

# THE TODD-AO CORPORATION

**TODD-AO**

NEW YORK

January 3, 1958

HOLLYWOOD

Mr. George J. Schaefer, President  
The Todd-AO Corporation  
1270 Sixth Avenue - Suite 2414  
New York 20, New York

Dear Mr. Schaefer:

## 24 FPS PROJECTION

Due to the situation brought about by shooting "South Pacific" at twenty-four frames per second only, certain changes were required in projection to eliminate flicker at that speed on large screens. A conversion shutter drive mechanism was supplied to us for experimentation and testing. Definite elimination of a high percentage of flicker was noted but an appreciable loss of light resulted. It then became necessary to restore the lost light by various means.

The most simple way would, of course, be to use projection lenses designed to transmit more light (in the f1.7 or 1.8 speed range). Unfortunately, the only Todd-AO lenses here were considerably slower in speed (f2.3 with stop in, f2.0 stop removed). By removal of the stop the light transmission was increased approximately thirty per cent but definition was affected to a noticeable degree, especially at the edges of the screen. However, it should be considered that our short throw (94') and large screen (60') require us to use a short focal length lens (3") which would accentuate the definition loss to a more marked degree than a normal installation using longer focal length lenses with stop removed.

85  
1.7  
Our Hollywood Studio projection installation, fortunately, was set up to supply services to other mediums than Todd-AO exclusively, consequently, our 2.3 to 1 gain screen material allowed us to recoup a percentage of what would have been lost light using the one to one matte white screen material used in some of the Todd-AO deep curved screen installations.

In addition, we installed an Ashcraft Lamp, for carbon economy, and Huff water cooled jaws to increase our carbon burning time from twenty-eight to thirty-four minutes. Both the lamp and the jaws increased our light considerably. 160

In an effort to retain maximum light without loss of definition we experimented with lenses made by other manufacturers.

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Stock Bausch and Lomb f1.8 lenses gave us all the light needed in addition to very good definition.

We also tested a prototype Panavision f1.9 lens, designed for 70mm, and found this lens to far exceed expectations. Light transmission was excellent with fine definition over the entire area, resulting in the best appearing picture projected to date.

The following is a table of comparisons on the lenses tested with the three interruption shutter. (20 foot LAMBERTS Technicolor normal).

	24 FRAMES - 3 BLADED SHUTTER		Definition	30 FRAMES NW BLADED SHUTTER	
	Reflected Foot Lamberts	Refined		CENTER	SIDE
3" Todd-AO (f2.3)	13	8	Good	21	16
3" Todd-AO (f2.0)	19	14	Good--Fair	25	18
81mm B & L (f1.8)	22	15	Very Good	35	24
3" Kohlmorgan (f1.7) X- <sup>35</sup>	21	15	Good	30	20
3" Panavision (f1.9) (70mm Prototype) 40	20	14	Excellent (Sharp Edges)	30	20

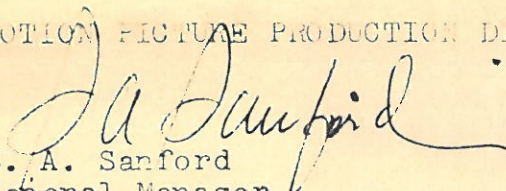
All of above readings at 180 amperes.

We trust the above information will be of value. If further information is desired, please advise.

Kindest personal regards.

Yours very truly,

MOTION PICTURE PRODUCTION DIVISION

  
S. A. Sanford  
General Manager

SAS:mt

cc: L. Douglas Netter