equipped with the Showscan process are expected to include both existing facilities and already operational theaters. Theaters equipped with the Showscan process will also have the capacity to show regular 70m and 35m films.

Headquartered in Marina Del Rey, Calif., Showscan has its own 70m special effects studios, which, in conjunction with the facilities provided by Trumbull's partnership with Richard Edlund and Richard Yuricich in Entertainment Effect Group, gives the new Showscan Film Corp. a broad range of effects capabilities for its future productions.

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Showscan in high-tech, \$30 mil accord with Plitt

By BILL DESOWITZ

In a move that catapults Douglas Trumbull's revolutionary Showscan-film process into the industry mainstream, an agreement has been reached in principle between Trumbull, inventor of the 70mm, 60 frame-per-second process, and Plitt Theatre chairman and CEO Henry G. Plitt to create the Showscan Film Corp. The deal will be signed later this week.

The new company, to be financed by Plitt, will acquire the patents and rights to the Showscan process from Brock/Trumbull Entertainment Corp. to develop an initial \$30 million chain of exclusive feature film theatres worldwide in the next 18 months.

In conjunction with the develop-

ment of this special chain, Trumbull will oversee the making of multi-million dollar features. Projects are currently being developed, but no specifics are available at this time.

The company plans to raise additional finances by public offering in the summer of 1985. Plitt will be chairman of the new company; Trumbull will be cochairman, responsible for the company's creative and technical development; Roy Aaron, president of Plitt Theatres, will be vice chairman and Peter Beale will be president and CEO.

"We expect to develop 100 theatres around the world with more than 30 in the United States," Henry Plitt told *The Hollywood Reporter*. "We will be constructing new theatres and renovating existing ones. The plan is to build 300-800 cineplexes with one theatre constructed especially for Showscan features. Naturally it will be compatible with conventional equipment to show regular films.

"It's difficult to say how much it would cost to renovate existing theatres because each theatre poses its own

problems."

Showscan will also expand its ongoing involvement in the creation of audiovisual presentations for theme-parks, tourist centers, world fairs and other specialty venues. Showscan recently completed principal photography on a new film, "Let's Go," in Munich, Germany, and is currently equipping a specially designed 500-seat theatre in Tsukuba, Japan, for the 1985 International Exposition. Showscan is additionally designing and equipping a theatre in Vancouver, British Columbia, for Expo '86 as well as providing camera and technical assistance on a Showscan film to be directed by Philip Borsos ("The Grey-Fox").

Showscan will make its camera equipment available to selected filmmakers, allowing them the chance for experimentation and familiarization with the process during the next year.

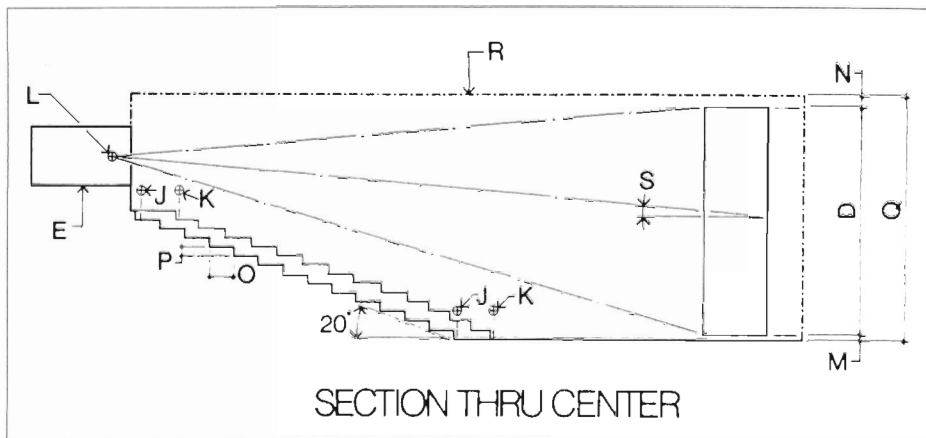
What is Showscan?

The Showscan process utilizes standard 70mm film, photographed and projected at 60 frames per second. The resultant "effect" is one of intensified sensory illusion, visual clarity, and colour saturation. Showscan has been developed by an American company.

The optimum Showscan theatre package is multi-purpose and compatible with conventional 35mm and 70mm film formats. Key elements include: a floor-to-ceiling, wall-to-wall curved screen, tiered seating within a square configuration, and discrete six-channel sound system. Showscan services include theatre planning guidelines and equipment specifications.

The Multi-Purpose Showscan Theatre provides:

- The capability to exhibit films produced in the Showscan™ process, as well as conventional 70mm and 35mm formats
- Approximate capacity of up to 800 patrons
- Premium viewing providing all seats with an optimum field of view
- Dual 70mm Showscan projection system with 60/24 conversion kit
- Sound system compatibility for Showscan™, as well as conventional 70 and 35mm formats
- Sound systems to include Showscan™ digital disc, magnetic stripe or dubber sound source, as well as conventional 70mm mag stripe, dolby® stereo and mono optical sound on film
- Showscan custom screen



Showscan Theatre Geometry — 500 seats*

KEY:

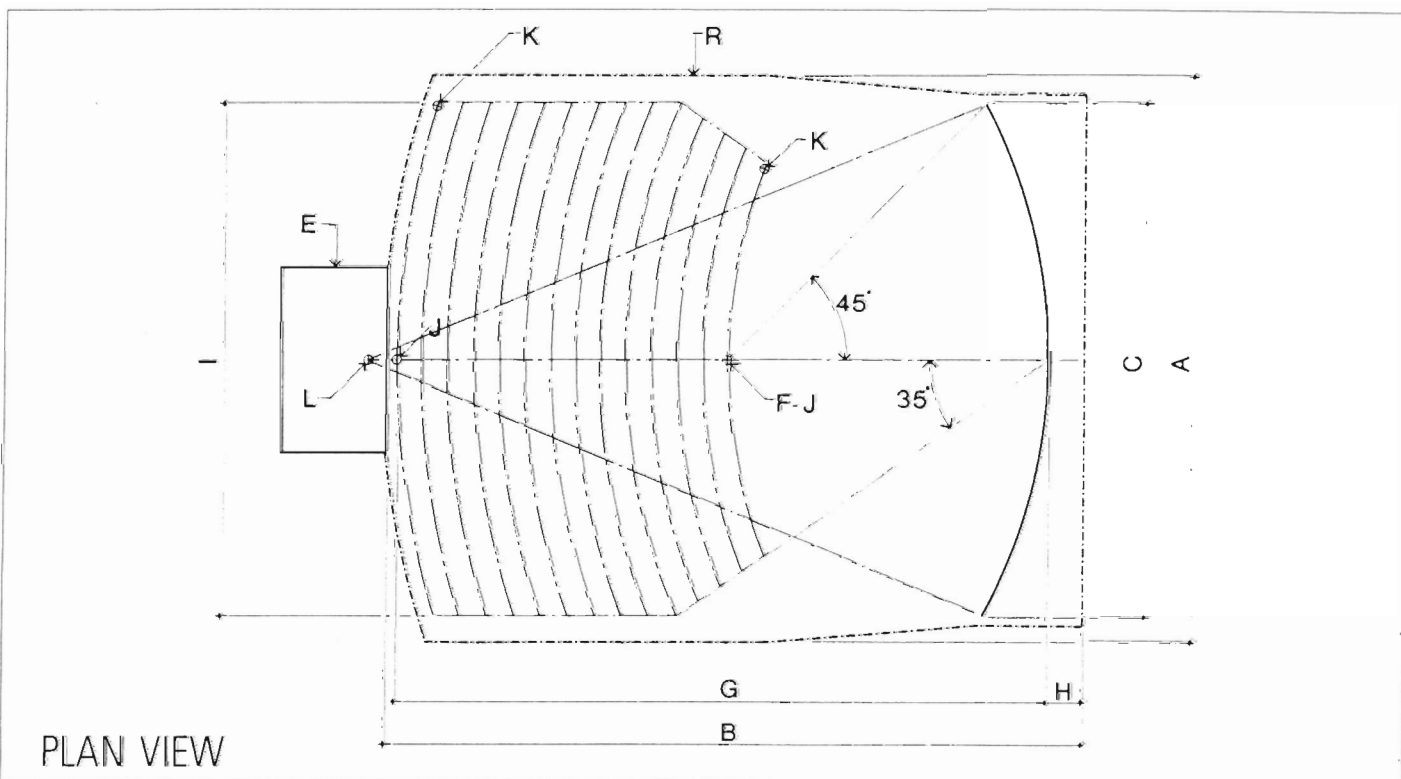
- A. Theatre width: 77 feet
- B. Theatre length: 95 feet
- C. Screen chord: 70 feet
- D. Screen height: 31 feet - 6 inches
- E. Projection booth: 14 feet deep, 25 feet wide, 8 feet high
- F. Front row centre horizontal viewing angle: 90 degrees
- G. Distance from centre screen to centre of last row: 1.2 - 1.4 X screen chord
- H. Centre screen to wall: 5 feet
- I. Audience width = Screen chord

- J. Centre row eye focus
- K. End row eye focus
- L. Projection reference point
- M. Bottom of screen to floor: 6 inches
- N. Top of screen to bottom of suspended ceiling: 1 foot - 6 inches
- O. Row depth: 3 feet - 6 inches
- P. Row riser: 12-14 inches
- Q. Theatre height: 33 feet - 6 inches
- R. Theatre shell
- S. Projection down angle: 4.5 degrees (0-7)

* Seating capacity, of approximately 500, is based on a 22 inch wide seat.

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PLAN VIEW