



HANDBOOK ON INDUSTRIAL PROPERTY INFORMATION AND DOCUMENTATION

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STANDARD ST.7/B

RECOMMENDED STANDARD FOR 16MM ROLL MICROFILM FOR EXCHANGE BETWEEN PATENT OFFICES

INTRODUCTION

1. This Standard relates to 16 mm roll microfilm when used as a medium for exchange of patent documents between patent offices. Its purpose is to provide a basis of mutual satisfaction in the utility of exchanged microfilm by establishing minimum acceptable quality criteria for both the photographic film and the document images, and by establishing criteria for the manner of supplying exchange microfilms.
2. This Standard is based on the assumption that camera negative film would not be offered for exchange, but, rather, some subsequent negative generation of film—most likely not more than 3rd generation. It is recognized, accordingly, that attainment of the specified minimum quality in the image generation which is offered for exchange requires commensurate quality in the earlier generation(s), giving due regard to the nominal losses which occur in image transfer processes.

DOCUMENT AND IMAGE APPEARANCE

Arrangement of documents in numerical microfilm files

3. Documents shall appear on the film sequentially according to the numbering of the documents. Pages of each document shall appear in the same sequence as they are presented in the original document.
4. Where a continuous series of consecutive document numbers (closed series) is represented on the film, a target shall appear in place of any number which is not, in fact, represented by a document. When a document is known not to exist, a target shall so indicate. Where documents are microfilmed in a series of non-consecutive numbers, a target representing each missing number is not necessarily required, unless a document is known in fact not to exist.

Arrangement of documents in non-numerical files (i.e., classified files or random numerical files)

5. No specific provision is made in this recommendation with regard to the arrangement of documents in non-numerical microfilm files.

Image arrangement and reduction ratio

6. Images in exchange microfilm should appear with the lines of print parallel to the edges of the film ("B" or comic format).
7. The preferred arrangement is that in which the respective document pages appear as individual images spaced approximately equidistant from each other (see Appendix I, 1B arrangement). Where the documents originally filmed were in bound volumes, individual images may comprise more than one page (see Appendix I, 2B arrangement).
8. The reduction ratio shall be within the range 20:1 to 25:1 and shall be uniform throughout the microfilm.
9. Fold-outs which are smaller than the sheet size of the document shall appear at the same reduction ratio as the rest of the document. Fold-outs which are larger than the sheet size of the document shall appear in sections. The sections shall appear at the same reduction ratio as the rest of the document and shall be arranged from left to right and, if necessary, from top to bottom, in a manner to provide an overlap of adjacent edges.

Targets

10. The first frame on any roll of film shall be a target containing a pictogram which denotes the beginning of the film, but not to the exclusion of the word "START." The last frame shall be a target containing a pictogram which denotes the end of the film, but not to the exclusion of the word "END," preferably with the instruction "PLEASE REWIND FILM." All characters and pictograms appearing in these targets shall be at least 2 mm high on the film.



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11. The above-mentioned pictogram denoting the beginning and the end of the film shall be in accordance with ISO recommendations (see Appendix II).

12. Immediately following the "START" target, there shall appear one or more targets which show at least the following information in characters at least 2 mm high on the film:

Country of publication of the documents
Kind of documents
Number of the first document on the film.

Note: See also in this respect the Recommendation for a Standardized Method of Identifying Roll Microfilm Files of Patent and Patent-Related Documents (WIPO Standard ST.7/D), and in particular paragraphs 7 and 9 thereof.

In addition the following optional targets are recommended:

Number of the last document on the film
Reel or series number
Reduction ratio
Resolution test target
A section of a centimeter scale (to facilitate accurate reconstruction of original size paper copies)
Year of the filming.

When a microfilm is exchanged as a master film intended for use for production of copies, a resolution test target, filmed with the same equipment and at the same time as the documents, should appear on this microfilm.

13. Targets, e.g., pictograms, shall be used as a warning of any condition within the content of the film that constitutes an exception, e.g., if more than one camera is used for filming the different frames on the microfilm.

14. Appearance of targets on a reel of film for the purpose of controlling quality, production, or for other reasons is acceptable.

Splices

15. Exchange microfilms should preferably be free of splices.

16. If for any reason splices are necessary, heatweld butt-end splices are preferred because they are generally stronger and less bulky than other types of splices and less likely to cause trouble.

17. If cemented splices are used, the cement shall not contain acetic acid or other chemicals which may adversely affect the longevity of the film.

18. Splices shall be checked to assure that there is good adherence; that no detrimental air bubbles or foreign particles are trapped; and that no part of an image or document mark (blip) is made illegible.

Workmanship

19. Microfilm produced in accordance with this recommendation shall be free of scratches, holes in the emulsion or base, finger marks, or any other defect that might adversely affect the quality of reproduction made from microfilm.

Document marks (blips) for use in image retrieval systems

20. Microfilm containing document marks (blips) is acceptable as exchange microfilm if it conforms with the recommendations herein.



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FILM SPECIFICATIONS AND PROCESSING

Film type

21. Exchange microfilm shall be safety photographic film as defined in ISO 543-1974, "Definition and Marking of Safety Film for Motion Picture Uses," or the applicable national standard for the producing office (e.g., ANS PH1.25-1965, "Specification for Safety Photographic Film"). Safety film ordinarily bears a legend to this effect along its outer edges.
22. Microfilm intended for permanent preservation shall be made with a cellulose ester (triacetate) or polyester base film stock which meets an applicable national standard for such products as, for example, respectively, ANS PH1.28-1973, "Specifications for Photographic Film for Archival Records, Silver-Gelatin Type on Cellulose Ester Base," or ANS PH1.41-1973, "Specification for Photographic Film for Archival Records, Silver-Gelatin Type on Polyester Base."
23. Unperforated film shall be used.
24. Dimensions of the film, processed and unprocessed, shall meet the specifications set forth in applicable national standards as, for example, ANS PH5.3-1973, "Specifications for 16 mm and 35 mm Silver-Gelatin Microfilms for Reel Applications," Section 4.

Processing

25. Exposed film should be processed in accordance with the film manufacturer's recommendations.
26. In the case of silver halide films, developers designed to produce stained or colored images and hypo-eliminators shall not be used. Hypo-clearing agents which do not contain oxidizing agents may be used.
27. Film exchanged as a permanent record shall not contain residual thiosulphate in any concentration exceeding 1.0 microgram per cm², as measured in accordance with the Methylene Blue method of analysis.
28. Microfilm which is not a permanent record, but is expected to be serviceable for a limited period—e.g., 25 years—shall not contain residual thiosulphate in excess of 4 micrograms per cm² or exceed a density difference of 0.08 in the Silver Densitometric method. These test methods and the meaning of their measurement results are described in ANS PH4.8-1971, "Methylene Blue Method for Measuring Thiosulphate and Silver Densitometric Method for Measuring Residual Chemicals in Films, Plates, and Papers."
29. The older so-called Ross-Crabtree measurement method is acceptable as specified in ISO 417-1977, "Methods for Determining Thiosulphate and Tetrathionate in Processed Black-and-White Photographic Film, Plates, and Papers."

PHOTOGRAPHIC CHARACTERISTICS

30. The quality of images in exchange microfilms should be such as to permit the derivation of at least two subsequent generations of useful images in logical sequence—i.e., film-to-film or film-to-paper.

Image quality

31. Exchange 16 mm roll microfilm should have a legibility index quality ("q" value) of at least 7 in accordance with the Quality Index Equation

$$R = \frac{qr}{e}, \text{ where}$$

R = the resolving power in lines per millimeter on the film, determined in accordance with ISO Standard 3334-1976 ("ISO Test Chart No.2 – Description and use in photographic documentary reproduction"); see also NBS Microscopy Resolution Test Chart 1010A;



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e = the height in millimeters of the lower case “e” in the type copied;

r = the reduction ratio; and

q = an arbitrary “quality index.”

32. The diagram reproduced in Appendix III may also be used for determining the quality characteristics desirable for the camera negative or subsequent generation thereof up to the generation used for exchange purposes.

Density

33. The density difference in the micro-image between the image areas of the background paper and the ink shall be such that two subsequent generation contact, reduction film copies and enlargement paper prints can be made without appreciable loss of information.

34. This condition shall be considered fulfilled in exchange microfilm if the density difference between the image and background areas of documents of good paper and ink is at least 1.1 ± 0.2 where the density of the base plus fog of unexposed areas is no greater than 0.15.

35. These values may not be attainable in cases where the contrast between the paper and ink images of the documents originally microfilmed is substantially diminished due to aging, discoloration, or other effects of deterioration or inherent toning of the paper, or transparency of the paper. In such event, a declaration to that effect and a showing of the quality of the subsequent generations may comprise the basis for representing the quality of microfilm offered for exchange, in lieu of conformity with this Standard.

36. Density values shall be determined by measuring with a properly calibrated densitometer the amount of diffused light transmitted through the film. A method for taking such measurements is described in ANS PH2.19-1959) “Diffuse Transmission Density” (ISO 5-1974).

MANNER OF SUPPLYING EXCHANGE MICROFILM

37. Exchange microfilm shall be provided on metal or plastic reels which meet the applicable national standard of the producing office, or, in the absence thereof, a standard such as ANS PH5.6-1968, “Dimensions for 100-Foot Reels for Processed 16 mm and 35 mm Microfilm.” Reels of film shall be supplied in containers of appropriate size which provide reasonable protection of the film against ambient atmospheric hazards (e.g., dirt, dust, fumes, etc.) and afford convenience in handling.

38. Containers shall open easily and shall be made of material free from chemicals harmful to the film. Each container shall be labelled in accordance with WIPO Standard ST.12. If the reel is part of a set, the label shall also give the reel number and an indication of the bibliographic contents of the particular reel (inclusive dates, patent numbers, etc.).

39. The image-containing portion of a reel of film should nominally be within the range of 28-30 meters.

40. A minimum of 45 cm of image-free film shall be provided, respectively, at the beginning (leader) and end (trailer) of each reel of film.

41. Film, including leader and trailer, shall be wound on reels so as to leave at least 10 mm of the radius of the reel flange free of film. Care shall be taken not to wind the film too tightly on the reel.

42. Film shall be wound as shown in Appendix IV to this Standard, so that the image F appears in the correct position (upright and not inverted) when read by the eye (see in this respect ISO Standard 1116-1975).

43. Rubber bands containing sulfur compounds shall not be used on microfilm reels. Strips of paper free of chemicals harmful to the film, and furnished with strong string ties, are suggested for holding the microfilm on the reels, if needed.

44. No provision is made herein concerning the exchange of 16 mm microfilm in self-contained units—e.g., cassettes, cartridges, magazines, etc.—designed to be inserted into readers, reader-printers, or image retrieval devices.

[Appendix I follows]



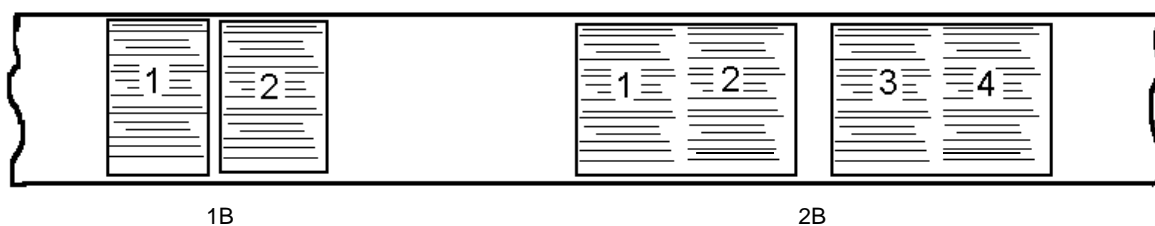
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APPENDIX I

DEFINITIONS OF 1B AND 2B ARRANGEMENTS IN THE COMIC FORMAT



- 1B arrangement: single page of the document with the lines of the print parallel to the edges of the film.
- 2B arrangement: two pages of the document side by side with the lines of print parallel to the edges of the film.

[Appendix II follows]



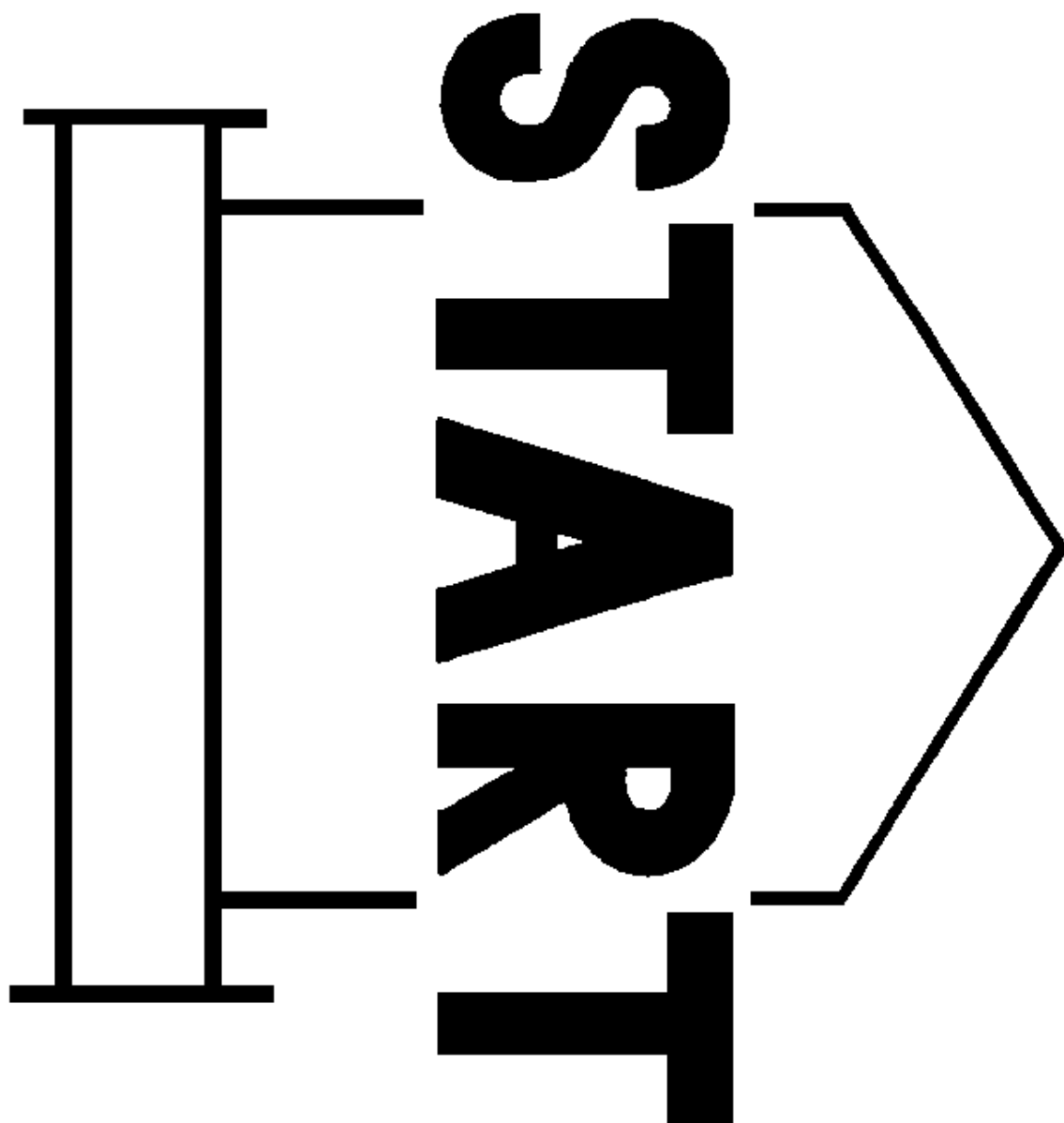
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APPENDIX II

Symbolic information	means
	Beginning of film Position of the symbol on the film
	End of film Position on the symbol on the film
	Original difficult to read
	Damaged document
	Photographic ratio changes from this point
 <i>Alternative</i>	 Colored original
	Size of series of documents changes from this point
	Supplement
	Wrong information
	"n" pages are missing in document
	Wrong exposure (possibly punched with punch pliers)



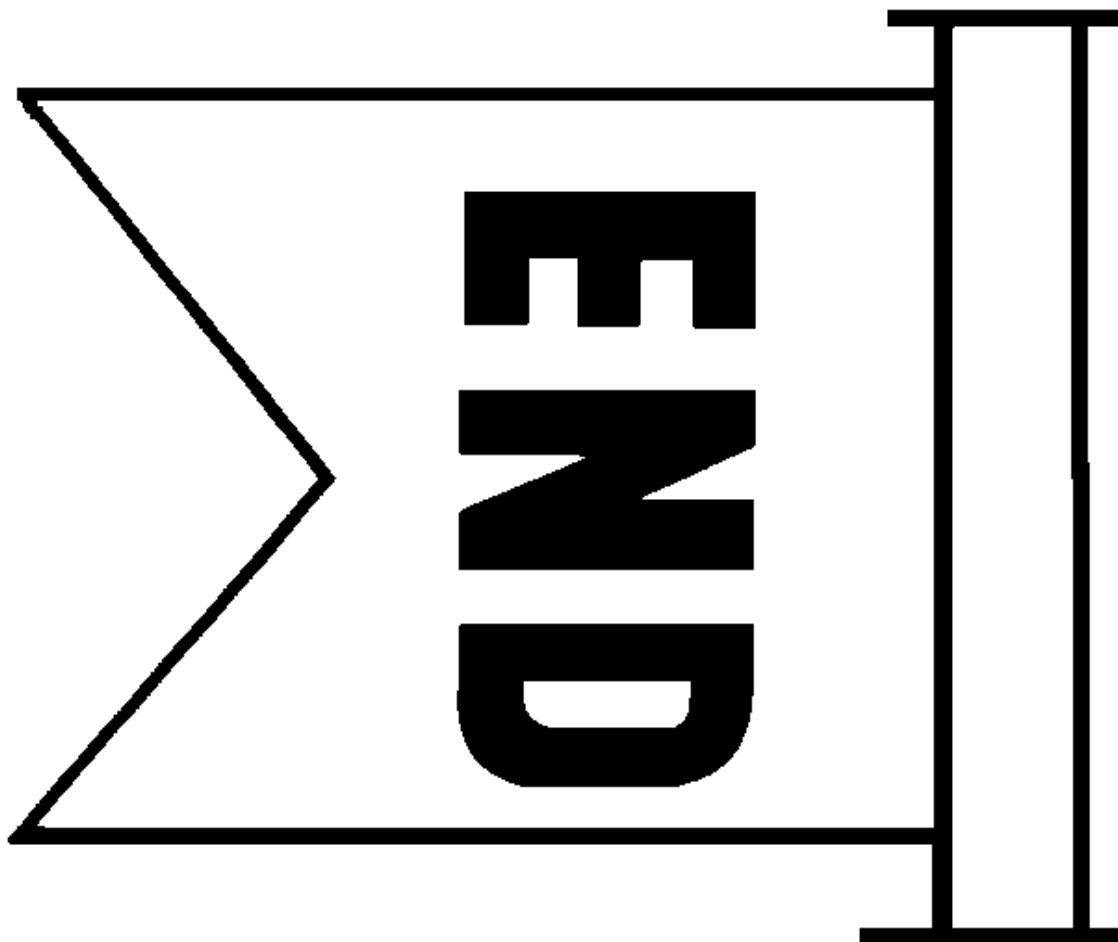


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[Appendix III follows]



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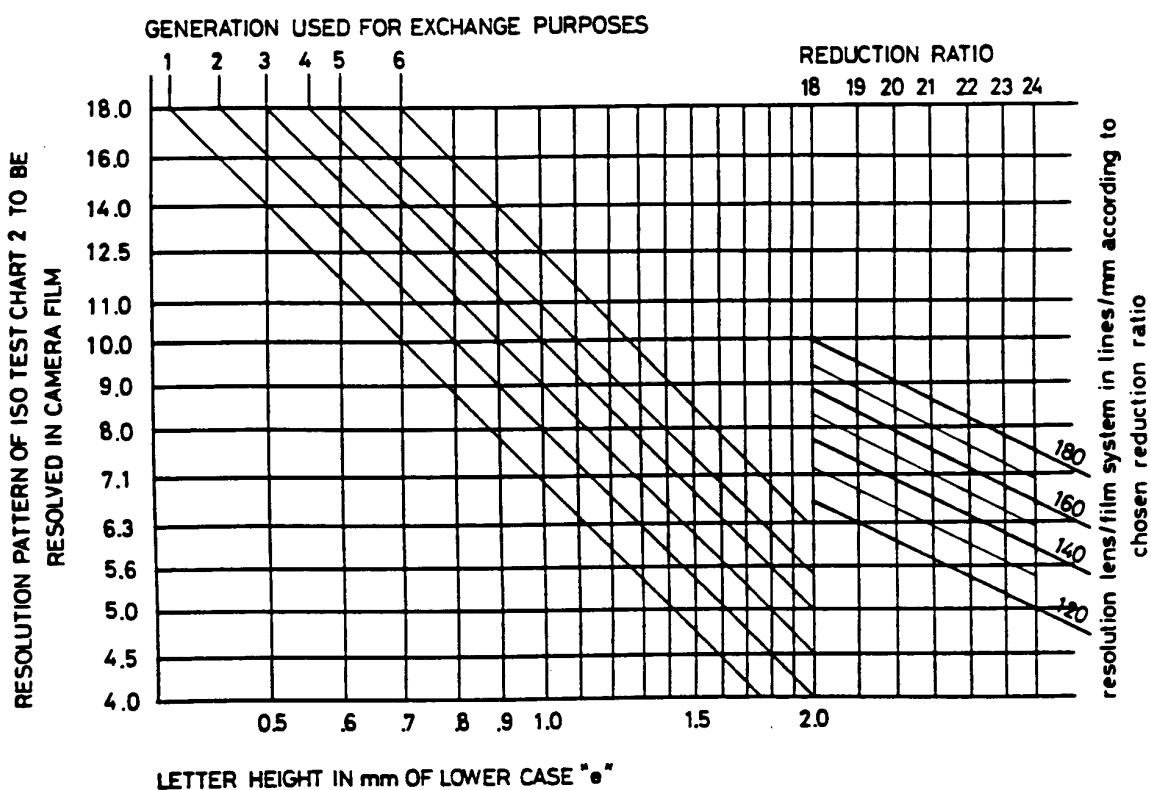
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APPENDIX III

DIAGRAM FOR DETERMINING THE QUALITY CHARACTERISTICS
DESIRABLE FOR THE CAMERA NEGATIVE
ON THE BASIS OF THE GENERATION USED FOR EXCHANGE PURPOSES

LEGIBILITY INDEX QUALITY (q value) 7 .

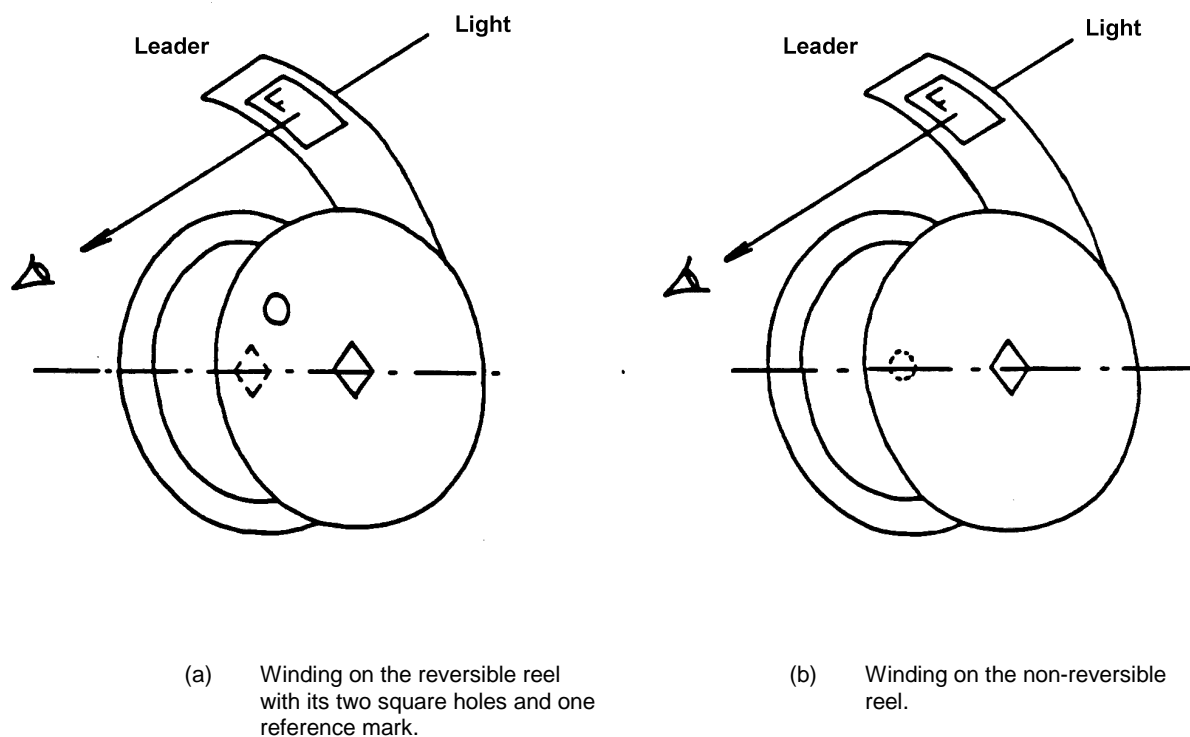


[Appendix IV follows]



APPENDIX IV

DIAGRAM SHOWING THE WINDING OF THE FILM ON THE REEL



[Standard ST.7/C follows]