

TECHNICAL  
INFORMATION BULLETIN  
FROM  
UNITED ARTISTS CORP.

FOR THE

TECHNICOLOR®

PANAVISION 70® RELEASE

OF THE BETA PRODUCTION



# WEST SIDE STORY



## *Introduction...*

THE PRESENTATION of our picture WEST SIDE STORY may find you faced with 70MM release problems for the first time.

In order to assist you in the installation of 70MM projectors, as well as screens, screen masking, and sound considerations, the engineering department of United Artists has compiled technical information data in this brochure for your convenience.

An outstanding feature is the screen chart which will facilitate the selection of proper focal length lenses for your screen size, all computed for the new 70MM projection aperture. A selection of easy-to-use formulas has also been provided in case your theatre requires deviation from the screen chart.

A drawing showing the recommended aperture for 70MM projection has been included, as well as a drawing showing the sound track placement for the six magnetic tracks. We have also supplied information about the sound track, speaker arrangements, and theatre specifications.

In WEST SIDE STORY we are delivering to you unmatched entertainment on the finest release prints ever made. No amount of effort or expense was spared to achieve these goals.

This motion picture deserves the finest presentation possible. We hope this technical bulletin will be of assistance.



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## PRESENTATION

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ALTHOUGH YOU WILL undoubtedly have your own rehearsals with the picture before your first public showing, the following procedure has been found most ideal for the presentation of the picture and should be followed as closely as possible.

A special design has been created for the beginning of the picture over which the overture is played. It is of vital importance that the first 4½ minutes of this design be projected with the house lights lowered by only 25%.

For the proper presentation, please follow these directions:

1. From the start mark the first 28 feet of the reel is black. Over this, from the surround horns only, comes the sound of 3 separate whistles.

The first whistle starts at 12½ feet. At this point the curtains should be opened slowly and the house lights lowered by 25%. Since the time required for opening curtains varies from theatre to theatre it must be timed so that these operations are completed by the time the overture design fades in at 28 feet.

NOTE: If any of the house lights are directed on the screen, it is necessary that these lights go out completely by 28 feet or they will wash out the design when it is projected on the screen.

2. At 414 feet from the start mark, when the red color dissolves to the blue, the house lights should be dimmed completely or to the level at which the picture will play. This operation must be completed by the time the title WEST SIDE STORY starts to appear on the screen.

It is most important that the opening is handled in this fashion. If it is not, if the house lights are dimmed all the way at the beginning, the audience will expect the actual picture to start much sooner than it does.

If the opening design is played with the house lights well up the audience will accept the music for what it is—the overture.

Please be good enough not to start closing the curtains with the appearance of "The End" title on the screen. There are still 5 minutes of end "credits" to be shown before the picture is completed.



# Picture

The screen chart on the opposite page is especially calculated for the 70MM projector aperture of 1.913 x 0.868 inches. The aspect ratio is 2.21 to 1.

This aperture was established by Todd-AO and is now a recommended SMPTE standard.

The table shows picture widths in the left and focal length of lenses in the top column. The figures in the table are distances from projector aperture to center screen in feet.

The table below lists picture height to corresponding picture width based on a 2.21 to 1 aspect ratio. To the right of the main chart is an additional small table to relate corresponding focal length in millimeters to dimensions in inches—just for general orientation.

Even though the tables are self-explanatory, for the calculation of specific installations, with given lenses, screen sizes, and throw, the usual formulas can be applied using the dimensions of the 70MM aperture:

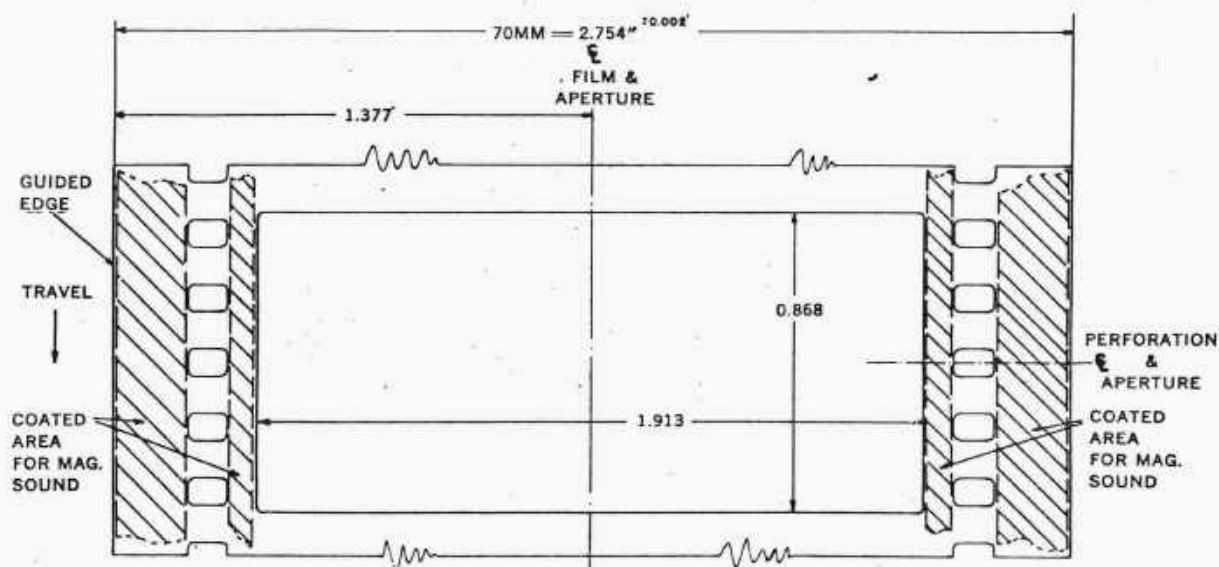
$$\text{Focal length} = \frac{1.913 \times \text{throw}}{\text{picture width}}$$

$$\text{Picture width} = \frac{1.913 \times \text{throw}}{\text{focal length}}$$

$$\text{Throw} = \frac{\text{focal length} \times \text{picture width}}{1.913}$$

$$\text{Aspect ratio} = \frac{\text{Width}}{\text{Height}}$$

$$\text{Height of Picture} = \frac{\text{Width}}{\text{Aspect ratio}}$$



BASIC DIMENSIONS RELATED TO SIZE AND PLACEMENT OF THE RECOMMENDED 70MM PROJECTOR APERTURE

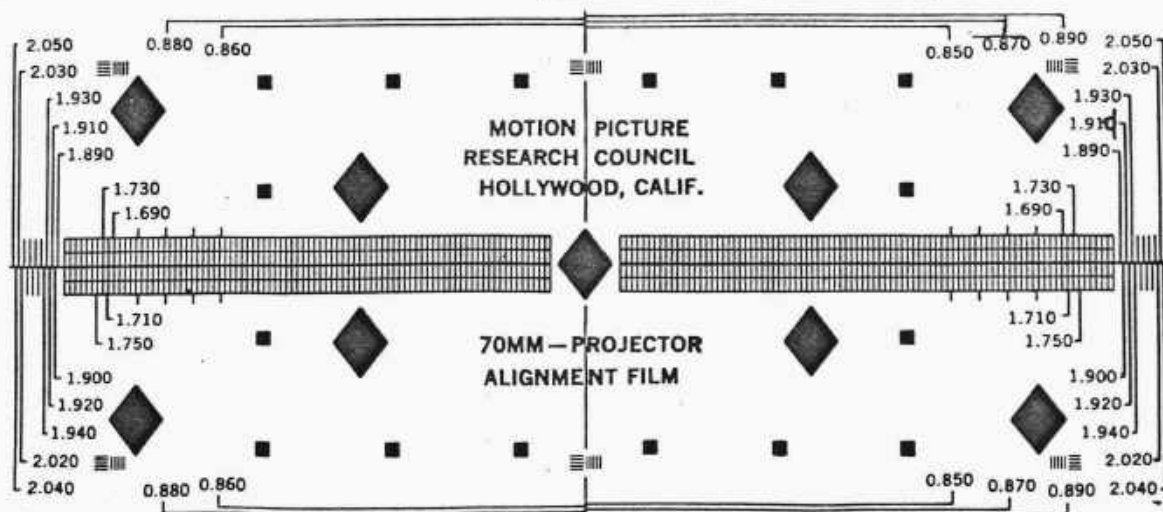
**IMPORTANT:** THE FOCAL LENGTH LENSES LISTED IN THE TOP COLUMN ARE ALL AVAILABLE THROUGH PANAVISION, INC., 1917 PONTIUS AVENUE, WEST LOS ANGELES, CALIF., AND ARE LENSES ESPECIALLY DESIGNED TO COVER THE 70MM APERTURE. ONLY SUCH LENSES SHOULD BE USED.

**DO NOT PROJECT 70MM PRINTS WITH LENSES ONLY SUITED FOR 35MM APERTURES—EVEN IF THEY HAVE A 4" O.D.**

**DO NOT PROJECT 70MM PRINTS BY USING SUPPLEMENTARY LENSES, LENS ATTACHMENTS, OR FOCAL LENGTH CONVERTING DEVICES.**

**THEY ALWAYS DETERIORATE PICTURE QUALITY AS COMPARED TO LENSES DESIGNED FOR THE JOB.**

A 70MM projector alignment film with a test chart as shown below, should be used to check lens performance for cleanest and sharpest picture projection. This test film is available through supply houses and shipped with instruction sheet for its use. It can also be ordered from SMPTE, 55 West 42nd Street, New York 36, N. Y.



70MM TEST FILM CHART



## SCREEN CHART FOR 70 MM PROJECTION

### LENS FOCAL LENGTH IN MM AND INCHES

| PICTURE WIDTH IN FEET | LENS FOCAL LENGTH IN MM AND INCHES |       |       |       |       |       |       |       |                   |                   |                   |       |                   |                   |                   |       | CONVERSION TABLE<br>MM TO INCHES |      |
|-----------------------|------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------------------|-------------------|-------------------|-------|-------------------|-------------------|-------------------|-------|----------------------------------|------|
|                       | 66 MM                              | 70 MM | 75 MM | 80 MM | 85 MM | 90 MM | 95 MM | 4"    | 4 $\frac{1}{4}$ " | 4 $\frac{1}{2}$ " | 4 $\frac{3}{4}$ " | 5"    | 5 $\frac{1}{4}$ " | 5 $\frac{1}{2}$ " | 5 $\frac{3}{4}$ " | 6"    |                                  |      |
| 25                    | 34.0                               | 36.0  | 38.6  | 41.2  | 43.7  | 46.3  | 48.9  | 52.3  | 55.5              | 58.8              | 62.1              | 65.3  | 68.6              | 71.9              | 75.1              | 78.4  | 70                               | 2.76 |
| 30                    | 40.7                               | 43.2  | 46.3  | 49.4  | 52.5  | 55.6  | 58.7  | 62.7  | 66.6              | 70.6              | 74.5              | 78.4  | 82.3              | 86.3              | 90.2              | 94.1  | 75                               | 2.95 |
| 35                    | 47.6                               | 50.4  | 54.0  | 57.6  | 61.2  | 64.8  | 68.4  | 73.2  | 77.7              | 82.3              | 87.0              | 91.5  | 96.1              | 100.6             | 105.2             | 109.8 | 80                               | 3.15 |
| 40                    | 54.4                               | 57.6  | 61.7  | 65.9  | 70.0  | 74.1  | 78.2  | 83.6  | 88.7              | 94.1              | 99.3              | 104.5 | 109.8             | 115.0             | 120.2             | 125.5 | 85                               | 3.35 |
| 45                    | 61.2                               | 64.8  | 69.4  | 74.1  | 87.7  | 83.3  | 88.0  | 94.1  | 99.9              | 105.9             | 111.7             | 117.6 | 123.5             | 129.4             | 135.3             | 141.1 | 90                               | 3.54 |
| 50                    | 68.0                               | 72.0  | 77.2  | 82.3  | 87.5  | 92.6  | 97.8  | 104.5 | 111.1             | 117.6             | 124.2             | 130.7 | 132.0             | 143.8             | 150.3             | 156.8 | 95                               | 3.74 |
| 55                    | 74.7                               | 79.2  | 84.9  | 90.6  | 96.2  | 101.9 | 107.5 | 115.0 | 122.2             | 129.4             | 136.6             | 143.8 | 150.9             | 158.1             | 165.3             | 172.5 |                                  |      |
| 60                    | 81.5                               | 86.4  | 92.6  | 98.8  | 104.9 | 111.1 | 117.3 | 125.5 | 133.3             | 141.1             | 149.0             | 156.8 | 164.7             | 172.5             | 180.3             | 188.2 |                                  |      |
| 65                    | 88.3                               | 93.6  | 100.3 | 107.0 | 113.7 | 120.4 | 127.0 | 135.9 | 144.4             | 152.9             | 161.4             | 169.9 | 178.4             | 186.9             | 195.4             | 203.9 |                                  |      |
| 70                    | 95.1                               | 100.8 | 108.0 | 115.3 | 122.4 | 129.6 | 136.9 | 146.4 | 155.5             | 164.7             | 173.8             | 183.0 | 192.1             | 201.3             | 210.4             | 219.6 |                                  |      |
| 75                    | 102.0                              | 108.0 | 115.7 | 123.5 | 131.2 | 138.9 | 146.6 | 156.8 | 166.6             | 176.4             | 186.2             | 196.0 | 205.8             | 215.6             | 225.4             | 235.2 |                                  |      |
| 80                    | 108.7                              | 115.2 | 123.4 | 131.7 | 140.0 | 148.2 | 156.4 | 176.3 | 177.7             | 188.2             | 198.6             | 209.1 | 219.6             | 230.0             | 240.5             | 250.9 |                                  |      |
| 85                    | 115.5                              | 122.5 | 131.2 | 140.0 | 148.7 | 157.4 | 166.2 | 177.7 | 188.8             | 200.0             | 211.1             | 222.2 | 233.3             | 244.4             | 255.5             | 266.6 |                                  |      |
| 90                    | 122.3                              | 129.7 | 138.9 | 148.2 | 157.4 | 166.7 | 176.0 | 188.2 | 199.9             | 211.7             | 223.5             | 235.2 | 247.0             | 258.8             | 270.5             | 282.3 |                                  |      |
| 95                    | 129.1                              | 136.9 | 146.6 | 156.4 | 166.2 | 175.9 | 185.7 | 198.6 | 211.1             | 223.5             | 235.9             | 248.3 | 260.7             | 273.1             | 285.5             | 298.0 |                                  |      |
| 100                   | 135.9                              | 144.0 | 154.3 | 164.7 | 174.9 | 185.2 | 195.5 | 209.1 | 222.2             | 235.2             | 248.3             | 261.4 | 274.4             | 287.5             | 300.6             | 313.6 |                                  |      |
| 105                   | 142.7                              | 151.3 | 162.0 | 172.9 | 183.6 | 194.5 | 205.3 | 219.6 | 233.3             | 247.0             | 260.7             | 274.4 | 288.2             | 301.9             | 315.6             | 329.3 |                                  |      |
| 110                   | 149.5                              | 158.5 | 169.7 | 181.1 | 192.4 | 203.7 | 215.0 | 230.0 | 244.4             | 258.8             | 273.1             | 287.5 | 301.9             | 316.3             | 330.6             | 345.0 |                                  |      |
| 120                   | 163.0                              | 172.9 | 185.2 | 197.6 | 209.9 | 222.2 | 234.6 | 254.9 | 266.6             | 283.3             | 298.0             | 313.6 | 329.3             | 345.0             | 360.7             | 376.4 |                                  |      |

FIGURES IN THE ABOVE TABLE SHOW PROJECTION DISTANCE IN FEET FROM PROJECTOR APERTURE TO CENTER OF SCREEN.

|         |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
|---------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Width:  | 25   | 30   | 35   | 40   | 45   | 50   | 55   | 60   | 65   | 70   | 75   | 80   | 85   | 90   | 95   | 100  | 105  | 110  | 120  |
| Height: | 11.3 | 13.6 | 15.8 | 18.1 | 20.4 | 22.6 | 24.9 | 27.1 | 29.4 | 31.7 | 33.9 | 36.2 | 38.5 | 40.7 | 43.0 | 45.2 | 47.5 | 49.8 | 54.3 |