MOTION PICTURE PRINTS FROM COLOR ORIGINALS

The accompanying charts have been devised to indicate the procedures most generally used by commercial laboratories to make motion picture prints from original footage. Shown in the charts are methods for producing 35, 16, and 8mm color and black-and-white prints from 35mm and 16mm color negative and color reversal originals. It should be understood that these charts are intended to serve only as a guide in understanding the printing systems themselves and no attempt should be made to evaluate picture quality with respect to such attributes as overall color balance and saturation, color contrast, sharpness, and graininess. The film samples used for these reproductions were actual frames taken from footage printed as shown, but the small size of the illustrations and the changes that might have been introduced by the photomechanical reproduction process make any such quality evaluation meaningless. The only valid method for evaluating the quality of results to be obtained when you use a given system is to view a print made by the chosen procedure and projected under recommended conditions.

These charts are meant for use as guides for producers of various types of films, for commercial laboratory managers in their discussions with producers or in training of new laboratory personnel, for students taking cinema and laboratory courses, and for any others who may have some interest in motion picture printing systems.

An examination of the systems presented here will suggest a number of questions relating to the reasons for certain steps, the choice of particular materials, and the preference of one system over another. The answers to such questions require a thorough knowledge of the characteristics of the film materials to be used and the chemical processes required for them. Also needed are information as to the kinds of equipment available, a clear specification of the job to be done, and considerations as to quality of the end result in relation to the costs involved. It is the purpose of this article to discuss some of these matters in a general way to assist in the interpretation of the charts and to serve as a guide for further discussions, trials, and the final decision.

FILM TYPES SHOWN IN PRINTING SYSTEMS

To conserve space on the charts, the particular EASTMAN or KODAK films used for each of the printing steps are indicated by film type number only. For those who may not be familiar with these numbers, the table below shows the proper name of each film indicated in the charts.

Camera Films

EASTMAN Color Negative Film, Types 5251 (35mm) and 7251 (16mm)

EASTMAN EKTACHROME Commercial Film, Type 7255 (16mm)

KODAK EKTACHROME MS Film, Type 7256 (16mm)

KODAK EKTACHROME EF Film, Type 7241 (Daylight) (16mm)

KODAK EKTACHROME EF Film, Type 7242 (Tungsten) (16mm)

Duplicating Films

EASTMAN Fine Grain Duplicating Panchromatic Negative Film, Types 5234 (35mm) and 7234 (16mm)

EASTMAN Panchromatic Separation Film, Type 5235 (35mm)

EASTMAN Fine Grain Duplicating Positive Film, Types 5366 (35mm) and 7366 (16mm)

EASTMAN Color Intermediate Film, Types 5253 (35mm) and 7253 (16mm)

EASTMAN Color Internegative Film, Type 7270 (16mm)

Print Films

EASTMAN Fine Grain Release Positive Film, Types 5302 (35mm) and 7302 (16mm)

EASTMAN Reversal Duplicating Film, Type 7361 (16mm)

EASTMAN Color Print Film, Type 7380* (16mm)

EASTMAN Color Print Film, Types 5385 (35mm) and 7385 (16mm)

EASTMAN EKTACHROME Reversal Print Film, Type 7386 (16mm)

EASTMAN Reversal Color Print Film, Type 7387 (16mm)

EASTMAN EKTACHROME R Print Film, Type 7388 (16mm)

When any of these films are supplied in formats with regular 8 or super 8 perforations, regardless of the width of the raw stock, the 16mm type number is indicated on the charts. Detailed specification sheets for each of these films are available from the Motion Picture and Education Markets Division, Eastman Kodak Company, Rochester, New York 14650, or from its regional offices in New York, Chicago, Hollywood, Dallas, or Atlanta.

*Type 7380 is presently being supplied for use only in systems for preparing 8mm prints in either regular or super 8 formats.

PRINTING EQUIPMENT

The various printing systems shown call for several kinds of printing equipment, some of which are highly specialized. Certain methods require only a continuous or step-type contact printer with provision for scene-to-scene light-intensity and color-balance changes. An optical printer is needed to make reductions or enlargements. If the system involves the use of separation negatives or positives, a registering-type optical printer is required. Systems calling for printing of two or more ranks of pictures on a given type of raw stock require printers of special design. In the final release print stage, provision must also be made for printing the photographic sound track or for transferring and monitoring magnetic tracks. If this work has to be done on separate equipment, extra labor costs are entailed and longer production time is needed.

Printers found in present day laboratories utilize either subtractive or additive type color illumination systems. Because of its versatility and precision, there is a definite trend toward adoption of the additive type. Some laboratories do not have printers that will permit adjustments of both intensity and color balance for each scene. When all of the scenes of a print must be made at a single color balance with intensity corrections only, some loss in quality is to be expected in some scenes.

FILM PROCESSING

In choosing a printing system, one of the most important questions to be answered is whether facilities are available for processing each film used in the system according to recommended procedures. For the various film types shown in the charts, a number of different black-and-white and color processes are required. Many laboratories are equipped to handle only certain of the processes. The number of laboratories that can handle all types of processes is extremely limited.

Kodak Processing Laboratories in certain locations can provide service on some color processes, but do not process the black-and-white films, nor EASTMAN Color Negative and Color Print Films, and companion products. In overseas countries, the availability of processing service, or lack thereof, may well be the deciding factor in the choice of a printing system.

For those laboratories that wish to do their own processing, detailed information on machine processing of various film types is available from the Motion Picture and Education Markets Division, Eastman Kodak Company, Rochester, New York, 14650, or any of its regional offices. The following table lists the processing requirements for each of the film types shown in the charts.

QUALITY CONSIDERATIONS IN SELECTING A PRINTING SYSTEM

The appraisal of the "quality" of a print involves consideration of a number of attributes, some objective and others subjective. Consciously or subconsciously, the viewer must answer such typical questions as the following:

(A) Is the picture rock-steady, or does it have side-weave or vertical jump?
(B) Is the print free of obvious physical blemishes — such as scratches, streaks, blotches, dirt particles, black specks, white specks, or "sparkle," etc?
(C) Is the graininess of the projected image objectionable?
(D) Is the definition adequate for the purpose intended?
(E) Is the tone reproduction satisfactory? In particular
— is the contrast exaggerated so as to block up shadows and wash out the highlights?
— are the flesh tones and hair rendered satisfactorily?
— are there any undesirable hue or saturation shifts in the various elements of the scene?
— is there an overall color-balance problem?
— is there any residual stain in the highlight regions of the picture?
(F) Is the picture free of bad and exaggerated edge effects that might give it a dupe-like appearance?
(G) Where black-and-white prints are concerned, are the tone values satisfactory with respect to the original?

Quality is best judged by looking at prints when they are projected under the conditions for which they are intended to be used. In the case where the prints are to be used for projection with standard projectors before groups of people, the review room should simulate the average viewing condition with respect to screen size, screen luminance, ambient lighting level, etc. The projector should also be in good operating condition, so as to produce uniform screen illumination and steady pictures. Prints intended for television transmission are best projected through a carefully standardized closed-circuit television system and viewed on a well adjusted monitor.

Comparison of the quality of prints made by two different systems can be done by using either a single projector or two matched projectors. If a single projector is used, it is best to make the comparison scene-by-scene by cutting and splicing the scenes in order. In the assembled print, scene 1 from print A will be followed by scene 1 from print B, etc. A more critical comparison is possible by using two carefully matched projectors. This method also avoids the necessity of cutting and splicing the separate scenes of the two prints. The projectors should be previously checked to see that they both provide equal sharpness and uniform screen illumination. They should also give equal screen luminance and image color when no film is in the gate. If there is any question about the steadiness or weave of a print, the pro-

Processing Requirements for Various Film Types

	Film Type Numbers	Process Requirement	Solution Preparation	
			Acc. to Formula	Packaged Chemicals
Camera Films	5251, 7251	EASTMAN Color Negative Process	Yes[1]	No
	7255	Process ECO-2	Yes[1]	Yes[1]
	7256, 7241, 7242	Process ME-4	Yes[2]	Yes[1]
Duplicating Films	5366, 7366, 5235, 7235	Motion Picture Negative Developer, such as KODAK D-96 or D-76	Yes	Yes (D-76 only)
	5253, 7253	EASTMAN Color Negative Process	Yes	No
	7270	EASTMAN Color Print Process with Color Negative Stabilizing Bath	Yes	No
Print Films	5302, 7302	Motion Picture Positive Developer, such as KODAK D-97 or D-16	Yes	Yes (D-16 only)
	7361	Black-and-White Reversal Process	Yes	Yes
	7380, 5385, 7385	EASTMAN Color Print Process	Yes	No
	7386, 7388	Process ME-4	Yes[2]	Yes[1]
	7387	Process RCP-2	Yes[3]	No

NOTES: (1) Detailed manual available.
(2) Detailed manual and license available.
(3) Process similar in many respects to that used for KODACHROME II Film. License and manual available in U. S. only. Processing Service at Kodak Processing Laboratories available only in U. S. and certain other countries.

jector(s) should be checked with a test film such as one available from the Society of Motion Picture and Television Engineers, 9 East 41st Street, New York, New York 10017.

If a print made with a given system is judged to be poor in quality, do not be too hasty in placing the blame on the printing system itself. In many instances the system may be unjustly condemned when, as a matter of fact, the inferior print quality may be the result of poorly designed or maintained equipment, inadequate control of the printer or processing, etc. Such matters should be investigated and corrections made, if necessary, before the printing system can be truly evaluated.

Because of the many factors involved, no attempt will be made in this article to examine in detail each printing system shown in the charts or to rate them with respect to the ultimate quality that can be attained. However, some general remarks do seem to be in order to serve as a guide in evaluating system performance.

First, a word about the original footage. Such footage should be thoroughly cleaned and it should be inspected for any emulsion or base scratches. Typical frames should be checked with a magnifier to be sure that the images are in sharp focus. Too often, a printing system is suspected of being responsible for poor definition when it is later found that the original was at fault!

It should be recognized that many of the sensitized materials used in color printing systems have limited exposure latitude. Because of this, scenes that have a wide density range must be carefully timed to use the most linear portions of the characteristic curves of intermediate materials. Ideal placement of the original footage scene information onto intermediate films calls for sensitometric procedures. Best performance of the system is obtained when the linear portions of the separate blue-, green- and red-sensitive emulsion layers of the intermediate films are utilized. For this reason, and also because of the higher density of color-correcting masks in the intermediate films, the average density of duplicate nega-

tives or internegatives is generally higher than that of original negatives.

Edited original color footage should be timed scene to scene for both intensity and color in order to obtain the highest quality print, regardless of the printing system used. Even where the photography has been carried out in the most professional manner, scene-to-scene color-balance adjustment during printing is needed. This is so because of the adaptation properties of the human eye; that is, the appearance of a given scene is influenced by the composition and color attributes of the preceding scene. Where scene-to-scene color timing cannot be done for economic or other reasons, some compromises in quality must be expected.

The various film materials used in the various printing systems differ in modulation-transfer and graininess characteristics. Optical systems also have specific modulation-transfer characteristics and thus can affect the graininess and sharpness observed in the final print. Therefore, one cannot expect that the definition and graininess pattern shown in the print will be identical for all printing systems. In general, each printing stage introduces some loss in definition and increases the difficulty of maintaining color fidelity. Therefore poorer final definition and color fidelity should be expected when several printing stages are used. In the case of reduction printing, it is generally preferable, where it is economically practicable, to postpone reduction to the last printing step in order to obtain the best definition.

One important criterion for choosing a printing system is the number of prints against which the costs may be amortized. The specifics of the end use of the prints should also be considered. For these reasons, it is sometimes preferable to choose a procedure having some limited disadvantages or with some requirement for additional skill and care in order to provide the final prints at the most appropriate price.

No attempt has been made in this discussion to include the problems inherent in the printing of photographic sound tracks, transfer of magnetic recordings to prestriped print stocks, and edge-printing of footage numbers or special identification marks. These aspects will need consideration when you choose an appropriate printing system. You will want to investigate the types of tracks that can be provided on certain films, the processes associated with these films, the availability of prestriped print stocks, etc.

CONCLUSION

The printing systems shown in the charts represent those in general use at commercial laboratories. By no means do they include all printing systems, since there are a number of methods that employ highly specialized types of equipment and materials. Also, there are some systems in use that admittedly may be required under special circumstances, but which entail excessive quality losses. Such systems could not be generally recommended and were not shown for this reason.

It should not be inferred that all of the systems shown can give the same quality result. The final print quality is dependent on a number of factors, including the quality of the original footage, the characteristics of the various sensitized materials involved, the kind of equipment used and how well it is adjusted and maintained, the degree of control exercised in film processing, and the care in handling of film.

The choice of a printing system is governed not only by the equipment and facilities available at a given laboratory but also by economic considerations such as the cost of materials and labor in printing and processing, the number of prints desired, etc.

The Eastman Kodak Company is constantly endeavoring to provide new and improved film products, better and simpler processing techniques, and easier and better methods of carrying out the individual steps associated with a given printing system. We hope that these efforts will continue to provide improvements in print quality in the future.

Motion Picture and Education Markets Division

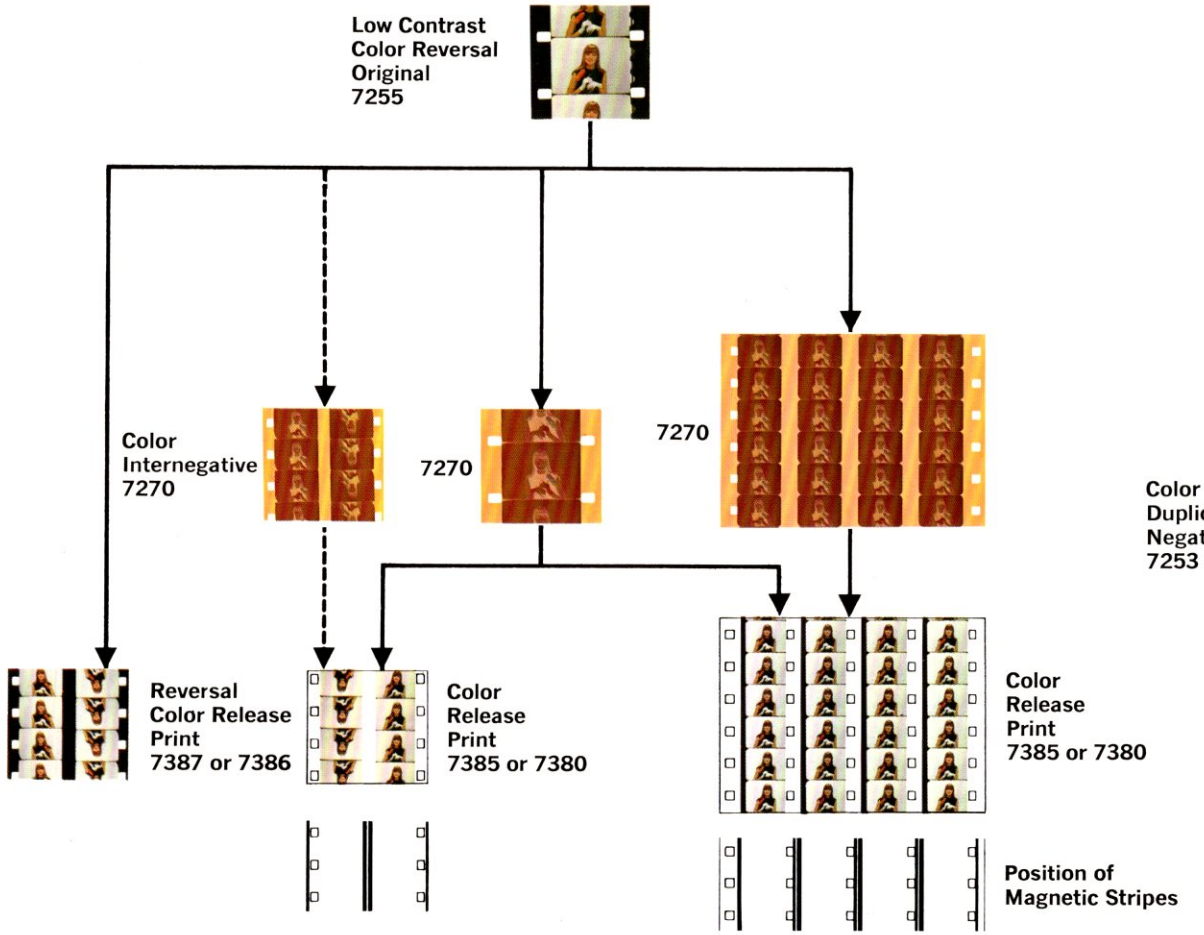
EASTMAN KODAK COMPANY • ROCHESTER, N.Y. 14650

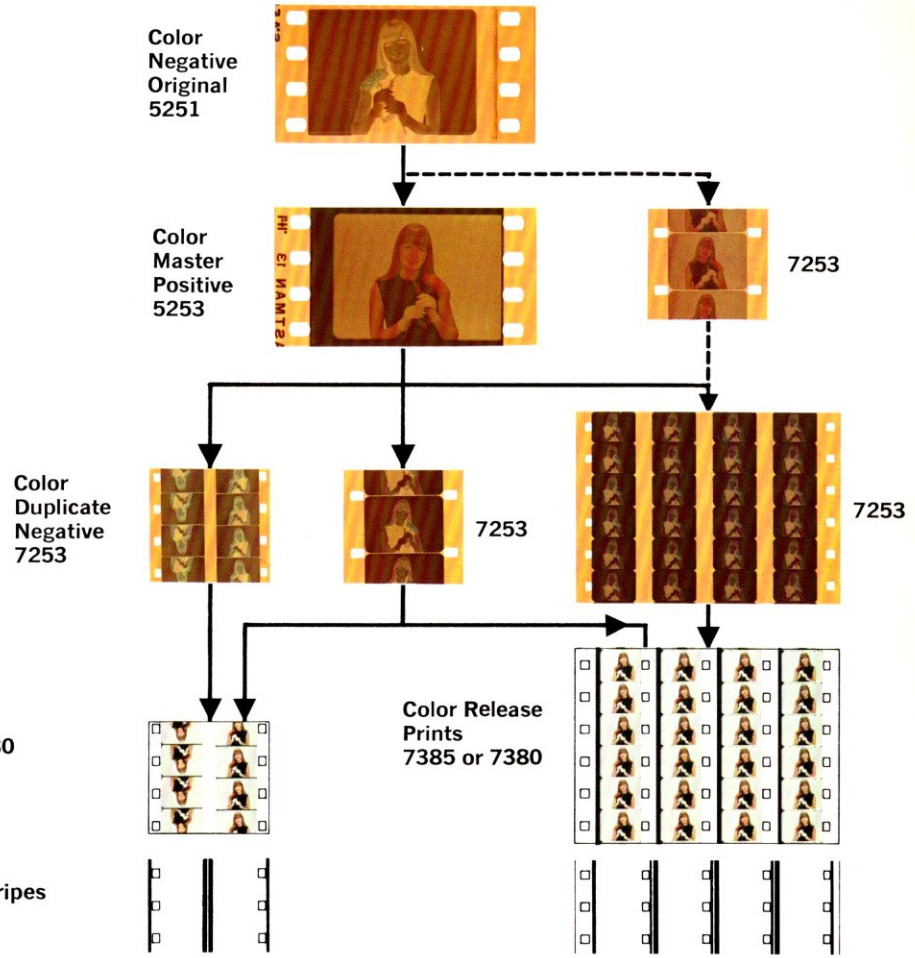
H-25

276-9-67-L-IPS-BE

Printed in the United States of America

Schemes of Printing Super 8 Color Prints from 16mm and 35mm Originals





NOTES

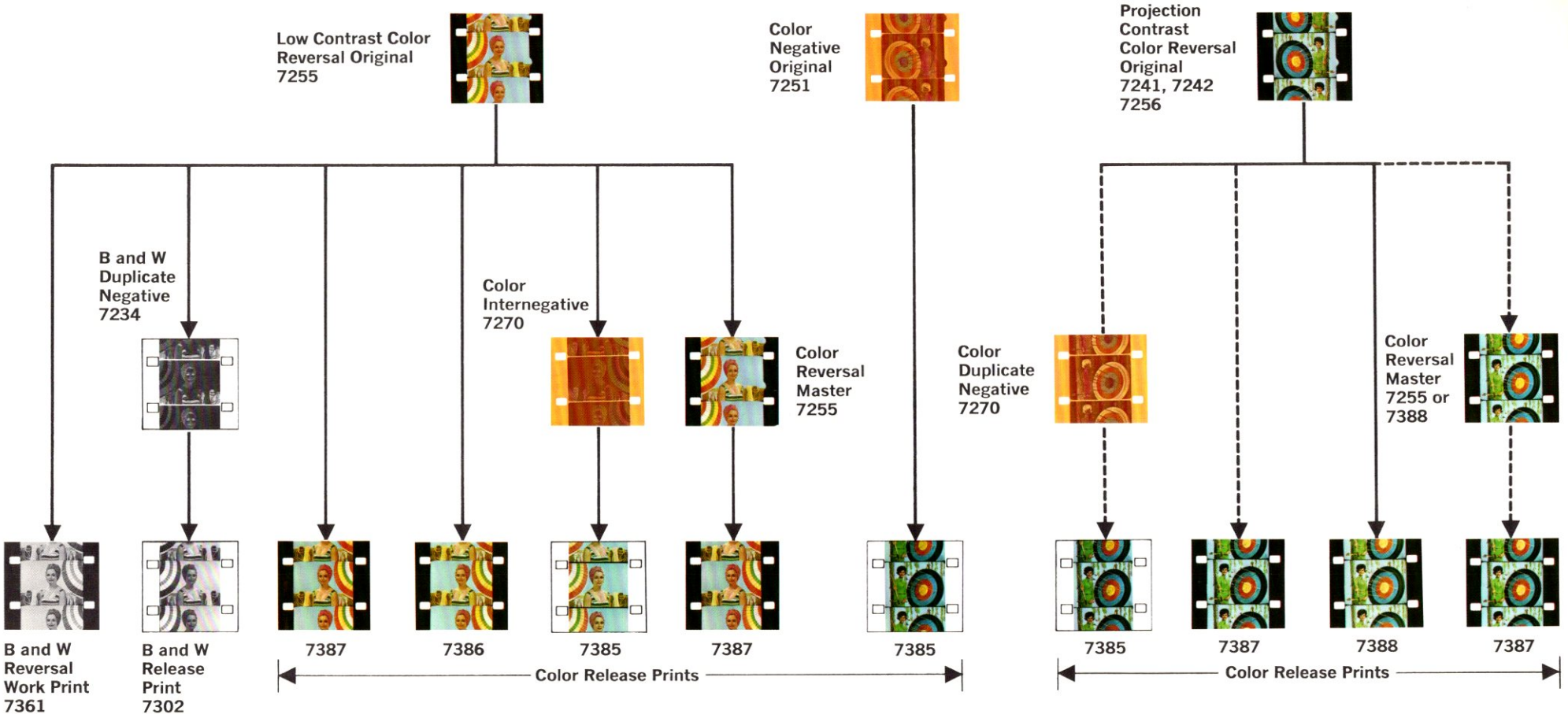
1. Where special effects are to be included, originals may be edited in "A" and "B" rolls. Where a color internegative or color duplicate negative is employed, the special effects can be introduced at this stage.

2. The choice of printing system depends on a number of factors, including the types of printing and processing equipment available, the physical and chemical processing requirements for a given type of film, and certain economic considerations. On this account, certain compromises may have to be accepted.

3. In the above chart, where reduction stages are called for, it is best, in the interest of obtaining the highest definition in the final print, to postpone reduction until the latest practicable stage. The dotted lines shown above therefore indicate, in general, a less preferable method.

4. In all systems shown, the final print stock may be perforated in either the regular 8 or super 8 format and may be magnetically prestriped or unstriped.

Schemes of Printing 16mm Color Prints from 16mm Camera Originals



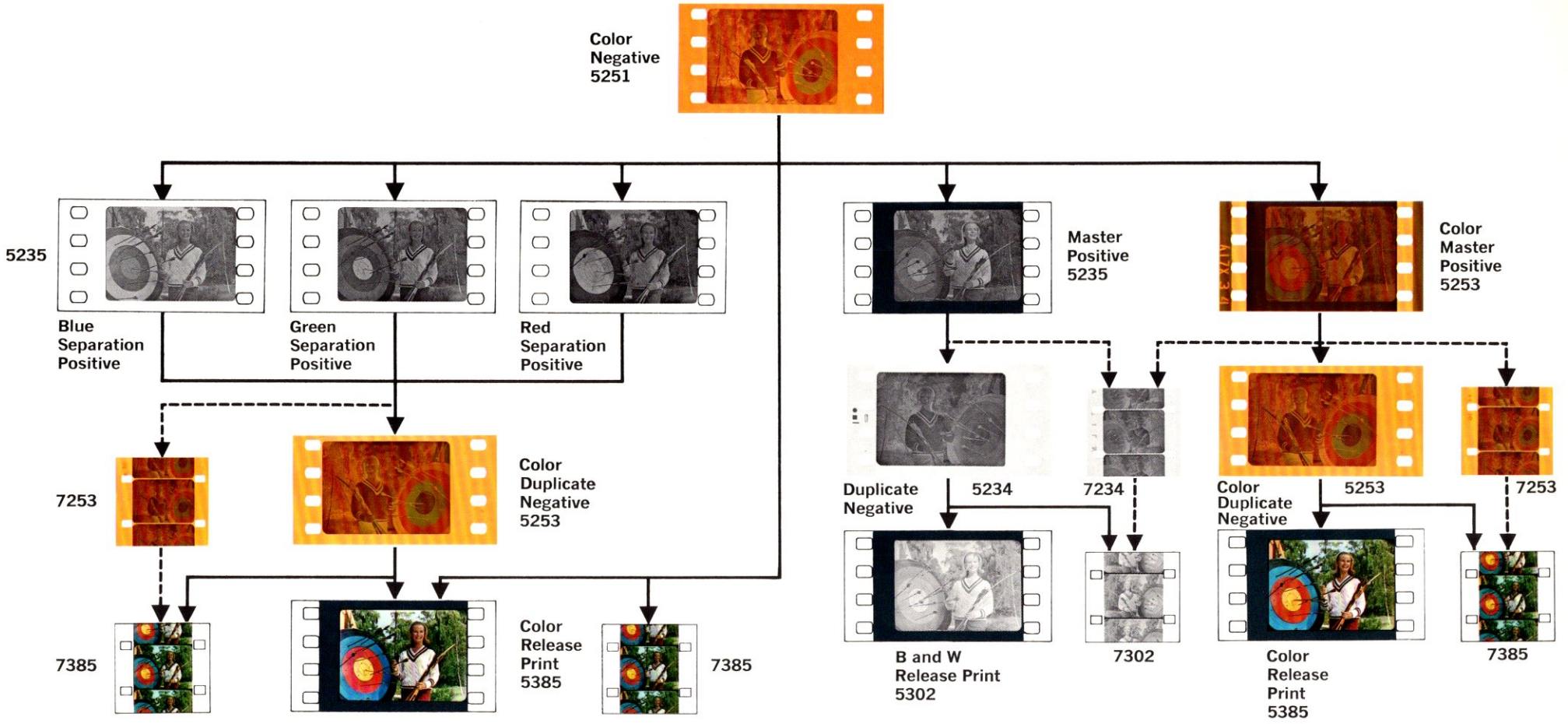
NOTES

1. Where special effects are to be included, originals may be edited in "A" and "B" rolls. Where a color internegative or color reversal master is employed, the special effects can be introduced at this stage.

2. The choice of printing system depends on a number of factors, including the types of printing and processing equipment available, the physical and chemical processing requirements for a given type of film, and certain economic considerations. On this account, certain compromises may have to be accepted.

3. The dotted lines in the above chart indicate, in general, a less preferable method from the standpoints of excessive contrast build-up or reduced definition.

Schemes of Printing 35mm and 16mm Color Prints from 35mm Negatives



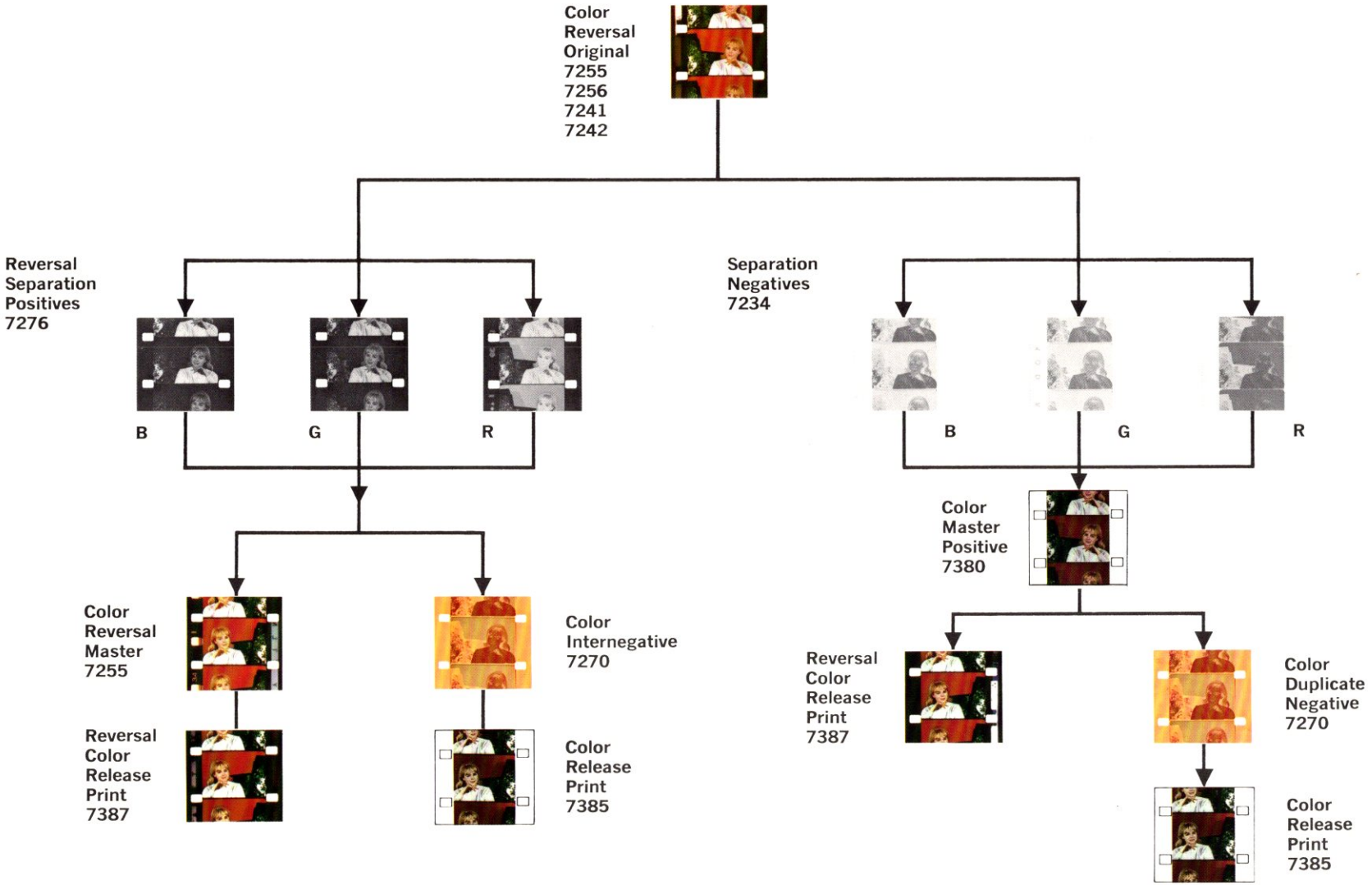
NOTES

1. The edited negative generally consists of both original camera negative and duplicate negative in which special effects have been incorporated. The original and duplicate negative footage may also be edited, in some instances, in "A" and "B" rolls in order to introduce special effects.

2. The choice of printing system depends on a number of factors, including the types of printing and processing equipment available, the physical and chemical processing requirements for a given type of film, and certain economic considerations. On this account, certain compromises may have to be accepted.

3. In the above chart, an image size change indicates optical reduction printing. Where reduction stages are called for, it is best in the interest of obtaining the highest definition in the final print, to postpone reduction until the latest practicable stage. The dotted lines shown above therefore indicate the less preferable method.

Silver Protection Masters from 16mm Color Reversal Originals



Motion Picture Films

Quick Reference Chart

Eastman

PROFESSIONAL QUALITY FILMS FOR MOTION PICTURE PRODUCTION

This brochure is designed to serve only as a quick reference guide in selecting the appropriate EASTMAN and KODAK Motion Picture Films for your film production.

The complete range of Eastman's film products has been designed to cover the needs of all phases of motion picture work. You'll find that Eastman films provide the highest quality and uniformity obtainable—backed by the assurance that every roll is "factory fresh." Eastman films are designed to work together, providing unmatched flexibility for the cinematographer and the laboratory.

For more detailed information on Eastman's films, prices, credit terms and delivery—or for the purchase of film—contact the Motion Picture and Education Markets Division nearest you. Also, our engineers stand ready at all times to offer technical assistance in the use of Eastman products.

EASTMAN and KODAK CAMERA FILMS

Name of Film	Film Code No. (35mm)	Film Code No. (16mm)	General Description	Exposure Index: Daylight	Exposure Index: Tungsten (3200 K)	Code Letter Identification **(Precedes Footage Number)	End Markings (on 16mm 100-ft. and 200-ft. spools)	Footage Numbered*	Frame-line Marked (35mm only)	Magnetic Pre-striping (16mm only)
EASTMAN XT Negative	5220	7220	A very fine-grain, low-speed negative film for general exterior photography, background work and optical work where high definition and low granularity are requisites.	25	20	F	XTN	YES	YES	YES
EASTMAN PLUS-X Negative	4231	7231	High-speed, fine-grain negative film for general production use both outdoors and in the studio.	80	64	H	PXN	YES	YES	YES
EASTMAN DOUBLE-X Negative	5222	7222	A high-speed negative film representing the latest advances in speed-granularity ratio. Suitable for exterior and interior photography under difficult lighting conditions.	250	200	C	DXN	YES	YES	YES
EASTMAN 4-X Negative	5224	7224	An extremely high-speed negative film of medium graininess. It has an exceptional ability to reproduce shadow detail. It is well suited for newsreel work and all photography where the lighting conditions are adverse.	500	400	G	4XN	YES	YES	YES
EASTMAN Color Negative	5254	7254	A multilayer color film suitable for both exterior and interior photography. Balanced for 3200 K tungsten lamps but may be used in daylight with KODAK WRATTEN Filter No. 85.	64 (with WRATTEN No. 85 Filter)	100	E(L.I.)		YES	NO	NO
EASTMAN EKTACHROME Commercial		7255	A low-contrast, reversal-type, multilayer color film for general 16mm color production work both outdoors and in the studio. Recommended for originals from which it is desired to make one or more color release prints.	16 (with WRATTEN No. 85 Filter)	25		EKT-C	YES		NO
KODAK EKTACHROME MS (Daylight)	5256	7256	A medium-speed, daylight-balanced color film processed by reversal to give a positive intended primarily for direct projection. It finds useful application in data and engineering analysis, high-speed camera use and sports photography under low daylight illumination conditions.	64	‡See note at bottom of page		EMS	YES	NO	YES
KODAK EKTACHROME EF (Daylight)	5241	7241	A high-speed, color reversal film for daylight exposure, designed for use under very low illumination conditions or high-speed photography applications where sufficient exposure cannot be obtained with slower-speed color reversal films.	160	40 (with WRATTEN No. 80A Filter)		EF	YES	NO	YES
KODAK EKTACHROME EF (Tungsten)	5242	7242	This film, for exposure at 3200K, serves as a companion to EKTACHROME EF Film, Daylight Type, and is useful for making industrial pictures under existing plant illumination, for nighttime sports photography and for newsreel work.	80 (with WRATTEN No. 85 Filter)	125		EF-B	YES	NO	YES
KODAK PLUS-X Reversal		7276	Fine-grain, medium-speed reversal film for general motion picture production use where reversal films are indicated.	50	40		PXR	YES		YES
KODAK TRI-X Reversal		7278	High-speed reversal film of medium granularity provides excellent halation control. It is useful for photography under difficult lighting conditions both outdoors and in the studio. Especially suitable for television newsreel work and sports photography.	200	160		TXR	YES		YES
KODAK 4-X Reversal		7277	A high-speed reversal film having twice the speed of TRI-X Reversal Film. Especially suitable for photographing news and sports under limited available light and for high-speed photography. Excellent halation control.	400	320		4XR	YES		YES

*All 35mm films are ink-footage numbered except 5254, 5256, 5241 and 5242, which are latent-image footage numbered; all 16mm films are latent-image footage numbered.

‡Exposure to tungsten light not recommended except under emergency conditions. For 3200 K tungsten lamps and with KODAK WRATTEN Filter No. 80A, index is 16.

**35mm films only.

EASTMAN SOUND RECORDING and TELEVISION RECORDING FILMS

Name of Film	Film Code No. (35mm)	Film Code No. (16mm)	General Description	Code Letter Identification (35mm only) (Precedes Footage Number)	Footage Numbered*	Frameline Marked (35mm only)
Fine Grain Sound Recording	5375	7375	A film designed for variable area sound recording using a tungsten light source. May also be used for direct playback purposes.	S	YES	YES
Television Recording	5374	7374	This material is intended for making kinescope recordings of television programs using monitor tubes having either blue (P-11) or ultraviolet (P-16) phosphors.		YES	YES

*All these 35mm films are ink-footage numbered; all 16mm films are latent-image footage numbered.

EASTMAN DUPLICATING FILMS

Color Reversal Intermediate	5249	7249	Designed for making duplicate negatives from negative originals in one printing stage instead of the two stages usually required for duplication.		YES	NO
Fine Grain Panchromatic Duplicating Negative	5234	7234	A low-speed, extremely fine-grain duplicating negative film. May be used to make duplicate negatives from master positives on 5366 and 7366 or internegatives from reversal originals.	D	YES	YES
Fine Grain Duplicating Positive	5366	7366	A blue-sensitive film with extremely low granularity and very high resolution. Intended for making positives from camera negatives. Used as a companion to 5234 and 7234.	D	YES(35) NO(16)	YES
Panchromatic Separation	5235		A very fine-grain film intended for making black-and-white separation positives from color negatives, such as those made on Color Negative Film, 5254.	D	YES	YES
Color Intermediate	5253	7253	A multilayer color film suitable for use in preparing both color master positives and color duplicate negatives from originals on Color Negative Film, 5254.		YES	NO
Color Internegative	5271	7271†	A multilayer color film designed for making color internegatives from color reversal originals. The film is designed for printing onto EASTMAN Color Print Film, 5385, 7385, and 7380.		YES	NO
Direct MP	5360	7360	A low-speed, black-and-white, orthochromatic duplicating film with extremely fine grain, high resolving power, and medium contrast. Used for making a black-and-white duplicate of any black-and-white negative, black-and-white positive, or color print film.			NO

*All 35mm films are ink-footage numbered except 5253 and 5271, which are latent-image footage numbered; most 16mm films are latent-image footage numbered.

†Also supplied perforated for certain super 8 formats.

EASTMAN RELEASE PRINT FILMS

Fine Grain Release Positive	5302	7302‡	A film for general black-and-white production release printing. Also useful for making negative and positive titles, dubbing prints for sound, and kinescope recordings from negative tube images.	NO	YES
High Contrast Positive	5362	7362	A high-contrast material useful for making negative and positive titles, silhouette mattes for process work, and travelling mattes for printer light control.	Note 1	YES
Color Print	5385	7385	A multilayer color film designed for general color release printing from color negatives and color duplicate negatives. May be used in conjunction with 5254, 5271 and 7271; 5253 and 7253.	NO	YES
Color Print		7380‡	A fine-grain multilayer color release print film designed for making 8mm prints using certain systems.	NO	
Reversal Color Print		7387	A multilayer, reversal-type color film designed for making prints from 16mm EKTACHROME Commercial, EKTACHROME ER, EF, and MS, and KODACHROME II, Daylight and Type A, Films. Requires special processing similar but not identical to that used for KODACHROME Films.	NO	
EKTACHROME Reversal Print Film	5386	7386	A reversal-type multilayer color film designed for making prints from low contrast color reversal originals such as those made on EKTACHROME Commercial Film. However, prints can be made from originals on EKTACHROME MS, ER, and EF Films but will be generally higher in contrast.	NO	NO
EKTACHROME R Print Film	5388	7388	A lower contrast reversal-type color film designed for making projection-contrast prints from projection-contrast color reversal originals such as EKTACHROME MS, ER, EF, and KODACHROME II Films.	NO	NO
Reversal Duplicating		7361	A black-and-white reversal film intended for making prints from black-and-white or color positive originals. Suitable for making work-prints for editing purposes. Can be processed in same solutions as used for other black-and-white reversal films.	NO	

Note 1—Type 5362 with positive perforations is not footage numbered; 5362 with negative perforations is footage numbered; 7362 is latent-image footage numbered.

‡Also supplied with magnetic prestriping for certain 8mm formats.

LEADER STOCKS

Name	Code No.	Description	Thickness	Length	Perforations
No. 4 Clear Leader	5980 7980	Clear, transparent uncoated support.	0.0050 in.	35mm x 1015 ft. 16mm x 1220 ft.	Negative or Positive or Unperforated. Perforated One Edge, Two Edges, or Unperforated.
No. 6 Black-and-White Opaque Leader	5981 7981	Opaque, black on one side and white on other side. Satisfactory for use in various types of processing machines.	0.0083 in.	35mm x 800 ft. 16mm x 800 ft.	Oversize Positive or Unperforated. Oversize Perforated Two Edges, Perforated One Edge, or Unperforated.
No. 6 Green Leader	5982 7982	Green, transparent, uncoated support. Recommended for use in processing machines where long leader life is desired.	0.0095 in.	35mm x 800 ft. 16mm x 800 ft.	Oversize Positive or Unperforated. Oversize Perforated Two Edges, Perforated One Edge, or Unperforated.

STANDARD ROLL LENGTHS (IN FEET)

	35mm		16mm	
	Color	Black-and-White	Color	Black-and-White
Camera Films**	100, 200, 400, 1000 (special order, 2000)	100, 200, 400, 1000, and in some cases, 2000	100, 200, 400, 1200	100, 200, 400, 1200
Release Print Films	1000, 2000 (special order, 3000)	1000, 2000 (special order, 3000)	1200, 2000	400, 1200, 2000
Sound Recording and Television Recording Films	—	1000 (special order, 3000)	—	400, 1200, 2400
Duplicating Films	1000, 2000	1000, 2000	1000, 1200, 2000	400, 1200, 2000

**Camera films are normally supplied on spools for loading in subdued light when purchased in 35mm x 100-ft. or 16mm x 100-ft. and 16mm x 200-ft. lengths. All other lengths of camera films and other film types are supplied on cores for darkroom loading.

WINDING AND PERFORATING SPECIFICATIONS

To meet the requirements of various types of equipment and operating procedures in trade use, and to ensure optimum performance characteristics, specific types of windings and perforations are provided for different products. For detailed information, refer to the individual specification sheets which are available upon request.

For detailed information about performance, prices, credit terms and delivery—or for technical service—contact our nearest office.

MOTION PICTURE AND EDUCATION MARKETS DIVISION

EASTMAN KODAK COMPANY • ROCHESTER, NEW YORK

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