Table 4
Flatness Tolerances on Pressure Pad Film Surface

Areas	Inches	Millimeters
Aperture Area (within Dimension C)	+ 0.0058 — T_2 + 0.0048 — T_2	+ 0.147 — T_2 + 0.122 — T_2
Upper Area	— 0.0078 — T_2 + 0.0038 — T_2	+ 0.198 — T_2 — 0.097 — T_2
Lower Area	— 0.0078 — T_2 + 0.0018 — T_2	+ 0.198 — T_2 + 0.046 — T_2

Dimensions are measured from the zero plane defined by Surfaces 1, 2, and 3. (See Sec. 2.8, Fig. 3, and Note 2.)

2.13 The plus values given for the pressure pad film surface flatness tolerances are to be directed toward the lens. (See Note 2.)

2.14 Surface 4 of the cartridge pressure pad and Boss 4 of the camera aperture are established to aid in seating the cartridge pressure pad to the camera aperture plate. They serve no function once the pressure pad is in operating position. (See Note 3.)

NOTE 1: It is considered good practice to relieve the camera aperture plate above and below the picture area to allow a clearance for film transport and minimize the possibility of film pinching. Dimension F_2 specifies the amount of recess for this purpose.

NOTE 2: It is intended that the film surface of the cartridge pressure pad be flat, or molded as a flat plane. Pits or depressions, however, which do not interfere with the film flatness are acceptable. Relief in the pad surface equal to the sound stripe thickness may be provided beneath those areas of the film which are striped by adding material to the backing of the film. Tolerances for the flatness on the 8-mm Type S cartridge pressure pad film surface are specified to account for slight warpage in molding if the pressure pad is made from a plastic material. (See Appendix A3.)

NOTE 3: Three lugs, Nos. 1, 2, and 3, on the pressure pad are intended to touch the camera aperture plate and thereby determine the film plane alignment and the clearance allowed for the thickness of the film. Lug 4 should not touch the camera aperture plate.

Appendix

(The Appendix is not a part of this American National Standard, but is included for information purposes only.)

A1. A force of 8 to 14 oz (2.2 to 3.9 N) must be exerted on the pressure pad for proper seating against the camera aperture plate.

A2. The two cut-out areas in the pressure pad permit the use of fingers for side-guiding. A force of 1.5 to 2.5 oz (0.42 to 0.70 N) per finger is adequate to ensure picture steadiness.

A3. Other portions of the pressure pad front surface may be recessed in addition to the required recesses, defined by Dimension C in Sec. 2.5, for camera claw and camera aperture guide finger penetration.

A4. The cartridge pressure pad recess, defined by Dimensions D, E, and J, is available for camera claw film transport engagement. The perforation used for the film vertical registration at its stopping position is specified in American National Standard Dimensions of Camera Aperture Image on Super 8 Motion-Picture Film, ANSI PH22.157-1971 (R1977), as minus 2 from the perforation adjacent to the image formed by the camera aperture. The horizontal centerline of the camera aperture should coincide nominally with Datum Plane A.

A5. To provide a consistent method of measurement, it is recommended that a cartridge gauging fixture be used which incorporates datum surfaces, a locating pin, and means for exerting locating forces on appropriate surfaces of the cartridge. For pressure pad measurements, a second fixture, incorporating three 0.060-in (1.52-mm) diameter bosses and a means for exerting the appropriate pressure pad seating force, is recommended.

Cinematography — Sound motion-picture camera cartridge, 8 mm Type S, Model 1 — Cartridge-camera interface and take-up core drive — Dimensions and specifications

1 Scope and field of application

This International Standard lays down the dimensions of the 8 mm Type S sound motion-picture film camera cartridge, Model 1, and gives cartridge-camera interface specifications.

This International Standard also lays down the dimensions of the take-up core drive opening and critical dimensions of the take-up core. In addition, the driving force, direction of drive and recommended drive ratio of the take-up core are specified.

An optional means of retaining the film supply scroll configuration until the cartridge is placed in the camera is described.

2 References

ISO 3067, *Cinematography — Motion-picture camera cartridge, 8 mm Type S, Model 1 — Notches for film speed, film identification and colour-balancing filter — Dimensions and positions.*

ISO 5760, *Cinematography — Sound motion-picture camera cartridge, 8 mm Type S, Model 1 — Aperture opening, pressure pad and film position — Dimensions and specifications.*

ISO 5761, *Cinematography — Sound motion-picture camera cartridge, 8 mm Type S, Model 1 — Pressure pad flatness and camera aperture profile — Dimensions and characteristics.*

ISO 5762, *Cinematography — Sound motion-picture camera cartridge, 8 mm Type S, Model 1 — Camera run length, perforation cut-out and end-of-run notch in film — Specifications.*

3 Dimensions

3.1 The dimensions shall be as shown in the figures and given in the tables.

3.2 The dimensions apply to a cartridge assembled with a film load at the time of manufacture.

3.3 Datum planes B, C, and A are referred to as first, second and third respectively. These planes, which are used for dimensioning, are mutually perpendicular and jointly called a datum reference frame.

3.3.1 Datum plane A is coincident with the centre of a circle, located by basic dimension T. The circle is in contact with edges of the locating slot defined by dimensions A, O, P, and Q. The diameter of this circle is such that it applies regardless of feature size (RFS) of the locating slot. (See the annex, clause A.3.)

3.4 Datum features B, C and A are primary, secondary and tertiary respectively.

3.4.1 Datum feature B is the unnotched, unlabelled surface of the cartridge. It is the primary datum feature and relates the cartridge to the datum reference frame by having a minimum of three points in contact with the first datum plane B.

3.4.2 Datum feature C is the front seating surface of the cartridge. It is the secondary datum feature and relates the cartridge to the datum reference frame by having a minimum of two points in contact with the second datum plane C.

3.5 Dimensions L, N, U, A_m, V, M, W, and R_3, measured from datum planes A and C, describe the extent of both triangular recessed areas having a depth controlled by dimension E, as shown in the view of the label side. The inboard wall of the recessed area, defined by dimensions L and N, shall be a smooth surface and may be tilted from the perpendicular to the datum plane B sufficiently to allow proper release from a mould when the cartridge is manufactured in a moulding process.

Table 1

Dimension	mm	in
A	23,98 min.	0.944 min.
	24,89 max.	0.980 max.
B	75,9 ± 0,3	2.99 ± 0.01
C	35,31 ± 0,25	1.390 ± 0.010
E	19,81 max.	0.780 max.
F	2,3 ± 0,3	0.09 ± 0.01
G	1,5 ± 0,3	0.06 ± 0.01
H	22,4 ± 0,8	0.88 ± 0.03
J	15,5 ± 0,8	0.61 ± 0.03
K	0,38 ± 0,25	0.015 ± 0.010
L	11,94 min.	0.470 min.
M	0,178 ± 0,13	0.007 ± 0.005
N	4,50 min.	0.177 min.
O	3,91 ± 0,10	0.154 ± 0.004
P	3,61 ± 0,10	0.142 ± 0.004
Q	19,56 ± 0,25	0.770 ± 0.010
R_1	12,7 ± 2,5	0.50 ± 0.10
R_2	6,4 ± 1,3	0.25 ± 0.05
R_3	4,06 max.	0.160 max.
S	25,9 ± 0,3	1.02 ± 0.01
T*	22,10	0.870
U	31,12 min.	1.225 min.
V	3,18 max.	0.125 max.
W	See 3.6	
X	1,78 min.	0.070 min.
X'	4,01 min.	0.158 min.
Y	3,84 ± 0,30	0.151 ± 0.012

* Basic dimension — No tolerance intended.(See 3.3.1.)

** Basic dimension — No tolerance intended. (See 3.10.)

Table 2

Dimension	mm	in
A_a	17,27 max.	0.680 max.
A_b	14,60 min.	0.575 min.
A_c	8,31 max.	0.327 max.
A_d	6,71 max.	0.264 max.
A_e	0,76 max.	0.030 max.
A_f**	40,84	1.608
A_g	2,54 min.	0.100 min.
A_h	1,02 ± 0,13	0.040 ± 0.005
A_j	0,51 max.	0.020 max.
A_k	45° nom.	45° nom.
A_l	0,76 max.	0.030 max.
A_m	46,61 min.	1.835 min.
A_n	59,44 min.	2.340 min.
A_p	26,21 max.	1.032 max.
A_q	18,62 ± 0,20	0.733 ± 0.008
A_s	43,43 ± 0,30	1.710 ± 0.012
A_t	43,94 min.	1.730 min.
A_u	48,01 min.	1.890 min.
A_v	50,80 ± 0,25	2.000 ± 0.010
A_w	$30° \begin{smallmatrix}+1°\\-5°\end{smallmatrix}$	$30° \begin{smallmatrix}+1°\\-5°\end{smallmatrix}$
A_y	15,75 min	0.620 min.
A_z	12,75 min.	0.502 min.

Table 3

Dimension	mm	in
B_a	1,52 ± 0,20	0.060 ± 0.008
B_b	8,10 ± 0,20	0.319 ± 0.008
B_c	29,26 min.	1.152 min.
B_d	16,76 max.	0.660 max.
B_e	13,54 max.	0.533 max.
B_f	45° nom.	45° nom.
B_g	4,11 ± 0,38	0.162 ± 0.015
B_h	8,81 min.	0.347 min.
B_j	12,75 min.	0.502 min.
B_k	21,34 min.	0.840 min.
B_l	6,60 max.	0.260 max.
B_m	2,36 ± 0,38	0.093 ± 0.015
B_n	39,37 max.	1.550 max.
B_p	32,51 max.	1.280 max.
B_q	47,96 min.	1.888 min.
B_s	16,71 min.	0.658 min.
B_t	19,99 max.	0.787 max.
B_u	5,08 min.	0.200 min.
B_v	45° nom.	45° nom.
B_w	3,84 ± 0,30	0.151 ± 0.012
B_y	15° ± 2°	15° ± 2°
B_z	15° ± 2°	15° ± 2°

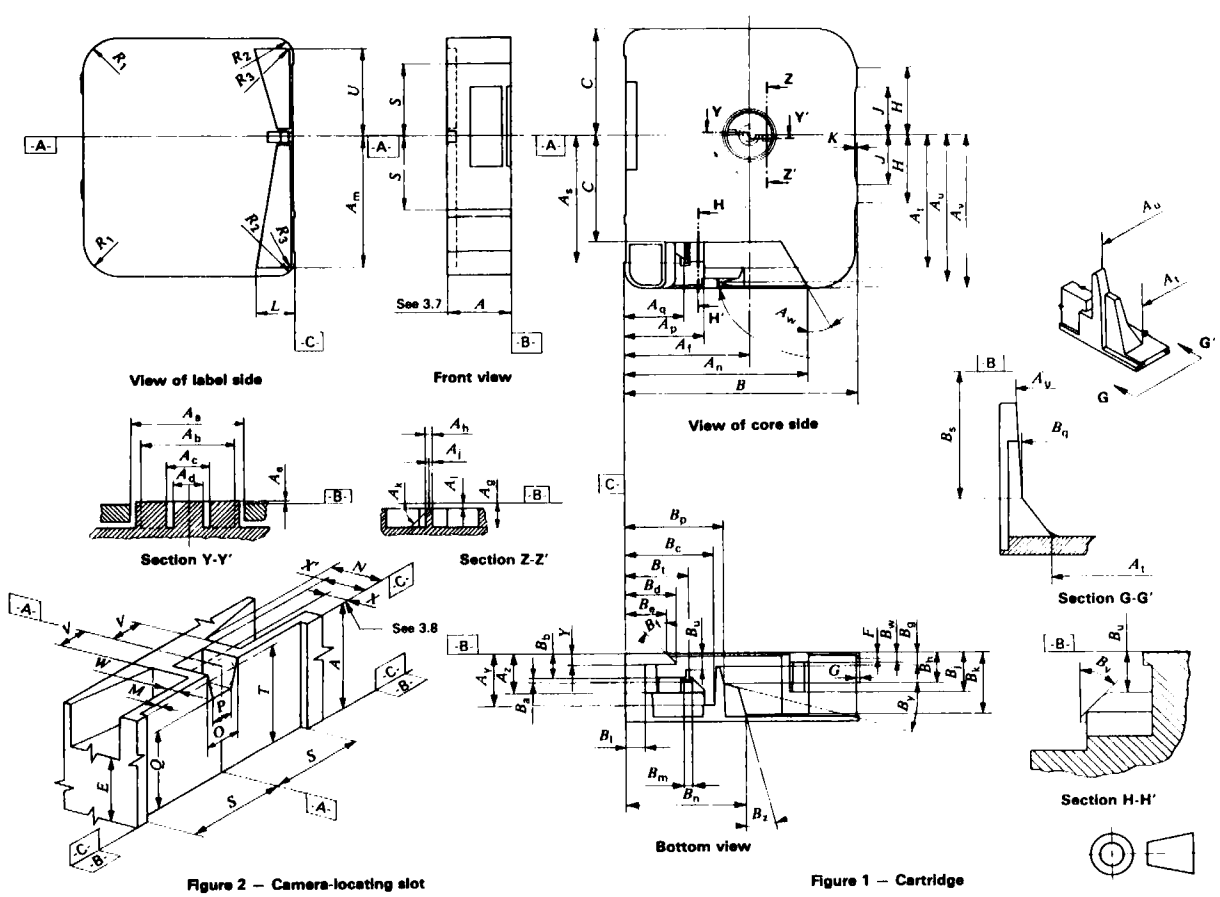

Figure 2 — Camera-locating slot

Figure 1 — Cartridge

3.6 The thickness of the wall of the cartridge used for notching, dimension W, shall be sufficient to withstand a force of at least 10 N (2.2 lbf), while deflecting no more than 1 mm (0.04 in).

NOTE – For the purpose of measurement, the force is applied by the end of a solid cylindrical pin of diameter nominally 1,27 mm (0.05 in), applied at a point nominally 0,8 mm (0.03 in) below the film speed notch or above the filter notch. The axis of the pin shall be situated within a plane parallel to datum plane B and at the distance T. Force is to be exerted in a direction away from and normal to datum plane C.

3.7 Dimension A specifies the normal overall thickness of the cartridge.

3.8 Some cartridge manufacturers may desire to provide a means of retaining the film supply scroll configuration until the cartridge is placed in the camera. One method uses a film locking slide which is actuated by the camera locating pin and releases the film when the cartridge is inserted in the camera. Dimension X specifies the minimum depth of the camera locating slot in the cartridge as provided by the manufacturer, i.e. the distance from datum plane C to the end of the slide. Dimension X' is the minimum distance from datum plane C to the end of the slide after the cartridge is positioned in the camera. A camera locating pin having a maximum diameter of 3,56 mm (0.140 in) and a length of 3,94 ± 0,08 mm (0.155 ± 0.003 in) from datum plane C shall be sufficient to actuate the film locking slide. (See the annex, clause A.4.)

Allowance shall be provided within the camera to accommodate a bowing of the notched, labelled side, of the cartridge cover of up to a maximum of 25,63 mm (1.009 in) from datum plane B. The labelled side of the cartridge is shown in figure 1.

3.9 Dimensions B and M are measured from datum plane C. Dimensions C, J, H, and S are measured from datum plane A.

3.10 The take-up core axis shall be located within 0,25 mm (0.010 in) of the true centre formed by datum plane A and basic dimension A_1.

3.11 Dimensions A_a, A_b, A_c, and A_d are diameters.

3.12 Dimensions B_t, B_u, and B_v define an optional guide provided to facilitate film loading at the time of cartridge manufacture.

4 Take-up core drive

4.1 The normal direction of drive for the core shall be "clockwise" (right-hand drive) when viewed from the core side of the cartridge. (See the annex, clause A.5.)

4.2 After disengagement of any core anti-backup device, the core shall be driven with a nominal torque of $6{,}0 \times 10^{-3}$ N·m with a permissible range of $3{,}5 \times 10^{-3}$ N·m to $10{,}6 \times 10^{-3}$ N·m (0.85 ozf·in with a permissible range of 0.5 to 1.5 ozf·in). (See the annex, clause A.2.)

Annex

A.1 In designing the camera driver, consideration should be given to the fact that tooth-on-tooth engagement of the core lug on the camera driver pin is a possibility.

A.2 It is recommended that the core be tendency driven (by some form of slip-drive mechanism) with a drive ratio of at least one turn of the core for every fifteen strokes of the pull-down claw.

A.3 To provide a consistent method of measurement, it is recommended that a cartridge gauging fixture be used which incorporates datum surfaces, a locating pin, and means of exerting locating forces on appropriate surfaces of the cartridge.

A.4 The camera locating pin should be capable of withstanding a maximum force of 18 N (4 lbf) to actuate the film locking slide.

A.5 If a take-up core anti-backup mechanism is used, the mechanism should be capable of disengagement when the cartridge is placed in the camera permitting the core to turn silently.

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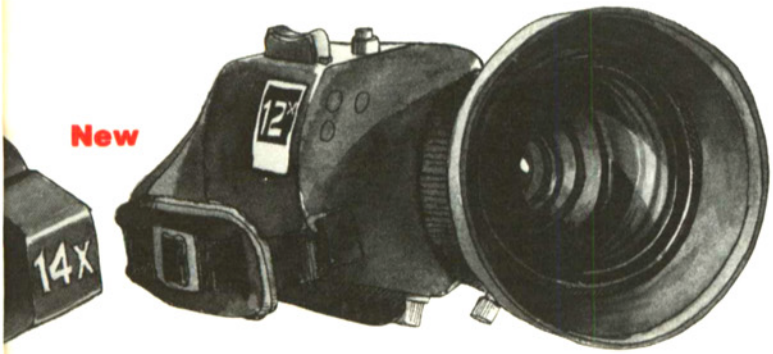

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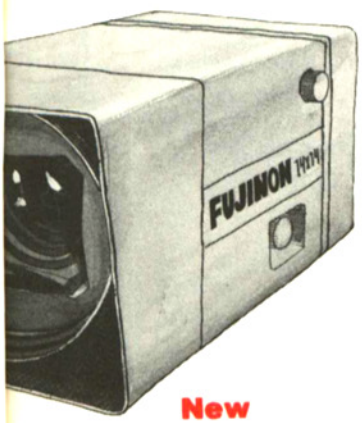

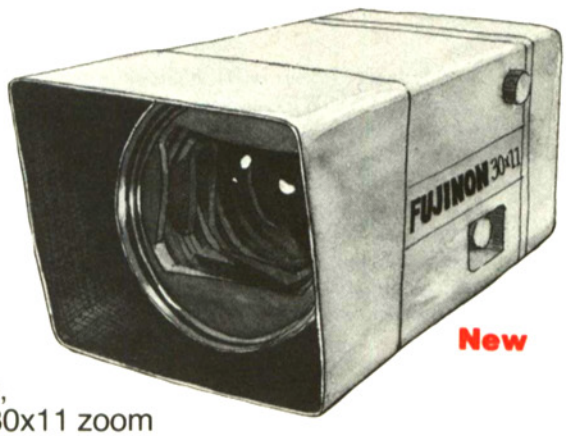

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SMPTE PUBLISHES BOOK ON TELEVISION TECHNOLOGY IN THE 80's

A new book, *Television Technology in the 80's*, has been published by the Society of Motion Picture and Television Engineers (SMPTE), it was announced by SMPTE Editorial Vice-President Maurice L. French, Canadian Broadcasting Corp.

The 240-page book has dimensions of 8½ × 11, with a soft cover. The price is $30.00, less 20% to SMPTE members. The book is available from SMPTE Books, 862 Scarsdale Ave., Scarsdale, NY 10583.

The new book contains 22 papers, plus a panel discussion, that were presented at the SMPTE Television Conference in San Francisco in February, 1981. The book delves into almost every area of television's developing technologies including digital video recording, digital techniques, the all digital studio, new camera technology, and high definition television.

The following are the papers and authors as listed in the book's table of contents.

A New Channel Code for Magnetic Digital Recording
Max Artigalas, *Thomson CSF, Gennevilliers, France*

Recent Developments in Error Concealment Techniques
M-J. Colaitis and D. Nasse, *CCETT, France*

A Format for Digital Television Tape Recording
John L. E. Baldwin, *Independent Broadcasting Authority, Winchester, England*

Digital Video Tape Recording with Increased Packing Density — Progress Report
Masahiko Morizono, Hirofumi Yoshida, Yoshitaka Hashimoto and Takeo Eguchi, *Sony Corp., Kanagawa, Japan*

Aspects and Considerations About the Mechanical Format of Digital VTRs
Dieter K.E. Pohl, *Robert Bosch GmbH, Darmstadt, West Germany*

Mechanical Tape Format Considerations for Digital Television Recording
C. Robert Thompson, *RCA, Camden, N.J.*

Formats for Digital Video Tape Recorders
D. Dolby, M. Lemoine, M. Felix, *Ampex Corp., Redwood City, Calif.*

DVTR Editing Considerations for Multiplexed Audio Versus Separate Audio Edge Tracks
Kenneth Clunis, *3M/Mincom Div., Camarillo, Calif.*

Digital Television Error Correction Without Overhead Bits
A. A. Goldberg and John P. Rossi, *CBS Technology Center, Stamford, Conn.*

Reflections of a Camera Designer
L. Germany, *PYE TVT, Ltd., Cambridge, England*, H. Blom and E. Tienkamp, *Philips, Eindhoven, Holland*

A Super Camera Using Saticon and Built-in Computer Control System
Takashi Sueoka, *Japan Broadcasting Co., Tokyo, Japan*

Advances in EFP Camera Design
John O. Ryan, *Ampex Corp., Redwood City, Calif.*

A New High Resolution Plumbicon Tube
A. Franken, *Philips, Eindhoven, Holland*

Lag Reduction and Lag Characteristics of Television Camera Tube Signals
R. G. Neuhauser, *RCA Corp., Lancaster, Penn.*

Multiplex Sound Television Broadcasting in Japan
Kiyomi Iizuka, *Tokyo Broadcasting System, Inc., Tokyo, Japan*

Questions on the Orientation of Research in High Definition TV in the 80's
M. Joseph Polonsky, *Thomson CSF, Gennevilliers, France*

High Definition TV Studies on Compatible Basis with Present Standards
Prof. B. Wendland, *Dortmund University, Dortmund, Germany*

The NHK High-Resolution Wide-Screen Television System
Dr. Takashi Fujio, *NHK, Tokyo, Japan*

Systems Engineering Considerations in the All Digital Television Production and Transmission Center
Michael S. Tooms, *Protel Broadcast Services, Ltd., Surrey, England*

Digital Decoding of PAL and NTSC Signals Using Field Delay Comb Filters and Line-Locked Sampling
C. K. P. Clarke, *British Broadcasting Corp., Surrey, England*

Test Signals in the Digital Domain
J. Judge, *Tektronix, Inc., Beaverton, Ore.*

Worldwide Standarization — Now or Never
Thomas Robson, *Independent Broadcasting Authority, Winchester, England*

Panel Discussion on Digital Video Component Tests Performed by the SMPTE Committee on New Technology

Chairmen: Frank Davidoff, *Frank Davidoff, Inc.*;
William G. Connolly, *CBS Television*;
Kenneth B. Davies, *Canadian Broadcasting Corp.*;
Charles A. Ginsburg, *Ampex Corp.*;
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March 12, 1981

Mr. Dan Zinn, President
Magnasync-Moviola Corp.
5539 Riverton Ave.
North Hollywood, CA 91601

Dear Dan:

I am writing to express my appreciation for the Moviola console editors. I cannot begin to properly convey my extreme satisfaction and enthusiasm for the machines. In ten years of preparing films for Filmex, I have used both the KEM and Steenbeck units. Although they did the job, the Moviolas make the entire process, which can only be described as pure drudgery at best, an absolute pleasure.

The Moviolas are quieter, easier to operate, and respond faster. The overall better design characteristics are evident in the more logical control placement, easier threading and much better treatment of the film. In our use of the machines we are meticulously examining rare old prints, new "green" prints, trailers, nitrate film, shorts - every kind of film you can imagine, and under intense pressure of time. The machines out-perform and outclass every other machine or method I have ever used. The comparison to other flatbed machines is best described as comparing a Rolls-Royce to a jeep.

In short, the Moviola console editors are a superb design, magnificently built. I extend my sincere gratitude to you and your colleagues for your generosity in supplying the editors -- greatly assisting us with the preparation of the 1981 Los Angeles International Film Exposition.

Thank you.

Cordially,

Gary Essert

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