

are shown in Fig. 6 with a few typical examples.

For no distortion in the recording

$$\gamma_{\text{Amplifier}} \times \gamma_{\text{CRT}} \times \gamma_{\text{negative}} \times \gamma_{\text{positive}} \times \gamma_{\text{Telecine}} = 1$$

where

$$\gamma = \frac{\text{Log output}}{\text{Log input}}$$

The transfer characteristic of an average TV receiver is approximately 2.5; so, to match this, the TV camera should have a transfer characteristic of 0.4. The outgoing signal from the telecine when playing back a recording should, therefore, also have a transfer characteristic of 0.4.

The control of the recorder is divided into four stages:

(1) the setting up of $\gamma_{\text{Amplifier}}$ by using a ten-step staircase waveform;

(2) the setting up of the correct black-and-white levels on the recording cathode-ray tube and, hence, indirectly setting γ_{CRT} ;

(3) the control of the film processing both γ_{negative} and γ_{positive} by exposing a seven-step wedge placed in the

front of the cathode-ray tube which has been set to peak white brightness; and

(4) the setting up of the telecine γ_{Telecine} to give a linear output from the ten-step staircase used in the setting of $\gamma_{\text{Amplifier}}$.

In addition, a resolution pattern should be introduced so that a check can be made on the overall resolution.

Performance

The recorder is in use in Germany, Australia, Czechoslovakia and England, and its reliability has been well proven. There is no doubt that the type of accelerators used in the camera is working well within its limits, and that a reduction of the pulldown time is possible. Whether in practice this is worth while seems very doubtful, because at the present pulldown time the loss of information in any of the 405-line or 625-line installations is negligible.

The camera pulldown time is normally set to 1.9 msec and the shutter which produces a fade increases this time to an estimated 2 msec. The decay time of the recording cathode-ray-tube phosphor, however, helps to fill in some of the lost information.

We claim a pulldown time of 2 msec; whether we could, in fact, claim less is open to argument. The steadiness of the camera is difficult to measure, but we estimate it is of the order of 1 in 600. The best results have been obtained using low-speed 12/10–15/10 DIN fine-grain blue-sensitive film. The following films are at present in use in the equipment: Perutz U15 Reversal; West and East German Agfa Isopan F Reversal; East German Isopan FF negative; and Eastman Tele-recording Film, Type 7374, and Type 8374 (gray base).

The making of a direct positive has proved to be the most economical method of recording. The film processing is even less than that required to make a standard release positive from a normal negative. Both Kodak 7374 and 8374 are being used successfully to do this type of recording. The direct positive has the advantage over the rescanning of a negative in that any dust on the film comes out black in the final picture.

References

1. Warren R. Isom, "Fast-cycling intermittent for 16mm film," *Jour. SMPTE*, 62: 55–63, Jan. 1954.
2. British Pat. Applic. 30543/54.

motion-picture standards

Proposed Revision of American Standard, PH22.76–1951

A proposed revision of American Standard Threaded Lens Mounts for 16mm and 8mm Motion-Picture Cameras, PH22.76-1951, is published here for a three-month period of trial and criticism.

The 16 & 8mm SMPTE Engineering Committee began their study of the subject standard in 1956 in accordance with the American Standards Association requirement that all standards be reviewed every five years. The first draft of the proposed revision was opposed because the mount designations, formerly No. 1 and No. 2, did not conform to current industry practice. The second draft, redesignating the mounts as "D" and "C," respectively, was accepted by the Committee. This standard dif-

fers from the present 1951 standard in that the reference to the A, B, C, and D dimensions have been changed to W, X, Y, and Z in order to avoid confusion with the mount designations. Several changes have also been made in the title, notes, and appendices in order to clarify the standard.

This draft was approved by the Standards Committee in January 1959 and is the one published here for comment. All comments should be sent to the Staff Engineer prior to May 15, 1959. If no objections are received, the proposal will then be submitted to ASA Sectional Committee PH22 for further processing as an American Standard.—*J. Howard Schumacher*, Staff Engineer.

Proposed American Standard
Threaded Lens Mounts
for 16mm and 8mm Motion-Picture Cameras

PH22.76

Revision of
 PH22.76-1951

Page 1 of 2 Pages

1. Scope

1.1 This standard specifies the dimensions required for mechanical and optical interchangeability of lenses for 16mm and 8mm motion-picture cameras. For 16mm cameras with threaded lens mounts, threads having a nominal major diameter of 1 in. are often specified. Similarly, for 8mm motion-picture cameras, threads having a nominal major diameter of 5/8 in. are in common use.

1.2 This standard does not apply to continuous-type motion-picture cameras because of the type of optical systems employed in these cameras.

1.3 The notes are a part of this standard.

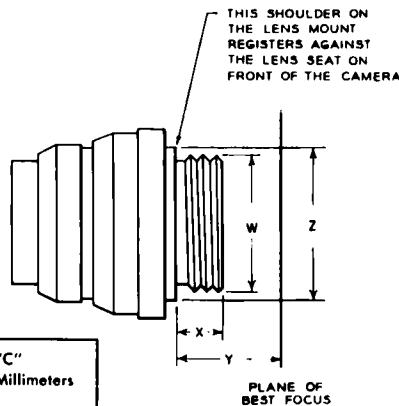
2. Dimensions

2.1 The dimensions shall be as specified in the diagram and table.

2.2 The lens mounts shall have 32 threads per inch.

2.3 The form of the thread shall be in accordance with American Standard Unified and American Screw Threads for Screws, Bolts, Nuts, and Other Threaded Parts, B1.1-1949, or the latest revision thereof approved by the American Standards Association, Incorporated.

2.4 Limiting dimensions and tolerances of the threads shall be class NS-2A for the external threads on the lens. These dimensions shall include plating or any other finish.



Dimension	Mount "D"		Mount "C"	
	Inches	Millimeters	Inches	Millimeters
W	0.625	15.88	1.000	25.40
X	0.115	2.92	0.160	4.06
Y	0.484	12.29	0.690	17.53
Z	1.000	25.40	1.187	30.15

NOTES

- The values specified for dimension X are the maximums for the lenses; additional length for clearance should be provided in the camera. With some lenses the section of the mount, smaller in diameter than the root of the thread, extends beyond the limit of dimension X towards the plane of best focus. For such lenses, clearance must be established individually.
- For the lens, dimension Y is the distance from the registering shoulder to the plane of the best overall image. For the camera, dimension Y is the distance

- from the registering shoulder to the plane that best represents the location of the emulsion on the film in a camera operating normally. The allowable tolerance for dimension Y depends upon the f/value of the lens and other variables, and so is not suitable for definite standardization. A tolerance of .0001 in., applied independently to the lens and camera, is suggested as a generally accepted practice.
- The values given for dimension Z are maximum diameters for the seat on the lenses; the seat on the camera shall provide clearance for these diameters.

NOT APPROVED

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APPENDICES

(These Appendices are not a part of Proposed American Standard Threaded Lens Mounts for 16mm and 8mm Motion-Picture Cameras, PH22.76, but are included to facilitate its use.)

APPENDIX 1

Past practice has not been entirely consistent so far as dimension X of the "D" mount is concerned. Some existing cameras will not accept a thread longer than 0.115 in.; some lenses have been made with a length of 0.120 or 0.125 in.

APPENDIX 2

If any part of the lens mount has a larger diameter than dimension Z, it should be checked for mechanical interference with the camera on which it is to be used.

NOT APPROVED

Film Brittleness Standard

An American Standard Method for Determining the Brittleness of Photographic Film, PH1.31-1958, has been approved by the American Standards Association.

The standard gives three test methods for obtaining a quantitative measure of the brittleness of photographic film: Folding Endurance Test, Wedge Brittleness Test and Vise Brittleness Test. The tests can be applied to either raw or processed film with or without gelatin backing.

Copies of PH1.31-1958 may be ordered at 80 cents each from American Standards Association, 70 East 45 St., New York 17.

Wide-Screen Motion Pictures Booklet

Wide-Screen Motion Pictures, a Society publication, has been revised and brought up to date. First issued in 1955, the booklet has been reprinted several times. In addition to up-to-date information on wide-screen processes, the new 16-page booklet contains a brief but informative article on "Principle of Anamorphosis," an article on "Magoptical Soundtracks," a list of relevant ASA Standards and a list of related SMPTE Test Films. In addition to the six processes described in the earlier booklet (Cinerama, CinemaScope, VistaVision, Superscope, Todd-AO, and Perspecta Sound), the new booklet contains data on Cinemiracle, M-G-M Camera 65, Panavision, and Technirama. Specifications are given in each case for such features as camera aperture, projector aperture, aspect ratio, anamorphic ratio, direction and rate of film travel, soundtracks, loudspeakers and screens. The new booklet is available from Society headquarters at a nominal charge.

The BBC Colour Television Tests: An Appraisal of Results, Monograph 18, is one of a series published by the British Broadcasting Corp. About six are published each year, each dealing with a technical subject within the field of television and sound broadcasting. Monograph No. 18 outlines the technical considerations involved in an adaptation of the American N.T.S.C. color system to the 405-line British standard and gives a statistical analysis of an extensive series of field tests. The authors, members of the staff of the BBC Engineering Div., are W. N. Sproson of the Research Dept., S. N. Watson of the Designs Dept. and M. Campbell of the Engineering Information Dept. The monograph is priced at 5s (70 cents) and is available from BBC Publications, 35 Marylebone High St., London, W.1., England. A list of previous monographs in the series is available.

SMPTE Lapel Pins. Gold and blue enamel reproductions of the Society symbol, with screw back. Available to all members from Society headquarters. Price \$4.00 including Federal Tax; in New York City, add 3% sales tax.