Slidefilm Meets the Movies — A Technical Note

By CHARLES PALMER

RECENTLY in discussions with a friend, the training officer of a bank chain, I tried to persuade him to retire his soundslide units and let my company switch him over to sound movies.

I had good arguments on my side, because there are two major content areas where words and static pictures obviously reach the end of their powers. One, of course, is the physical action or skill which becomes fully clear only with visualized motion; such as subduing a prisoner, or sliding a slipped contact lens back over the cornea; or the demonstration of a complex instrument or machine, such as the actual process by which a hay baler ties knots which won't come loose in the field. The second area encompasses the human situations, usually involving communication or persuasion, where the trainee can gain a full understanding only by seeing the people in actual face-to-face communication. Only sound movies can do justice to these major areas; sound movies also have the power to show relationships, processes and progressions, to clarify abstracts via animated analogies, and to impart vicarious experiences.

But my friend had equally strong arguments for sound slidefilms. In the first place, the 20-odd titles in his training course had to put over a great deal of detailed instruction, and six 5-minute movie cartridges would cost enormously more than his typical half-hour stills-with-talk slidefilm, as to both production and prints. I had to agree that a ledger page or an interest table or a counterfeit bill, in a still shot which the trainee can study at length as the narrator explains what to look for, is not only cheaper than movies, but actually better training. And when we analyzed a typical subject, it was clear that perhaps 90% of his material was adequately presented in the soundslide medium. There was also the practical argument that the Bank already had heavy investment in its chain of soundslide projectors and was not about to put them in storerooms and invest in a chain of movie projectors.

So there we were, stalled in the classic slidefilms-*vs*-movies standoff. Until, suddenly, came the dawn . . .

Either/Or. Countless arguments have proceeded on the assumption that the nod must go to *either* slidefilm *or* movies.

But how about slidefilms *and* movies?

Well, to be fair, although it's always been possible, it hasn't been practical. With the *supplementary* movie projectors costing several hundred dollars apiece, to say nothing of their bulk and clutter, management would balk. But today another door is opening; the new generation of mini-projectors — The A. B. Dick Model 60 with its TV-type screen for small groups, and the Rheem Model 4600 and Vidicom-8 "Private Eye" for individual use. These are small, automatic, and priced around a hundred dollars. For the usage we're talking about here, these can function as true *supplementary* movie projectors.

And here's the real beauty of such a "combo" system. My bank-trainer friend has boggled at the amount of labor which would be involved in converting his existing soundslide content into the movie medium. But under our "combo" system, the only alteration of his present soundslide materials will be to press new records, using exactly the same soundtracks, except for interpolating an occasional "See Movie Figure 3" at the occasional points where the still frames need motion-visual or role-playing amplification.

All the trainee will have to do is turn off one switch and flip on another and then back to the slidefilm when "Movie Figure 3" has contributed its short but vital bit of enlightenment.

Obviously this will require a new kind of movie print format, but there will be nothing esoteric about it; instead of the film which traditionally starts at a beginning and runs continuously to an end, our "combo" movie prints will carry three, four or five separate "chunks" of material, each preceded by its "Figure 3 . . . Greeting the Customer" title; each chunk running a few seconds or a few minutes, whatever the particular illustration requires.* And since these interpolated chunks will be direct and involve no story, they will be cheap and economical to produce.

A contribution submitted on May 20, 1970, by Charles Palmer, Parthenon Pictures, 2625 Temple St., Hollywood, CA 90026.

*Charles Palmer, "Teaching with 'segmented loops' — integrating film into printed materials and lectures," *Jour. SMPTE, 78:* 836–837, Sept. 1960.

standards and recommended practices

Draft American National Standard

Draft American National Standard Nomenclature for Motion-Picture Film Used in Studios and Processing Laboratories, PH22.56, is published here for a trial period and public review. Comments should be addressed to Alex E. Alden, Staff Engineer, at Society Headquarters before December 15, 1970. The proposal has also been submitted to the PH22 Committee. Consequently, all comments received through the *Journal* publication will be reviewed prior to the conclusion of action by the Committee.

The preparation of an up-to-date glossary is a difficult and never-ending task, and the work on these terms is continuing. It is therefore requested that while reviewing the definitions you try to determine, not whether a definition can be editorially modified to suit a personal opinion, but rather if it does in fact describe the term. Editorial comments are indeed welcome, however, and will be forwarded for consideration.–A. E.A.

Draft American National Standard Nomenclature for

Motion-Picture Film Used in Studios and Processing Laboratories

PH22.56

Revision of
PH22.56-1961
and
PH22.56a-1964

1. General

1.1 *Motion Picture.* A series of images presented in rapid succession with objects represented in successive positions either unchanged or changed and producing, because of the persistence of vision, the optical effect of a continuous picture.

1.2 *Motion-Picture Film.* A thin flexible strip of plastic, complying with a dimensional standard as defined herein, whose use is specific to the process of manufacturing a motion picture.

NOTE: Motion-picture film, perforated or unperforated, is usually described by a name relating to or designating that part of the system for which it was designed, i.e., the terms color negative, release positive, separation master positive, sound recording, electronic video recording, etc.

1.2.1 *Raw Stock.* Raw stock is film which has not been exposed or processed.

1.2.2 *Film Base.* Film base is the plastic material upon which a photographic emulsion or other material may be coated.

NOTE: All film base manufactured in the United States for motion-picture use since 1952 has been safety base.

1.2.2.1 *Safety Base.* Safety base is the slow-burning film support used for motion-picture films which complies with American National Standard Specifications for Motion-Picture Safety Film, PH22.31-1967.

1.3 *Magnetic Sound Film.* Magnetic sound film is a film base having film perforations along one or both edges and bearing a magnetic coating, either completely across the film or in stripes, the coating being capable of accepting and reproducing sound records.

NOTE: Unperforated materials usually are referred to as magnetic tape.

1.4 *Film Perforations.* Film perforations are the regularly and accurately spaced holes that are punched throughout the length of motion-picture film. These holes are engaged by the teeth of various sprockets and pins by which the film is transported and positioned as it travels through cameras, processing machines, projectors and other film-handling machinery.

1.4.1 *Perforation Pitch.* The perforation pitch is the distance from the bottom edge of one perforation to the bottom edge of the next perforation, measured along the length of the film.

NOTE: Perforations are being identified currently by two-letter designations such as BH (Bell & Howell), KS (Kodak Standard), DH (Dubray-Howell) or CS (CinemaScope). A numeral, such as 1866, designates the pitch in ten thousandths of an inch. A designation 1R, 2R, etc., used with films having 16mm, 8mm, or super 8 perforations, refers to the number of rows of perforations across the narrow dimension of the film. The recommended designators for 8mm films are "8mm Type S" for super 8 film and "8mm Type R" for regular 8 film.

1.4.2 *35mm Perforation, BH-1866.* The 35mm negative perforation has sharp corners, curved sides, a nominal width of 0.110 in. and a height of 0.073 in. (American National Standard Dimensions for 35mm Motion-Picture Film, BH-1866, PH22.93-1964).

NOTE: This perforation and pitch are used for negative and some special-purpose 35mm films.

1.4.3 *35mm Perforation, BH-1870.* The 35mm negative perforation has sharp corners, curved sides, a nominal width of 0.110 in. and a height of 0.073 in. (American National Standard Dimensions for 35mm Motion-Picture Film, BH-1870, PH22.34-1964).

NOTE: This perforation and pitch are normally used for films for special effects such as background plates. (See 3.1.4.)

1.4.4 *35mm Perforation, KS-1866.* The 35mm positive perforation is rectangular in shape with a width of 0.110 in., a height of 0.078 in., a fillet in each corner with a radius of 0.020 in. and a pitch of 0.1866 in. (American National Standard Dimensions for 35mm Motion-Picture Film, KS-1866, PH22.139-1964).

NOTE: This perforation and pitch are used largely for 35mm photographic sound recording purposes and for 65mm camera negative film.

1.4.5 *35mm Perforation, KS-1870.* The 35mm positive perforation is rectangular in shape with a width of 0.110 in., a height of 0.078 in., a fillet in each corner with a radius of 0.020 in. and a pitch of 0.1870 in. (American National Standard Dimensions for 35mm Motion-Picture Film, KS-1870, PH22.36-1964).

NOTE: This perforation is used widely in 35mm black-and-white release positive film.

1.4.6 *35mm Perforation, DH-1870.* This perforation is rectangular in shape with a height of 0.073 in., a width of 0.110 in., a fillet in each corner with a radius of 0.013 in. and a pitch of 0.1870 in. (American National Standard Dimensions for 35mm Motion-Picture Film, DH-1870, PH22.1-1964).

NOTE: This perforation is used on 35mm color print film.

1.4.7 *35mm Perforation, CS-1870.* This perforation is rectangular in shape with a height of 0.073 in., a width of 0.078 in., a fillet in each corner with a radius of 0.013 in. and a pitch of 0.1870 in. (American National Standard Dimensions for 35mm Motion-Picture Film, CS-1870, PH22.102-1964). The outer edge of this perforation is at a different distance from the edge of the film than the other 35mm film perforations listed above.

NOTE: This perforation is used on 35mm release prints having four magnetic sound stripes; one on each side of the perforations.

1.4.8 *65mm Motion-Picture Film, KS-1866.* The 65mm negative perforation is rectangular in shape with a width of 0.110 in., a height of 0.078 in., a fillet in each corner with a radius of 0.020 in. and a pitch of 0.1866 in. (American National Standard Dimensions for 65mm Motion-Picture Film, KS-1866, PH22.145-1965).

NOTE: The perforation for this film is the same as for 35mm motion-picture film, KS-1866, but the margin and lateral distance between perforations are different.

1.4.9 *65mm Motion-Picture Film, KS-1870.* This 65mm negative perforation is the same as for 65mm motion-picture film, KS-1866 except for the perforation pitch. (American National Standard Dimensions for 65mm Motion-Picture Film, KS-1870, PH22.118-1967).

1.4.10 *70mm Motion-Picture Film, Perforated 65mm, KS-1870.* The 70mm positive perforation is rectangular in shape with a width of 0.110 in., a height of 0.078 in., a fillet in each corner with a radius of 0.020 in. and a pitch of 0.1870 in. This film is intended to be printed from 65mm motion-picture film, KS-1866, or from an optically enlarged 35mm anamorphic negative image. The additional margin width is designed to accommodate magnetic sound tracks (American National Standard Dimensions for 70mm Motion-Picture Film, Perforated 65mm, KS-1870, PH22.-119-1967).

NOTE: This 70mm film, perforated 65mm, is used for motion pictures. It should be distinguished from two other types of perforated 70mm film which are used for still pictures. These are described in American National Standard Dimensions for 70mm Unperforated and Perforated Film for Cameras Other Than Motion-Picture Cameras, PH1.20-1963.

1.4.11 *16mm Perforation.* The 16mm perforation is rectangular in shape with a height of 0.050 in., a width of 0.072 in. and a fillet in each corner with a radius of 0.010 in. It is used on the following films:

1.4.11.1 *35mm Motion-Picture Film Perforated 32mm, 2R-2994.* This is a 35mm film with 16mm perforations so arranged that if 1½mm are slit from each edge of the film and the film were slit down the middle, two 16mm films would result, each having one row of perforations. The perforation pitch (0.2994 in.) is normally used for negative film and some special-purpose films (American National Standard Dimensions for 35mm Motion-Picture Film, Perforated 32mm, 2R-2994, PH22.73-1966).

1.4.11.2 *35mm Motion-Picture Film Perforated 32mm, 2R-3000.* This is a 35mm film with 16mm perforations so arranged that when 1½mm are slit from each edge of the film and the film is slit down the middle, two 16mm films result, each with one row of perforations. The perforation pitch specified is normally used for positive film and some special-purpose films. (American National Standard Dimensions for 35mm Motion-Picture Film, Perforated 32mm, 2R-3000, PH22.138-1964).

1.4.11.3 *32mm Motion-Picture Film, 2R-2994.* This is a film 32mm in width which if slit down the middle would result in two 16mm films each having one row of perforations (American National Standard Dimensions for 32mm Motion-Picture Film, 2R-2994, PH22.141-1965). This perforation pitch is used mainly on negative film.

1.4.11.4 *32mm Motion-Picture Film, 2R-3000.* This is a film 32mm in width which when slit down the middle results in two 16mm films, each having one row of perforations (American National Standard Dimensions for 32mm Motion-Picture Film, 2R-3000, PH22.71-1965). This perforation pitch is used mainly on positive film.

1.4.11.5 *35mm Motion-Picture Film Perforated 16mm, 3R-2994 (1-3-0).* This is a 35mm film with 16mm perforations (American National Standard Dimensions for 35mm Motion-Picture Film Perforated 16mm, 3R-2994 (1-3-0), PH22.-171-1968). The principal use of this film stock is as an intermediate film in the production of prints by the double-rank printing system.

NOTE: Numerals (e.g., 1-3-0) are added to the title of some standards to specify how the rows of perforations are placed on the film. The perforation rows are numbered starting at the reference edge. The reference edge is the edge nearest to that row of perforations which is retained in one of the 16mm strips that may be generated by appropriate slitting of the parent 35mm film. A row of perforations which is discarded is always given the number 0.

1.4.11.6 *35mm Motion-Picture Film Perforated 16mm, 3R-3000 (1-3-0).* This is a 35mm film with 16mm perforations so arranged that if 3mm are slit from the selvage edge of the film and the film were slit down the middle, two 16mm films would result, each having one row of perforations (American National Standard Dimensions for 35mm Motion-Picture Film Perforated 16mm, 3R-3000 (1-3-0), PH22.170-1968). The perforation pitch, 0.3000 in., is normally used for positive film.

1.4.11.7 *32mm Motion-Picture Film, 4R-2994.* This is a film 32mm in width which when slit down the middle results in two 16mm films, each having two rows of perforations (American National Standard Dimensions for 32mm Motion-Picture Film, 4R-2994, PH22.142-1965). This perforation pitch is normally used on negative film.

1.4.11.8 *32mm Motion-Picture Film, 4R-3000.* This is a film 32mm in width which when slit down the middle results in two 16mm films, each having two rows of perforations (American National Standard Dimensions for 32mm Motion-Picture Film, 4R-3000, PH22.72-1965). This perforation pitch is normally used on positive film.

1.4.11.9 *16mm Motion-Picture Film, 1R-2994.* This film is 16mm in width, perforated along one edge only (American National Standard Dimensions for 16mm Motion-Picture Film, 1R-2994, PH22.109-1965). This perforation pitch is normally used on camera film.

1.4.11.10 *16mm Motion-Picture Film, 1R-3000.* This film is 16mm in width, perforated along one edge only (American National Standard Dimensions for 16mm Motion-Picture Film, 1R-3000, PH22.12-1964). This perforation pitch is normally used on sound positive film.

1.4.11.11 *16mm Motion-Picture Film, 2R-2994.* This film is 16mm in width, perforated along both edges (American National Standard Dimensions for 16mm Motion-Picture Film, 2R-2994, PH22.110-1965). This perforation pitch is normally used on both black-and-white and color camera films.

1.4.11.12 *16mm Motion-Picture Film, 2R-3000.* This film is 16mm in width, perforated along both edges (American National Standard Dimensions for 16mm Motion-Picture Film, 2R-3000, PH22.5-1964). This perforation pitch is normally used on silent positive film.

1.4.12 *8mm Perforation.* The 8mm perforation is rectangular in shape with a height of 0.050 in., a width of 0.072 in. and a fillet in each corner with a radius of 0.010 in. (This perforation is identical to the 16mm perforation described in 1.4.11 above but for 8mm use has a pitch of 0.1500 or 0.1497 in.) It is used on the following films:

1.4.12.1 *35mm Motion-Picture Film Perforated 8mm, 5R-1500.* This is a 35mm film with 8mm perforations so arranged that if 3mm are slit from the selvage edge (identified by circular holes between perforations) and the film slit three times more, four 8mm films would result, each having one row of perforations. The perforation pitch specified is normally used for positive film.

1.4.12.2 *35mm Motion-Picture Film Perforated 8mm, 2R-1497.* This is a 35mm film with 8mm perforations along each edge. The perforation pitch (0.1497 in.) is normally used for negative film and some special purpose films which usually remain unslit.

1.4.12.3 *35mm Motion-Picture Film Perforated 8mm, 4R-1500.* This is a 35mm film with 8mm perforations so arranged that when 1½mm are slit from each edge and the film slit down the middle, two 16mm films result which, when slit down the middle, produce four 8mm films, each having one row of perforations. The perforation pitch (0.1500 in.) is normally used for positive film.

1.4.12.4 *16mm Motion-Picture Film Perforated 8mm, 2R-1500.* This is a film 16mm in width which when slit down the middle results in two 8mm films, each having one row of perforations (American National Standard Dimensions for 16mm Motion-Picture Film, Perforated 8mm, 2R-1500, PH22.17-1965).

1.4.13 *Super 8 Perforation.* The super 8 perforation is rectangular in shape, with a height of 0.045 in., a width of 0.036 in. and a fillet in each corner with a radius of 0.005 in. It is used in the following films:

1.4.13.1 *35mm Motion-Picture Film Perforated Super 8, 2R-1664 (1-0).* This is a 35mm film with perforations on each edge (American National Standard Dimensions for 35mm Motion-Picture Film Perforated Super 8, 2R-1664 (1-0), PH22.169-1969). This film is normally used for preprint material.

1.4.13.2 *35mm Motion-Picture Film Perforated Super 8, 5R-1667 (1-3-5-7-0).* This is a 35mm film with super 8 perforations so arranged that when 0.030 in. is slit from one edge and 0.091 in. is slit from the factory-marked selvage (discard) edge of the film and slit three more times, four 8mm films would result, each having one row of perforations (Draft American National Standard Dimensions for 35mm Motion-Picture Film Perforated Super 8, 5R-1667 (1-3-5-7-0), PH22.165). The perforation pitch (0.1667 in.) is normally used for positive films.

1.4.13.3 *16mm Motion-Picture Film Perforated Super 8, 2R-1664 (1-4).* This is a 16mm film with super 8 perforations on each edge of the film (Draft American National Standard Dimensions for 16mm Motion-Picture Film Perforated Super 8, 2R-1664 (1-4), PH22.168). The principal use of this film is as an intermediate film in the production of prints by contact printing methods.

1.4.13.4 *16mm Motion-Picture Film Perforated Super 8, 2R-1667 (1-4).* This is a 16mm film with super 8 perforations on each edge of the film so arranged that when the film is slit down the middle two 8mm films result, each having one row of perforations (Draft American National Standard Dimensions for 16mm Motion-Picture Film Perforated Super 8, 2R-1667 (1-4), PH22.-167). The perforation pitch (0.1667 in.) is normally used for positive films.

1.4.13.5 *16mm Motion-Picture Film Perforated Super 8, 2R-1664 (1-3).* (American National Standard Dimensions for 16mm Motion-Picture Film Perforated Super 8, 2R-1664 (1-3), PH22.151-1967) The principal use of this film stock is as an intermediate film in the production of prints by the double-rank printing system.

1.4.13.6 *16mm Motion-Picture Film Perforated Super 8, 2R-1667 (1-3).* This is a film 16mm in width which when slit down the middle results in two super 8 films (American National Standard Dimensions for 16mm Motion-Picture Film Perforated Super 8, 2R-1667 (1-3), PH22.-150-1967). The principal use of this film stock is for the production of prints by the double-rank printing system.

1.4.13.7 *8mm Motion-Picture Film Perforated Super 8, 1R-1667.* This film is 8mm in width with a single row of super 8 perforations (American National Standard Dimensions for 8mm Motion-Picture Film Perforated Super-8, 1R-1667, PH22.149-1967). The principal use of this film stock is for camera original film of the reversal type.

1.4.13.8 *35mm Motion-Picture Film Perforated 35mm and Super 8, KS 2R-1866/S8 3R-1664.* This is a 35mm film with 35mm perforations down each edge and three rows of super 8 perforations arranged to produce three like super 8 images. This film, with 35mm pitch (0.1866 in.) and super 8 pitch (0.1664 in.) is normally used as preprint material for the following film:

1.4.13.9 *35mm Motion-Picture Film Perforated 35mm and Super 8, KS 2R-1870/S8 3R-1667.* This is a 35mm film with 35mm perforations down each edge and three rows of super 8 perforations arranged so that when 0.218 in. are slit from each edge and the remaining film slit twice more, three 8mm films would result, each having one row of perforations. The 35mm pitch (0.1870 in.) and the super 8 pitch (0.1667 in.) are normally used for positive film.

1.4.14 *Maurer 8mm Perforation.* The Maurer 8mm perforation is rectangular in shape with a height of 0.050 in., a width of 0.0433 in. and a fillet in each corner with a radius of 0.005 in. It is used on the following films:

NOTE: All films having Maurer 8mm perforations are referred to as Format M. This film format is proposed by Optronics Technology, Inc., and is designed to permit the inclusion of an optical sound track between the edge of the film and the edge of the perforation.

1.4.14.1 *35mm Motion-Picture Film Perforated Format M, 2R-1497.* This is a 35mm film with Format M perforations on each edge. The film is normally used as a preprint material for the following film:

1.4.14.2 *35mm Motion-Picture Film Perforated Format M, 5R-1500.* This is a 35mm film with Format M perforations so arranged that, upon slitting and removal of the selvage edge, four 8mm films would result, each having one row of perforations. This perforation pitch (0.1500 in.) is normally used for positive films.

1.4.14.3 *16mm Motion-Picture Film Perforated Format M, 2R-1497.* This is a 16mm film with Format M perforations on each edge of the film. This film is normally used as a preprint material for the following film:

1.4.14.4 *16mm Motion-Picture Film Perforated Format M, 2R-1500.* This is a 16mm film with Format M perforations on each edge of the film arranged so that if the film were slit down the middle, two 8mm films would result.

1.5 *Photographic Emulsion.* A photographic emulsion consists of dispersions of light-sensitive materials in a colloidal medium, usually gelatin, carried as a thin layer on film base.

NOTE: Photographic materials are usually designated as negative or positive types according to their light sensitivity (speed), or usage; negative emulsions, in general, being more sensitive than positive emulsions.

1.5.1 *Black-and-White Film.* Black-and-white film carries an emulsion in which, after processing, brightness values of a scene are reproduced only in tones of the gray scale.

NOTE: Color prints may also be made on black-and-white film by such methods as iron toning, color development or imbibition (dye transfer).

1.5.2 *Color Film.* Color film carries one or more emulsions in which, after processing, brightness values of a scene are reproduced in terms of color scales.

1.5.3 *Reversal Film.* A reversal film is one which, after chemical reversal processing, produces an image having a scale of brightness values directly corresponding to that of the original exposure. Chemical reversal includes first development, bleaching and redevelopment.

1.5.4 *Direct Reversal Film.* A direct reversal film is one which, processed in a developer and fixing bath, produces an image having a scale of brightness values directly corresponding to that of the original exposure. In this case, reversal is due to the emulsion rather than to the use of a chemical reversal process subsequent to exposure.

1.6 *Image (Photographic).* An image is any photographically obtained likeness in a processed photosensitive material.

1.6.1 *Latent Image.* A latent image is the invisible image registered on a photographic emulsion due to the reaction produced in the emulsion by exposure to radiant energy.

NOTE: This image becomes visible after development.

1.6.2 *Picture Image.* A picture image is a photographically obtained likeness of any object on photographic material.

1.6.3 *Sound Image.* A sound image is a photographically obtained soundtrack or sound record.

1.6.4 *Negative Image.* A negative image is a photographic image in which the brightness scale is approximately inverted with respect to the brightness scale of the original subject. In color negatives the hue scale is usually, but not necessarily, complementary to the hue scale of the original subject and the brightness scale is inverted.

1.6.5 *Positive Image.* A positive image is a photographic replica in which the tones of the gray scale or color values of the originally photographed subject are represented in their natural order.

1.6.6 *Black-and-White Image.* A black-and-white image is an image produced on a black-and-white film.

1.6.7 *Color Image.* A color image is an image produced on a color film.

1.6.8 *Anamorphic Image.* An anamorphic image is an image which has been produced by an optical system having different horizontal and vertical magnifications.

NOTE: Equal horizontal and vertical magnification is assumed unless the term anamorphic is applied specifically.

1.7 *Aspect Ratio.* Aspect ratio is the ratio of width to height of a projected picture image.

NOTE: This is the more common usage, although the term is also applied to photographic images and to camera, printer and projector apertures.

1.8 *Synchronism.* Synchronism is the relation between the picture and sound with respect either to the physical location on the film or films or to the time at which corresponding picture and sound are seen and heard.

1.8.1 *Projection Synchronism.* Projection synchronism is the time relation between picture and corresponding sound in a projection print.

NOTE: The sound record on a projection print is, in most cases, in advance of the corresponding picture. The displacement is specified in picture frames in the following American National Standards:

	Soundtrack	Standard
A	35mm Photographic	PH22.40-1967
B	35mm Magnetic*	PH22.103-1966
C	16mm Photographic	PH22.41-1969
D	16mm Magnetic	PH22.112-1958
E	8mm Magnetic	PH22.135-1962
F	Super 8 Photographic	PH22.182
G	Super 8 Magnetic	PH22.164-1969

*In this case, the sound is behind the corresponding picture.

1.8.2 *Editorial Synchronism.* Editorial synchronism is the relationship between the picture and sound film during the editorial process.

NOTE: During the editorial process, the soundtrack and corresponding picture, whether on the same or separate films, are kept in alignment and not offset as for projection. Many composite release negatives are supplied in editorial synchronism.

1.8.3 *Camera Synchronism.* Camera synchronism is the relation between picture and soundtrack in a composite camera original.

NOTE: Camera synchronism is generally not the same as editorial synchronism. In 16mm single systems the two are normally in projection synchronism but this is not the case for most 35mm single systems (i.e., where picture and sound are recorded on the same film).

1.9 *Exposure.* Exposure is the process of subjecting a photographic film to suitable intensity of radiant energy for a given time in such manner that it may produce a latent image on an emulsion.

NOTE: Exposure = intensity × time.

1.10 *Processing.* Processing is the generic term applied to the total operation necessary to produce a permanent visible image on exposed film.

1.10.1 *Development.* Development is that part of processing which makes visible the latent image of an exposed photographic emulsion.

1.10.2 *Fixing (Fixation).* Fixing (fixation) is that part of processing which removes the residual sensitive silver salts from a developed film to render the developed image permanent.

NOTE: During the process of fixation, films are customarily treated to preserve and harden the developed image. Adequate washing or neutralizing treatment is necessary following fixation for image permanence.

1.10.3 *Bleaching.* Bleaching is that part of processing which converts a developed silver image into a soluble silver salt.

1.11 *Printing.* Printing is the operation of exposing raw stock by using the processed image of another film as the light modulator.

1.11.1 *Contact Printing.* Contact printing is that method of printing in which the raw stock is held in intimate contact with the film bearing the image to be copied.

1.11.1.1 *Step Contact Printing.* Step contact printing is that method of contact printing in which the film being copied and the raw stock are advanced intermittently frame-by-frame, being exposed to the printer light only when stationary.

1.11.1.2 *Continuous Contact Printing.* Continuous contact printing is that method of contact printing by which the light modulating film and the raw stock move at the same constant speed past the printing aperture.

1.11.2 *Projection Printing (Optical Printing).* Projection printing (optical printing) is printing by projecting the image to be copied through an optical system onto the raw stock.

NOTE: The printed image with respect to the projected image may be identical, an enlargement or a reduction or anamorphic image; or additional anamorphosis may be added or removed.

1.11.2.1 *Step Projection Printing.* Step projection printing is that method of optical printing in which the film being copied and the raw stock are advanced intermittently frame-by-frame, being exposed to the printer light only when stationary. The film rate of both films will be the same in 1-to-1 printing and will differ in reduction or enlargement processes.

1.11.2.2 *Continuous Projection Printing.* Continuous projection printing is that method of optical printing in which the light-modulating film and the raw stock move at a continuous rate at each end of the optical system. The film rate will be the same in 1-to-1 printing and will differ in reduction or enlargement processes.

1.11.3 *A and B Printing.* A and B printing is a method of making composite images, such as fades, dissolves or effects, in a release printer without requiring a duplicating process.

NOTE: The name comes from the fact that the films are edited into two separate rolls called A and B rolls. The sequences of pictures originally in one roll are in synchronization with opaque leader in the other roll. When these two are printed in a separate operation onto a single roll of raw stock, an opportunity is afforded for the introduction of effects and for eliminating visible splices on the screen.

1.11.4 *Double-Rank Printing.* Double-rank printing is a method of producing prints on a wide film, two at a time, oriented so that both run in the same direction on the parent film before slitting.

1.12 *Projection.* Projection is the presentation of an enlarged image of the film on a screen for visual review. In addition the sound may be reproduced for aural review.

1.13 *Production.* Production is the general term used to describe the processes involved in making all the original material that is the basis for the finished motion picture.

1.14 *Editorial Process.* Editorial process is the term used to describe the combining, cutting, editing and other preparation of material obtained from the original material to make the finished motion picture.

1.15 *Re-recording.* Re-recording is the electrical process of transferring sound records from one or more films, magnetic tapes or discs to other films, tapes or discs.

NOTE: Re-recording may be used to combine different sound records into a single record to adjust the frequency-response characteristic or to adjust the relative levels between different scenes and sequences.

1.16 *Release.* Release is a generic term used to designate films used for or intended for general distribution and exhibition.

1.16.1 *Release Negative.* A release negative is a complete negative prepared specifically for printing release prints.

NOTE: A release negative may consist of separate picture and sound negatives and may be in either projection or editorial synchronism, depending upon the film-processing technique to be employed in making release prints.

1.16.2 *Release Print.* A release print is a print made for general distribution and exhibition. It may be on films of 8mm, 16mm, 35mm or 70mm width. Some release prints are composed of two or more 35mm-width films which are projected simultaneously in lateral alignment.

2. Picture Negative Film, Black-and-White and Color

2.1 *Picture Negative.* A picture negative is any processed film that possesses a negative picture image of the subject or film image to which it was exposed. This term is sometimes erroneously used to refer to the raw film before processing, either with or without exposure.

2.1.1 *Original Picture Negative.* The original picture negative is the negative film that was exposed in a camera and processed to produce a negative image of the original subject.

2.1.2 *Background Plate Negative.* A background plate negative is a picture negative which is used for printing background plates.

2.1.3 *Picture Library Negative.* A picture library negative is a picture negative that is usually held in a film library for use in reproducing scenes which would otherwise have to be made as original material for each production.

2.1.4 *Title Negative.* A title negative is a negative that is exposed to a title card or to both a title card and background.

2.1.5 *Picture Duplicate Negative.* A picture duplicate ("dupe") negative is a picture negative made from black-and-white, color or separation master positive films or directly from a picture negative by a reversal process (see 1.5.3 Reversal Film).

NOTE: It may be used for making additional prints or it may be cut and edited to form a part of the picture release negative.

2.1.5.1 *Internegative.* An internegative film is a negative derived directly from a reversal original film.

NOTE: All other duplicating negatives derived from other than reversal film will be known as duplicate negatives regardless of the generation.

2.1.6 *Picture-Release Negative.* A picture-release negative is a cut and edited picture negative used for printing the picture portion of release prints.

NOTE: It may consist of intercut original picture negatives, picture dupe negatives, etc., depending upon the choice of available material or the intended use of the release print.

2.1.7 *Foreign Picture-Release Negative.* A foreign picture-release negative is a picture-release negative prepared specifically for printing foreign-version-release prints.

NOTE: It is almost invariably a duplicate negative.

2.1.8 *16mm Picture-Release Negative.* A 16mm picture-release negative is a picture-release negative on 16mm film prepared specifically for printing 16mm release prints.

3. Picture Positive Film, Black-and-White and Color

3.1 *Picture Print.* A picture print is a processed film that possesses a positive picture image of the subject or film image to which it was exposed.

3.1.1 *Picture Daily Print.* A picture daily print is the first picture print made from the original picture negative for use in checking photographic quality, camera technique, actions, etc.

3.1.2 *Picture Work Print.* A picture work print is a positive print which usually consists of intercut picture daily prints, picture library prints, prints of dissolves, montages, titles, etc., and has synchronism constantly maintained with the corresponding sound work print.

3.1.3 *Picture Library Print.* A picture library print is a picture print made from a picture library negative.

3.1.4 *Background Plate (Background Print Film).* A background plate (background print film) is a picture print made specifically for use in projection background or similar process work, and is a print of a background plate negative.

3.1.5 *Picture Master Positive.* A picture master positive is a print usually made on a special film, for the purpose of producing picture duplicate negatives.

3.1.5.1 *35mm Separation Positive.* A 35mm separation positive is a black-and-white film with a positive image of the red, green or blue image component of a color negative. It is usually made by printing through suitable filters from a color negative onto a panchromatic black-and-white film.

3.1.5.2 *35mm Protection Master Positive.* A 35mm protection master positive film is a positive film made from the final cut and edited black-and-white or color release negative. In case of damage to the release negative, a duplicate negative could be made from this protection master positive. In the case of color, this protection master positive may be a set of three black-and-white separation master positives or a color master positive.

3.1.5.3. *35mm Panchromatic Master Positive.* A 35mm panchromatic master positive is a black-and-white print made on a panchromatic film from a color negative for the purpose of making a black-and-white duplicate negative.

3.2 *Composite Print.* A composite print is a positive film having both picture and corresponding sound on the same film, which may be in editorial or projection synchronism.

3.2.1 *Composite Daily Print.* A composite daily print is made from an original composite negative or original sound and picture negatives, and is used for checking photography, sound quality, action, etc. It is in projection synchronism.

3.2.2 *First Trial Composite Print.* The first trial composite is the first composite print made from the picture and sound-release negatives for the purpose of checking and correcting picture and sound quality, negative cutting and assembly, etc. It is in projection synchronism.

3.2.3 *Second, Third, Etc., Trial Composite Print.* The second, third, etc., trial composite print is similar to the first trial composite print, but has successive corrections incorporated as a result of viewing the previous trial composite prints.

3.2.4 *Final Trial Composite.* A final trial composite is a composite print, approved for release, in which all corrections found necessary in previous trial composite prints have been incorporated.

NOTE: The final trial composite may be any one of the various trial composite prints, depending upon the type and extent of corrections required.

3.2.5 *Composite Master Positive.* A composite master positive is a composite print usually made for the purpose of producing composite or picture and sound duplicate negatives which would be used for printing release prints.

NOTE: It is usually made on duplicating positive film and may be in either editorial or projection synchronism.

3.2.6 *Foreign-Version-Release Print.* A foreign-version-release print is a composite print in projection synchronism with dialogue made specifically for the particular language involved.

NOTE: Sometimes superimposed titles in a different language are used on the print. A superimposed title consists of printed words (usually transparent) overlaying the picture image.

3.2.7 *Foreign-Version Trial Composite Prints.* Foreign-version trial composite prints are similar to trial composite prints made during release, except that they are made for checking the release of the particular language version involved.

4. Reversal Film, Black-and-White and Color

4.1 *Reversal Original.* A reversal original is the film that is originally exposed in a camera or recorder and is processed by reversal to produce a positive image.

NOTE: This positive image obtained by the reversal process is not the same as a print from a negative. When viewed by projection on an opaque screen, the emulsion side of the print from a negative must face the light source and the emulsion side of a reversal original must face the lens in order for the screen image to have the same lateral orientation as the original scene.

4.1.1 *Composite Reversal Original.* A composite reversal original is a reversal original which has both picture and corresponding sound on the same film.

4.1.2 *Reversal Duplicate Negative.* A reversal duplicate negative is reversal-type film that has been exposed to a negative film image, usually an original picture negative, and processed by the reversal process.

4.2 *Reversal Print.* A reversal print is a reversal-type film that has been exposed to a positive film image, usually a reversal original film, and processed by the reversal process.

4.2.1 *Reversal Master Print, 16mm.* A reversal master print is a 16mm reversal print made specifically for use in producing other prints.

NOTE: It is sometimes referred to as a first generation duplicate, prints from it then being referred to as second generation duplicates.

4.2.2 *Reduction Reversal Print, 16mm.* A reduction reversal print is a reversal print made on 16mm reversal film from a 35mm positive by reduction printing and development by the reversal process.

5. Photographic Sound

NOTE: All definitions in this section will be understood to be photographic unless the term "magnetic" is used. The term "photographic" replaced the term "optical" because the latter describes the method of reproduction and not the sound record itself.

5.1 *Photographic Sound.* Photographic sound is a sound record in the form of a photographic image.

5.2 *Sound Negative.* A sound negative is any film that, after exposure and subsequent processing, produces a negative sound record on the film. This sound record requires the steps of printing and processing of a second film in order to obtain a reasonably faithful reproduction of the original sound, by the conventional scanning system.

NOTE: The negative image may be obtained by exposure through a positive sound image; by direct recording; or, by the reversal process, from another sound negative.

5.2.1 *Original Sound Negative.* The original sound negative is the sound negative that is exposed in a film recorder and, after processing, yields a negative sound image on the film.

5.2.2 *Sound-Effects Negative. A sound-effects negative* is a sound negative upon which sound effects have been recorded. It is ordinarily held in library stock.

5.2.3 *Music Negative.* A music negative is a sound negative upon which music has been recorded. It is usually an original sound negative but may be a library negative.

5.2.4 *Sound Cut Negative.* A sound cut negative is a sound negative that is composed of sections of original sound negatives spliced in sequence.

NOTE: The sound cut negative is generally in exact conformity with the sound work print and produces a single sequentially spliced negative. The print of the sound cut negative provides all, or portions of, the re-recording print.

5.2.5 *Re-recorded Negative.* A re-recorded negative is a sound negative which is exposed by re-recording and, when processed, yields a negative sound track image on the film.

5.2.6 *Sound Release Negative.* A sound release negative is a photographic sound negative in the form required for the final printing operation onto the release print raw stock.

NOTE: The sound release negative may consist of re-recorded negatives, intercut original sound negatives, duplicate negatives of sound records, etc., depending upon the choice of available material or the intended use of the print.

5.2.7 *Special Sound Release Negative.* A special sound release negative is a sound release negative made for the purpose of obtaining a sound track which has characteristics other than those obtained from the sound release negative.

NOTE: Three common forms of special sound release negatives are those listed under 5.2.7.1, 5.2.7.2 and 5.2.7.3.

5.2.7.1 *Special Sound Release Negative for Use in 16mm Release of 35mm Preprint Material.* The special sound release negative for 16mm release of 35mm original material is a photographic sound negative, either 35mm or 16mm, recorded with specific characteristics for reasonably faithful reproduction of the original sound on 16mm reproduction equipment. It may be re-recorded from a print of the 35mm sound release negative or from the 35mm re-recording print.

5.2.7.2 *Special Sound Release Negative, Foreign Release in English.* The special sound release negative for use in English version for foreign release is re-recorded from the re-recording print, except that the dialogue track is modified to remove American colloquialisms.

5.2.7.3 *Special Sound Release Negative, Foreign-Language Version.* The special sound release negative for use in foreign-language version release is usually re-recorded using all of the re-recording tracks, except the dialogue track, for which is substituted a special synchronized dialogue track in the foreign language for which the release is being made.

5.2.8 *Sound Release Dupe Negative.* A sound release dupe negative is a duplicate negative of the sound record prepared specifically for printing the sound track of release prints.

5.3 *Sound Print.* A sound print is any positive obtained by printing from a sound negative, or direct positive recording, or, by the reversal process, from another sound positive. A sound print provides a reasonably faithful reproduction of the original sound through the conventional scanning system.

5.3.1 *Sound Daily Print.* A sound daily print is the first sound print made from the original sound negative for checking sound quality, technique, etc.

5.3.2 *Sound Work Print.* A sound work print is a sound print that usually consists of intercut sound daily prints, but may also include other sound tracks of sound effects or music, or both, on the same or separate films, with synchronism constantly maintained with the corresponding picture work print.

5.3.3 *Sound-Effects Print.* A sound-effects print is a sound print made from a sound-effects negative, or from another sound-effects print by reversal processing.

5.3.4 *Music Print.* A music print is a sound print made from a music negative.

5.3.5 *Re-recording Print.* A re-recording print is a sound print prepared specifically for use in re-recording to produce a re-recorded negative.

NOTE: A re-recording print may be a print from a sound cut negative, a specially intercut print, or a combination of both. It usually consists of several sound records on separate films that include dialogue, sound effects, music, or any other required material. The term is used interchangeably to designate the entire group of associated films or any individual film that is part of the group.

5.3.6 *Re-recorded Print.* A re-recorded print is a sound print from a re-recorded sound-track negative.

5.3.7 *Sound Check Print.* A sound check print is a sound print made from the sound release negative for the purpose of checking negative cutting, printing lights, sound quality, etc.

NOTE: When a sound check print is required, it is usually made prior to the first trial composite print.

5.3.8 *Sound Master Positive.* A sound master positive is a sound print on special film stock that is usually made from a sound release negative for the purpose of producing duplicate negatives of the sound record for release printing.

5.4 *Composite Print* (See 3.2)

[**3.2** *Composite Print.* A composite print is a positive film having both picture and corresponding sound on the same film, which may be in editorial or projection synchronism.]

5.4.1 *Composite Daily Print* (See 3.2.1)

[**3.2.1** *Composite Daily Print.* A composite daily print is made from an original composite negative or original sound and picture negatives, and is used for checking photography, sound quality, action, etc. It is in projection synchronism.]

6. Magnetic Sound

6.1 *Magnetic Sound Film* (See 1.3)

[**1.3** *Magnetic Sound Film.* Magnetic sound film is a film base having film perforations along one or both edges and bearing a magnetic coating, either completely across the film or in stripes, the coating capable of accepting and reproducing sound records. Note: Unperforated materials usually are referred to as magnetic tape.]

6.2 *Full-Coat Magnetic Film.* Full-coat magnetic film has the magnetic-coating compound applied across the film from edge to edge.

6.2.1 *Full-Coat Between Perforations Magnetic Film.* Full-coat between perforations magnetic film has the magnetic-coating compound across the film from perforation to perforation.

6.3 *Magnetic Striping.* Magnetic striping is a process by which a magnetic-coating compound is applied in the form of single or multiple stripes, having specific widths and placements, to either surface of a film base which may or may not have a photographic emulsion.

6.4 *Balance Stripe.* A balance stripe is a magnetic coating or coating of another material that is equal in thickness to, but may be narrower than, the stripe used for recording. It is applied along the edge of the film, opposite the stripe used for recording. Its primary purpose is to equalize the effective thickness of the two edges of the striped film in order to obtain uniform winding. The stripe is sometimes used for the recording of additional sound or control records.

6.5 *Magnetic Original.* A magnetic original is the original or first sound record on a magnetic film.

6.6 *Magnetic Transfer.* A magnetic transfer is a magnetic sound record obtained by electrical re-recording of a magnetic original onto another magnetic film.

6.7 *Magnetic Master.* A magnetic master is a final edited or re-recorded magnetic sound record used for transfer to a magnetic release print or for transfer to a photographic sound negative to be used for manufacturing prints with photographic sound tracks.

6.8 *Magoptical Release Print.* (See 7.4)

7. Release Prints

7.1 *Release Print.* (See 1.16.2)

[**1.16.2** *Release Print.* A release print is a print made for general distribution and exhibition. It may be on films of 8mm, 16mm, 35mm or 70mm width. Some release prints are composed of two or more 35mm-width films which are projected simultaneously in lateral alignment.]

7.1.1 *Composite Release Print.* A composite release print is a print having both picture and sound records in projection synchronism on the same film.

NOTE: The sound record may be photographic, magnetic, or both.

7.1.2 *Domestic Release Print.* A domestic release print is a release print intended for distribution within the country where the print was manufactured and having dialogue in the language of that country. It may be a composite print or may have magnetic sound track or tracks on a separate film.

7.1.3 *Foreign-Version Release Print.* (See 3.2.6)

[**3.2.6** *Foreign-Version Release Print.* A foreign-version release print is a composite print in projection synchronism with dialogue made specifically for the particular language involved. Note: Sometimes superimposed titles in a different language are used on the print. A superimposed title consists of printed words (usually transparent) overlaying the picture image.]

7.2 *Anamorphic Release Print.* An anamorphic release print is a release print in which the picture image is compressed laterally, requiring a deanamorphosing lens on the projector to cause objects in the projected picture to have correct proportions.

7.3 *Wide-Screen Release Print.* A wide-screen release print is a print which has no anamorphosis but, when projected, produces a screen image having an aspect ratio greater than 1.33 to 1.

NOTE: Some prints are made from negatives exposed in a camera aperture having an aspect ratio of 1.33 to 1, but which have been composed for projection to yield a projected picture having an aspect ratio greater than 1.33 to 1. A wide-screen print may also be obtained from an anamorphic negative by deanamorphosing in the printing process.

7.4 *Magoptical Release Print.* A magoptical release print is a composite release print which has both magnetic and photographic (optical) sound tracks.

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