

## DIVISION OF STATE ARCHIVES AND PUBLIC RECORDS



GUIDE TO  
MICROGRAPHICS  
STANDARDS

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Chapter \_\_\_\_\_

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## TITLE

## INTRODUCTION

1000 PURPOSE

This guide explains what microfilm is, how to start a microfilm program and how to be sure your processed microfilm meets archival standards. Except as noted, the guide addresses the microfilming of permanent records - those wherein the information must be retained permanently.

With few exceptions, permanent records may be destroyed after an acceptable microfilm has been made. However, no public record may be destroyed without written authorization from the State Archives.

1001 SCOPE

This guide applies to all departments, divisions, boards, bureaus, commissions, institutions and agencies within the three branches of state government; it also applies to all counties, municipalities, special districts, school districts and other political subdivisions.

1002 GUIDE CHANGES

This guide is issued in loose-leaf format to facilitate changes. Those pages containing changes will be annotated by the pertinent change number and date of issuance.

1003 STATE ARCHIVIST RESPONSIBILITIES

-- Develop and establish micrographic standards and procedures.

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## INTRODUCTION

- Provide professional assistance, counsel and quality control services to agencies relating to micrographics techniques, systems and programs.
- Conduct training seminars and workshops in the application of micrographics standards and procedures.
- Preserve and protect microfilm deposited in his custody.
- Provide security storage facilities with the correct temperature and humidity.

1004 AGENCY RESPONSIBILITIES

- Consult with the State Archives concerning plans to microfilm, proposed system and equipment
  - State agencies-obtain authorization to microfilm by following procedures outlined in Chapter II of "Records Management Manual."
  - Local Government agencies-obtain authorization to microfilm by inventorying your records and sending State Archives a copy of your inventory. A sample inventory sheet is included in Exhibit I (See page A1-1).
- Maintain a microfilm log similar to that shown in Exhibit II, (See page A1-2), to record camera activity and keep track of roll numbers and records series filmed.

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## INTRODUCTION

- Inspect your own microfilm and certify to the continuity of the filmed record and legibility of the information. If, for any reason, any image is not completely readable, or any portion of the series has not been filmed appropriate corrections or documentation must be made to insure standards and to comply with Title 24-80-107, CRS 1973, as amended, before transfer/security deposit to the State Archivist.
- Forward the first roll of the original camera film to the State Archives before continuing with the project.
- Arrange for instruction of your microfilm personnel by vendor(s) in the use and maintenance of microfilm equipment.
- Make any corrections requested by the State Archives in their Quality Control Review Report.
- Contact the State Archives for authorization to make any changes in the established microfilm program or equipment.

1005 COST BENEFIT ANALYSIS

Before you implement a micrographics program you should:

- Compare the cost efficiency of your present system with proposed systems.
- Analyze need for documents or information.
- Consider the alternatives to micrographics.

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- Examine alternative methods of creating microfilm.
- Compare for compatibility with microfilm systems already in use.
- Check out space requirements.
- Analyze requirements for temperature, humidity, electricity, plumbing.
- Determine need for additional satellite equipment.
- Advise the State Archives of the type of equipment, manufacturer and model you plan to use.
- Carefully check your vendor contract for purchase of equipment and services to determine that the product and services you will receive meets archival standards for the reproduction and preservation of permanent records.

2000 GENERAL

The State Archives applies industry-wide micrographic standards as formulated by the National Bureau of Standards and the American National Standards Institute. Whether you plan to film and/or process microfilm in-house or use an outside service bureau, careful adherence to these standards will ensure that your program produces optimum results.

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## STANDARDS

Specific standards to be dealt with herein include those that pertain to microfilm stock, preparation of documents, microfilm roll documentation, retakes, processing, density, film inspection, microfilm box documentation, storage and equipment maintenance.

2001 MICROFILM STOCK

Standards call for the raw microfilm stock to be safety-base silver halide film. Such film will be marked with the word "safety", the symbol "S" or with a triangle at intervals along the edge. Before purchasing raw film, make reference to these standards in your purchase order or contract.

As long as the first generation or original camera film meets these archival requirements, any subsequent copies may be silver, diazo, vesicular or any other type of safety base, positive or negative, film.

2002 PREPARATION OF DOCUMENTS

Documents should be "camera ready" before filming. The operator is more likely to make mistakes if he or she is operating the camera and sorting at the same time. "Camera ready" means:

-- Organize your documents in proper order.

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## STANDARDS

- Remove all paper clips and staples.
- Flatten folded documents.
- Unfold folded corners on documents.
- Attach very small documents to a 8½" X 11" sheet of paper so they will not get lost in the machine.
- Back onionskin or other translucent documents with 20 lb. white paper to make them more legible.
- Repair torn documents with transparent mending tape. DO NOT use cellophane tape.

2003 MICROFILM ROLL DOCUMENTATION

Standards call for each roll of film to be documented in conformity with a standard format for identification and retrieval of information, and for it to be acceptable in court. Instructions and samples are included in Exhibit III (See pages A1-3 thru A1-10).

2004 PROCESSING

Standards call for the processing to be conventional (develop, rinse, fix, wash) with a residual thiosulfate ion concentration not to exceed 0.7 micrograms per square centimeter in a clear area.

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The American National Standards Institute standard PH 4.8 includes a methylene blue test to determine the amount of sodium thiosulfate (fixer) remaining on the microfilm after the final wash of the developing process. This information is important because residual thiosulfate causes stained and faded images if left on the film. Ensure that in your contract with a service bureau for film processing the performance of this test is specified. The State Archives may require a statement that such testing has been conducted.

If processing is done in-house, it is essential that the processor manufacturer's instructions regarding processing procedures (chemicals, temperature, replenishment, cleaning, etc.) be followed to the letter to ensure the film meets archival standards.

If you contract with a commercial firm for processing and/or duplicating your film, be sure you include instruction on what to do with the film after it is processed.

We recommend that you have the film returned to you before duplicate copies are made. This will allow you to check the film for retakes or other problems.

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## STANDARDS

If the film is satisfactory, send it out for your duplicate working copy, with instructions that the original film be sent to the State Archives and the duplicate copy to you. If there are errors or problems with the film, make the necessary corrections and then arrange to have the duplicate copy made.

2005 DENSITY

Density is a numerical expression of the darkest area on the film. The allowable density range of camera copy microfilm is .75 to 1.4 on the density target; the optimum is .9 to 1.0. The density target must be a clean sheet of non-watermarked white 20 lb. paper which appears at the beginning of each roll of film.

Even though the density may vary throughout the roll, it is not necessary to take corrective action if it is due to differences in the color of the paper stock, age or condition of the original documents.

The exposure reading (voltage) should be the same for the succeeding record material as it is for the density target. See Exhibit IV (See pages A1-11 thru A1-12) for possible reasons for density variations.

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2006 INSPECTING PROCESSED FILM

Standards call for each processed roll of film to be inspected on your reader to be sure the filmed images are legible and in order. If not, retakes must be made.

Since the State Archives does not inspect film specifically for legibility and order, you should inspect each roll for common defects such as:

- Blurred or out-of-focus images.
- Folded corners.
- Scratches and lines on film.
- Overlaps.
- Stretches or contractions.
- Chemical residue.
- Fog.

Types of defects and ways to correct them are shown in Exhibit V (See pages A1-13 thru A1-17).

2007 RETAKES

Retakes are necessary to correct any errors or defects on the film found during inspection. Corrections should be made as soon as possible because the State Archives will not authorize destruction of filmed originals until the entire roll of microfilm meets standards.

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## STANDARDS

Instructions for filming retakes and the documentation of retakes are included in Exhibit VI (See pages A1-18 thru A1-20).

2008 MICROFILM BOX DOCUMENTATION (LABELS)

Standards call for microfilm box documentation to include:

- Roll number: Each record type should start with roll #1 and run consecutively.
- Agency name.
- Record title: Use exact wording as that on the authorization issued by the State Archives.
- Identification of beginning and ending documents on roll: by date, alpha sequence, numerical sequence or other.
- Retakes for another roll of film, if applicable.

A sample box label is shown in Exhibit VII (See page A1-21).

2009 QUALITY CONTROL REVIEW SERVICE

Before you are authorized to destroy original documents, your film must be reviewed by our Quality Control Unit for conformity to standards. This service will prepare and send to you a Quality Control Review Report, as described in Exhibit VIII (See pages A1-22 thru A1-23).

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If the film is acceptable, the report will be signed by the State Archivist and the destruction of originals will be authorized. If the film is unacceptable the report will be returned to you unsigned, specifying what corrections are needed. After the defects have been corrected you will receive a signed, approved report.

2010 STORAGE

Since one of the primary reasons for filming records is for security of the record information and to maintain the evidential value, the film should be stored in an area removed from the original documents. The State Archives is the only legal custodian of public records other than the originating agency, and, since it has facilities which meet industry standards for storage of microfilm, we recommend that agencies store their permanent record film with us. We will store your microfilm at no cost, but we do require that the microfilm is:

- Roll form.
- First generation or camera copy of silver halide film (Silver halide microfilm is stored separate from other types of film because of damaging chemical interactions).
- Permanent records.

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## TITLE

## STANDARDS

2011 EQUIPMENT MAINTENANCE

Agencies are encouraged to maintain good housekeeping practices to assure optimum quality in the production of microfilmed records.

2011.1 MICROFILMER (CAMERA)

- Clean the machine at least once a day, and more often if material being filmed is dusty or dirty.
- Clean glass guides (rotary camera only) first thing in the morning and again at noon.
- Turn on the lights after unloading the camera and inspect the interior for dust or other foreign objects which can be blown out with a rubber syringe or puffer.
- Cover at night and during other extended periods of non-use.

2011.2 READER AND READER PRINTER (OTHER EQUIPMENT)

- Maintain scheduled cleaning program.
- Follow manufacturer's recommended procedures.
- Be very careful with lenses, condensers and other optical glass surfaces.
- Cover at night and during other extended periods of non-use.

2012 COMPUTER OUTPUT MICROFILM (COM)

Standards call for Computer Output Microfilm for transfer/security deposit to the custody of the State Archives to be:

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- Produced on silver halide film (original camera copy).
- Deposited in roll form. (Specify this in your contract).
- Numbered in sequential order.
- Accompanied by written certification signed by the agency head, as shown in Exhibit IX (See page A1-24).
- Documented to show agency name, identity of record series and period covered.
- Have a density of 1.3 or higher.

2013 WORKSHOP

To provide you with additional guidance the State Archives offers monthly microfilm workshops for microfilm and supervisory personnel of all state and local government agencies. These sessions, in conjunction with use of the Guide to Micrographics Standards, will give you better understanding of the use of microfilm and the importance of standards.

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## STANDARDS

2014 RESOLUTION

DEFINITION: The ability of optical systems and photo-materials to render visible fine detail of an object; a measure of sharpness of an image, expressed as the number of lines per millimeter discernible in an image.

Resolution in processed microfilm is a function of film emulsion, exposure, camera lens, camera adjustment, camera vibration and film processing.

Resolution is measured by examining a microfilmed resolution test chart under a microscope to determine the smallest pattern in which lines can be distinguished both horizontally and vertically.

Exhibit X, Page A1-25, shows a typical test chart for determining resolution. Standards call for a test chart to be filmed along with the rest of the documentation at the beginning of each roll (See Exhibit III, Page A1-3). State Archives will check the chart to ensure that the film meets standards for definition and clarity.

Test charts are available from National Micrographics Association or check with your vendor.

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## TITLE

## STANDARDS

2015 STEP-TEST PROCEDURES

Standards call for a step-test to be taken to ensure and/or correct any problems with the voltage density. The procedures for making this test are as described in Exhibit XI (See pages A1-26 thru A1-27).

2016 MICROFICHE JACKETS

Standards call for microfiche jackets to have film

- Produced of silver halide film and processed to meet archival requirements without employing hypo eliminators.
- Inserted in microfiche jackets fabricated from polyester and bonded by ultra-sonic welding or heat sealing. Adhesive bonded jackets are not acceptable.
- Reduction ratio should be 24:1.
- Have a density of .75 to 1.40.
- Documented to reflect the agency name, identity of the record series, dates for the period covered, numerical or alpha sequence and the microfiche pagination number in sequential order as shown in Exhibit XII (See page A1-28).
- Accompanied by a written certification signed by the agency head, as shown in Exhibit XIII (See page A1-29).



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Page A1-1

TITLE EXHIBIT I - INVENTORY OF RECORDS

It is necessary to have background information to establish your records program. Please indicate in the appropriate column what action you wish to take.

INVENTORY OF RECORDS ( SUGGESTED FORMAT)

NAME OF TITLE OF RECORD SERIES	EARLIEST DATE	HOW LONG DO YOU WANT TO KEEP IT	EVENTUAL DISPOSITION OF ORIGINAL DOCUMENTS			
			DESTROY	M/F DESTROY	M/F RET	PERM RET
VOUCHERS	1942	3 Years	X			
MINUTES OF THE BOARD	1885	PERMANENT			X	
TAX RECEIPTS	1885	10 Years		After one year		
ASSESSMENT ROLL	1885	PERMANENT		After five years		
CORRESPONDENCE	1951	PERMANENT				X

KEY: DESTROY: - DESTROY THE ORIGINAL DOCUMENTS (ENTIRE FILE) (BY LANDFILL OR SHREDDING)  
M/F DESTROY - MICROFILM AT INTERVALS AND THEN DESTROY ORIGINAL DOCUMENTS  
M/F RET - MICROFILM FOR SECURITY ONLY - NO DESTRUCTION OF ORIGINALS -  
PERM RET - RETAIN ORIGINAL DOCUMENTS PERMANENTLY - NO MICROFILM



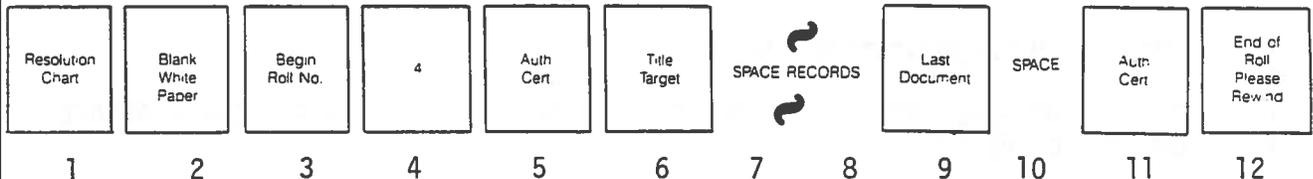
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## EXHIBIT III - FILM DOCUMENTATION

The following illustration identifies the standard steps for documenting every roll of film in correct order.



Step 1. Film the resolution chart.

- See Exhibit X, Page A1-25

Step 2. Film the density target.

- Use a clean sheet of white 20 lb. paper that is not watermarked.

Step 3. Film the "START ROLL" flasher.

- Use one inch high letters

Step 4. Film the "ROLL NUMBER".

- Use two inch high numbers.

Step 5. Film the "AUTHENTICITY CERTIFICATE".

- Type on your official letterhead. See Exhibit III, Page A1-7.

Step 6. Film the "TITLE TARGET".

- Type on your official letterhead. See Exhibit III, Page A1-9.

Step 7. Advance film one space.

- Leave clear film between documentation and material to be filmed.

Step 8. Film your records.

Step 9. Film your last page of records.

Step 10. Advance film one space.

- Leave clear film between the last page of your records and the "AUTHENTICITY CERTIFICATE".

Step 11. Film the "AUTHENTICITY CERTIFICATE" once again.

Step 12. Film the "END OF ROLL" flasher.

- Use one inch high letters.
- Record no images after this flasher.

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EXHIBIT III - FILM DOCUMENTATION

Keep the documentation items (Steps 1-6 & 11) in proper order in a file folder on your microfilm machine with your microfilm log book.

SAMPLE FILM DOCUMENTATION FOLLOWS.

NOTE: SEND FIRST ROLL TO STATE ARCHIVES FOR QUALITY CONTROL CHECK BEFORE CONTINUING PROJECT.

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EXHIBIT III - FILM DOCUMENTATION (continued)

# START ROLL

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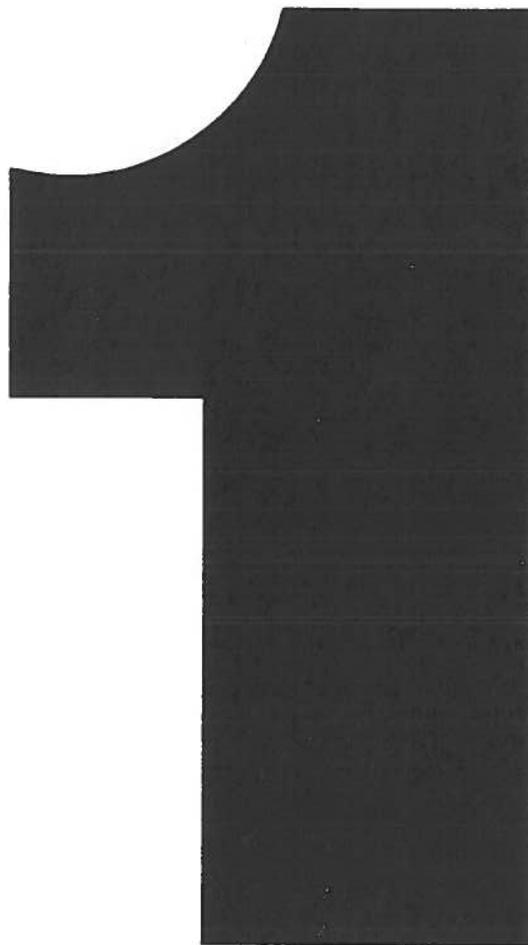
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EXHIBIT III - FILM DOCUMENTATION (continued)

ROLL NUMBER FLASHER  
(YOU CAN USE WALL CALENDAR NUMBERS)



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EXHIBIT III - FILM DOCUMENTATION (continued)

Standards call for this certificate to be typed on your agency letterhead.

AUTHENTICITY CERTIFICATE

I hereby certify that the microphotographs reproduced on this film are true copies of the original records and were microfilmed by \_\_\_\_\_  
Name and

\_\_\_\_\_  
Address of Vendor or Agency

in fulfillment of the provisions of Section 24-80-107, Colorado Revised Statutes 1973, as amended. The records reproduced on this microfilm were created during the normal course of official business of this agency. The description and methods of arrangement and dating of the original records have been retained.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Authorizing Agency Officer

\_\_\_\_\_  
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EXHIBIT III - FILM DOCUMENTATION (continued)

Standards call for this certificate to be used in addition to your own if the records are to be filmed by someone other than yourself. It should be typed on the vendor's letterhead.

AUTHENTICITY CERTIFICATE

I hereby certify that \_\_\_\_\_  
Vendor Company

\_\_\_\_\_

has microfilmed the documents on this roll of film in accord with  
instructions received from the \_\_\_\_\_  
Agency of Origin

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Authorizing Officer  
for Vendor Company

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EXHIBIT III - FILM DOCUMENTATION (continued)

Standards call for this to be typed on the agency's letterhead.

TITLE TARGET

NAME OF AGENCY \_\_\_\_\_

TITLE OF RECORDS \_\_\_\_\_

BEGIN-END DATES OF RECORDS \_\_\_\_\_

SEQUENCE: ALPHABETICAL  CHRONOLOGICAL  NUMERICAL

OTHER (SPECIFY)  \_\_\_\_\_

AFTER MICROFILMING, DISPOSITION OF ORIGINAL RECORDS:

DESTROY  PERMANENT RETENTION  TRANSFER

THE SECURITY COPY OF THIS MICROFILM IS ON FILE IN THE OFFICE OF THE STATE ARCHIVIST.

REDUCTION RATIO \_\_\_\_\_ /1. \_\_\_\_\_ mm film

MICROFILMING DATE \_\_\_\_\_  
Month & year

AUTHORITY NUMBER \_\_\_\_\_

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EXHIBIT III - FILM DOCUMENTATION (continued)

# END OF ROLL

# PLEASE REWIND

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## TITLE

## EXHIBIT IV - DENSITY VARIATIONS

The possible reasons for density variations on microfilm in descending order of importance are:

A. Density too low (.1 - .74)

1. Insufficient exposure due to camera being set incorrectly.
2. Other electrical items on the same circuit as the camera.
3. Insufficient line voltage.
4. Insufficient development in processor.
5. Different emulsion number on film.
6. Weak exposure light bulbs.
7. Dirty glass guides. (Rotary cameras only)
8. Original material faded, dirty or colored.
9. Outdated film.
10. Use of wrong film in camera.
11. Wrong processing chemicals.
12. Processing temperature is too low.

B. Density too high (1.41 - 3.0)

1. Too much exposure, due to camera being set incorrectly.
2. Too much line voltage.
3. Too much development in processor.
4. Different emulsion number on film.
5. Wrong processing chemicals.
6. Use of wrong film in camera.
7. Processing temperature is too high.

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EXHIBIT IV DENSITY VARIATIONS (continued)

- C. Density fluctuates throughout the roll, or across the film
1. Line voltage fluctuation.
  2. Other electrical devices on the same circuit as the camera are turned off and on, e.g. refrigerator, coffee pot, electrical heater.
  3. Dirty glass guides and/or mirrors. (Rotary cameras only)
  4. Original material is faded, dirty or colored.
  5. One or more exposure lights bulbs burned out, or weak.
  6. Incorrect processing.
  7. Camera malfunction.
  8. Operator error.

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## TITLE

## EXHIBIT V - MICROFILM INSPECTION DEFECT GUIDE

The following is a guide to microfilm defects that will aid you in recognizing and correcting some of the more common filming errors. The State Archives will annotate on the Quality Control Review Report the letter/number reference to the guide, specifying the probable defect. In the event that the problem cannot be determined by checking the Microfilm Inspection Defect Guide, we suggest you contact your service representative immediately.

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TITLE EXHIBIT V - MICROFILM INSPECTION DEFECT GUIDE (Continued)

**A** IMPROPER EXPOSURE OF FILM



1. REEL TOO LIGHT



2. ONE HALF SIDE OF REEL TOO LIGHT



3. REEL TOO DARK

**B** UNEVEN DENSITY ON IMAGES



4. LIGHT LEADING EDGES



6. WASHBOARD



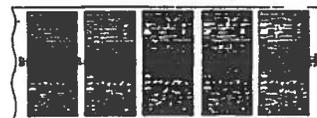
5. LIGHT TRAILING EDGES



7. LIGHT STREAK



6. WASHBOARD



8. DARK STREAK

Filming Defects	Probable Causes	Remedies
<b>A. IMPROPER EXPOSURE OF FILM</b>		
1. All images too light; film is underexposed	Electrical voltage setting to lamps too low — not enough light Dirty glass guides, mirrors or lamps	Increase voltage to lamps. For optimum voltage setting, run a step series — Camera voltage step test Clean mirrors, glass guides and lamps. Be sure to clean both front and back lamp banks.
2. One side of duplex image (front & back of document side by side on film) too light. Images on one half the width of the film are underexposed.	Dirty mirrors or lamp bank — usually the rear lamp bank.	Clean mirrors and lamps.
3. All images are too dark — film is overexposed.	Electrical voltage setting to lamps too high — too much light.	Decrease voltage to lamps. For optimum setting, run a step series — (Camera voltage step test.)
<b>B. UNEVEN DENSITY ON IMAGES</b>		
4. Light leading edges on images	Machine trip mechanism out of adjustment tripping late, shutter opens late! Shutter not opening soon enough	Call for serviceman — to adjust trip mechanism and/or check for binds in the shutter mechanism, clean, adjust and lubricate.
5. Light trailing edges on images	Shutter closing too soon	Call for serviceman — to adjust trip mechanism.
6. Washboard — alternating light & dark areas across the image, slight blur	Film Drive Roller dirty or glazed Fluctuating electrical power supply, loose connections, power cord plug not secure in wall receptacle.	Clean the film drive roller in the camera with a clean cloth dampened with plain water. Check for loose electrical connections such as power cord in wall receptacle.
7. Light streak — light area through the images running the length of the film.	Dirt or foreign object on glass guides, mirrors, exposure lamps or lens. Exposure lamp burned out.	Clean off dirt or remove foreign object from glass guides, mirrors, lamps or lens. Replace the defective exposure lamp — if lamps are 1 year old or more, replace all the lamps in that bank.
8. Dark streak — dark area through the images running the length of the film.	Large white object on glass guides. Exposure lamps not evenly matched.	Remove foreign object from glass guide. Replace any exposure lamps which aren't matched in style and wattage.

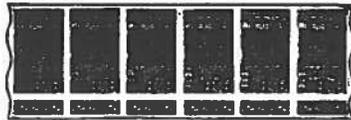
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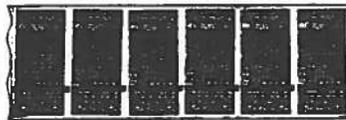
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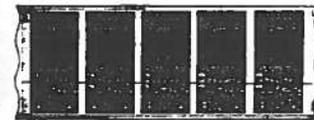
## TITLE EXHIBIT V - MICROFILM INSPECTION DEFECT GUIDE (Continued)

**C** FINE LINES OR SCRATCHES ON FILM

9. LIGHT LINE



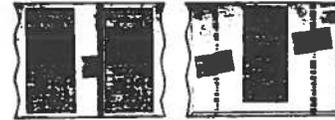
10. DARK LINE



11. DARK SCRATCH

**D** DARK BARS ACROSS FILM

12. SPACE BAR (occasional)



13. CONTRACTION BAR



13. CONTRACTION BAR

Filming Defects	Probable Causes	Remedies
<b>C. FINE LINES OR SCRATCHES ON FILM</b>		
9. Light line through images running the length of the film	Small dark object on glass guides, mirrors or in the optical path.	Remove foreign object and clean glass guides or mirrors.
10. Dark line through images running the length of the film	Small white object or paper clip on glass guides.	Remove foreign object and clean glass guides.
11. Dark scratch through images running the length of the film. Edges of scratch slightly uneven.	Film not threaded correctly in camera. Binding rollers in camera.	Check film threading guide diagram in camera. Check all moving parts in the camera which contact the film. Replace all worn, bent or defective parts. Clean camera unit and remove all foreign objects.
<b>D. DARK BARS ACROSS FILM</b>		
12. Space Bar — occasional dark bar between images, usually no image loss. Usually occurs at end of run of a batch of documents.	Dirty glass guides. Camera shutter not closing properly.	Clean the glass guides. Call serviceman to repair the shutter mechanism if it is causing the problem.
13. Contraction Bar — Solid dark bar through image. Usually repeated throughout film. Image on film smaller than normal.	Film in the camera hesitates while document is being photographed.	Clean the film drive roller in the camera with a clean cloth dampened with plain water.

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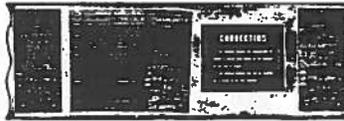
Page A1-16

## TITLE EXHIBIT V - MICROFILM INSPECTION DEFECT GUIDE (Continued)

## E DISTORTED OR BLURRED IMAGES



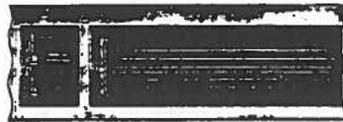
14. STRETCH



14. STRETCH



14. STRETCH



15. STRETCH



16. MULTIPLE DEFECT

## F BLANK OR CLEAR FILM

17. BLANK REEL (not illustrated)



18. IRREGULAR SPACING



19. SHORT STRIP BLANK FILM

Filming Defects	Probable Causes	Remedies
<b>E DISTORTED OR BLURRED IMAGES</b>		
14. Stretch - Whole or part of image blurred & elongated (with no loss in normal image density-darkness)	Document hesitated while being photographed - rubber bands, paper clips, etc. lodged in the machine paper transport path	Inspect glass guides and roller and belt or drum paper transport system. Remove all foreign objects which impede paper movement through camera transport system.
15. Stretch - Whole or part of image elongated and blurred (with lighter than normal density)	Film moving faster than moving document. Film slipping on camera film drive roller, which is dirty or glazed.	Clean the film drive roller in the camera with a clean cloth dampened with plain water.
16. Stretch & Contractions. Images with combination of stretch, contraction & uneven density. Blurred & distorted images.	Film sometimes moving faster, sometimes slower than paper document being photographed. Film & paper movement not synchronized.	Clean the film drive roller in the camera with a clean cloth dampened with plain water.
16A. Images blurred and off edge of film. Images are incorrectly located across the film & out of focus.	Film not seated between film drive roller flanges. Film rides up on one side of film drive roller flange.	Review film threading procedures - refer to the camera operating instruction manual.
<b>F BLANK OR CLEAR FILM</b>		
17. Blank Film - (entire roll) no images on entire film length. <i>Note</i> : Check to be sure that customer did not send an unexposed roll of film to be processed.	Foreign object in optical path somewhere between the paper document & the film.	Check the glass guides, mirrors & lens. Remove any obstructions which block the reflected image from passing through the camera lens to the film.
	Lamp banks not lit	Check to be sure lamp banks are plugged in. Replace burned out lamps.
	Mirror out of position or missing	Replace missing mirror. Check to see that all mirrors are in position.
	Film improperly loaded in camera, black dyeback side facing lens.	Thread film in camera around the film drive roller with emulsion side facing the lens.
	Shutter not opening	Call camera serviceman to correct any out of adjustment condition.
18. Irregular blank spaces between images. Blank film (part of roll). Images stop suddenly. (Not intentional spacing of film by camera operator.)	Foreign object stuck under trip fingers signaling the camera to continue to advance film even though no papers are being fed into the microfilmer.	Remove foreign object from contact with trip fingers.
19. Blank film (short strip of blank film usually one heavy dark line centered on 6 ft strip of otherwise blank film).	Film failed to advance due to improper film threading or faulty film drive mechanism.	Check film threading diagram to insure that film is threaded properly in the camera. Call serviceman to repair faulty film drive mechanism.

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TITLE EXHIBIT V - MICROFILM INSPECTION DEFECT GUIDE (Continued)

## G FOGGED FILM



20. FOG



21. FOG

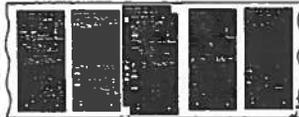


22. FOG

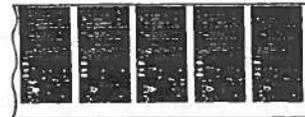
## H PAPER FEEDING ERRORS



23. FOLD



24. OVERLAP



25. OFF FILM EDGE



26. UNEVEN FEEDING

Filming Defects	Probable Causes	Remedies
<b>G. FOGGED FILM</b>		
20. Film was exposed to light causing "fog" (black area on film extending into the image. Area at beginning of film roll.)	Camera operator loaded film into camera & began filming <i>without first advancing</i> film in the camera far enough	When starting a fresh roll of film, always advance enough film to bring fresh film into the camera lens area <i>before filming begins</i>
20. Film was exposed to light causing "fog" (black area on film extending into the image area at end of film roll.)	Camera operator unloaded film from the camera, after filming, <i>without first advancing</i> film in the camera far enough	When finishing a roll of film, always advance enough film to roll up the last exposed film onto the take up roll <i>before unloading the exposed</i> roll of film from the camera.
21. Film was exposed to light causing "fog" (black area on film extending into the image area at other than the beginning or end of film roll)	Camera door was opened in error while it was loaded with film. Approximately 2 ft of film would be logged if the camera door is opened	Keep camera door locked with key whenever it contains film. Camera door should only be opened in accordance with film loading and unloading procedures outlined in your camera operating manual
22. Film was exposed to light causing "edge fog" (black area on film edges sometimes extending into the image area).	Excessive overhead light in area where cameras are being loaded with film	Dim the lights or load film in areas where light is subdued. Follow film loading and unloading procedures in your camera operating manual
<b>H. PAPER FEEDING ERRORS</b>		
23. Folded or creased document photographed causing loss of information. Total image not readable.	Dog-eared or torn papers. Paper clips or staples on papers. Foreign object caught in paper transport path.	Straighten dog-eared papers. scotch tape torn papers. remove all staples & paper clips before feeding into microfilmer. Check glass guides & paper transport for foreign objects and remove obstacle
24. Document overlaps. Two or more papers are fed into the microfilmer at the same time. Bottom papers are partially covered by the top paper causing loss of information on the film image.	(If microfilmer uses a hand feed shelf) — Documents are being fed into the camera too fast.  (If microfilmer uses an automatic feeder device) — Documents not tamped & fanned correctly.  Feeding & separating rollers in automatic feeder are glazed or dirty.  Automatic feeder is out of adjustment & permits double feeding of documents.	Camera operator should feed one document at a time, being careful to separate papers to avoid "double feeds" or overlapping of documents  Place the stack of documents into the automatic feeder so that the leading edge of the top document (engages) touches the feeder roller  Clean the feeding & separating rollers with a clean cloth dampened with plain water  Adjust the double-feed stop on automatic feeder — follow instructions in your camera operating manual.
25. Images off film edge. Portion of the image is off the edge of film. NOTE: image is in sharp focus.	Feeding guides not adjusted properly & documents fed too close to one edge of camera throat.	Adjust feeding guides to accommodate the size document being filmed
<i>Caution: If images are blurred or fuzzy, &amp; appear out of focus, refer to section "E" in this quick guide.</i>	Document too wide for model of camera being used	Check camera operating manual for listing of maximum document sizes photographed by various model cameras.
28. Uneven image position. Images irregularly located or staggered on the film.	Feeding guides are not being used or are not adjusted correctly for the size of documents being filmed.	Adjust the feeding guides to aid in uniform positioning of images on the film

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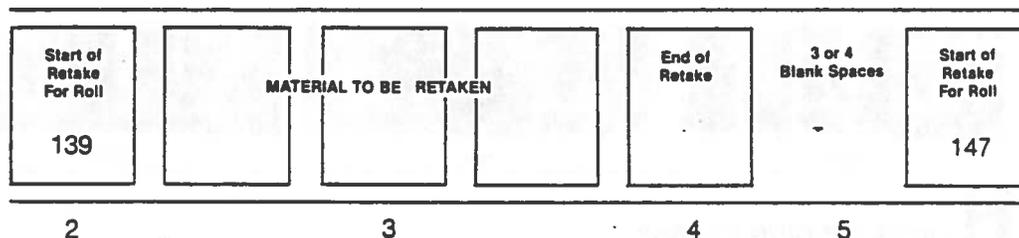
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## TITLE

## EXHIBIT VI - RETAKE DOCUMENTATION

The following illustration identifies the standard steps for documenting every retake in correct order.



Step 1. Start a new roll of film.

Step 2. Film "START OF RETAKE FOR ROLL \_\_\_\_" flasher.

- Letters should be at least one inch high.
- Roll number should be at least two inches high.
- Signature of authorizing person should be completed.

Step 3. Film the records that have to be retaken.

Step 4. Film "END OF RETAKE" flasher.

Step 5. Advance film three to four spaces.

- Leave clear film between documentation and what follows.

If you have retakes for more than one roll of film, repeat the above steps for each retake. When you have finished filming the retakes, proceed with your regular filming just as if you were starting a new roll of film, follow the film documentation procedures. See Exhibit III, page A1-3.

Film container documentation standards include not only what regular filming is on the roll, but also what retakes are on the roll.

SAMPLE RETAKE FILM DOCUMENTATION FOLLOWS.

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## TITLE

EXHIBIT VI - RETAKE FLASHERS (Continued)

1" HIGH ⇨

**START OF  
RETAKE  
FOR ROLL**

2" HIGH ⇨

**41**

**NOTE:** The microphotographs appearing between "START OF RETAKE" and "END OF RETAKE" are true copies of documents or records which were missing or determined as unsatisfactory on inspection of the original microfilm roll.

\_\_\_\_\_  
Signature of Operator or Vendor

\_\_\_\_\_  
Date

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EXHIBIT VI - RETAKE FLASHERS (Continued)

**END OF  
RETAKE**

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TITLE EXHIBIT VII - SAMPLE BOX LABEL

The following illustration shows standard documentation for box labels. If there are retakes on the roll, make sure that they are clearly identified on the label.

Agency Name <u>El Paso County Dist. Court</u>	
Record Title <u>Civil Cases - Closed</u>	
	ROLL NO.
<u>14317 - 14361</u>	
Inclusive Dates or Other Ident.	150
<b>CONTENTS</b>	
	ROLL NO.
	150
<u>Exceptions: Case No. 14319, 14344, 14345,</u>	
<u>14346.</u>	
<u>Retakes for Roll 139 at Beginning of this</u>	
<u>roll.</u>	

↑  
END OF BOX

↓  
BACK OF BOX

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## TITLE

EXHIBIT VIII - QUALITY CONTROL REVIEW REPORT

The following items explain the meaning of a completed Quality Control Review Report.

- Record title: Exact title of records series - must be the same as that on the authorization, title target on film and box label.
- Dates: As given on the box label.
- Film size: 16mm, 35mm, or whatever.
- Content: Records filmed on the roll, as given on the box label.
- Code: X, OK and R are self-explanatory. Reviewer will indicate where to check in the Guide to Micrographic Standards for the possible problem and solution.
- Roll no(s).
- Summary: X or OK
- Diazo or vesicular, silver second generation: any of these will be rejected - only original camera negative will be accepted.
- Documentation: FILM, See Exhibit III, pages A1-3 thru A1-10.  
BOX LABEL, See Exhibit VII, page A1-21.
- Fog: Start, end, edge - if any documents are illegible due to fog, these are to be retaken.
- Chemical residue: Obvious chemical residue must be removed by re-washing - may be run through processor again.
- Scratches, contractions, overlap, folded document, streaks, stretches: reference will be made to the Microfilm Inspection Defect Guide. Retakes will be necessary.
- Density: Reviewer will record density. If it is not between .75 and 1.4, the roll will not be accepted for deposit.
- Comments: By reviewer, if any.
- Reviewer will sign. If roll is acceptable, the State Archivist will also sign.



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EXHIBIT IX - AUTHENTICITY CERTIFICATE (COM)

Standards call for this certificate to be typed on your agency's letterhead.

AUTHENTICITY CERTIFICATE  
COMPUTER OUTPUT MICROFILM  
(COM)

I hereby certify that the following items:

Title: \_\_\_\_\_

Total number roll(s): \_\_\_\_\_

Microfiche number(s): \_\_\_\_\_

Year(s): \_\_\_\_\_

\_\_\_\_\_

Page Number: \_\_\_\_\_

are the official records of \_\_\_\_\_

created during the normal course of business of this agency.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Authorizing Officer

\_\_\_\_\_  
Title

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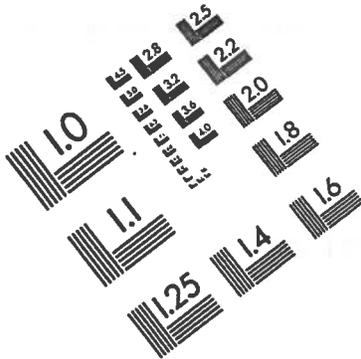
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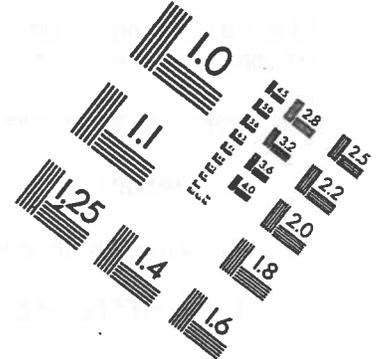
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TITLE

EXHIBIT X - RESOLUTION CHART



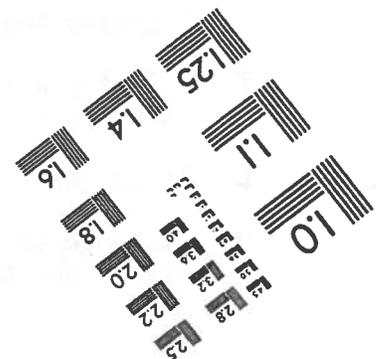
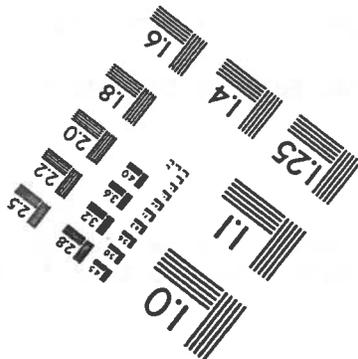
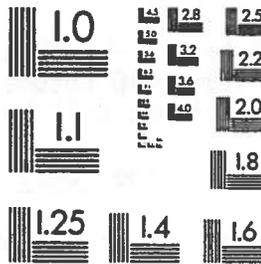
MS303-1980



Centimeter



Inches



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## TITLE

## EXHIBIT XI - STEP-TEST PROCEDURES

The following items define when you should make a step-test and the mechanics of making the test.

## A. When to make the test -

1. Before any records are filmed.
2. When your camera has not been used for several weeks.
3. A different brand or type of film is used.
4. Relocation of your camera.
5. After light bulbs are replaced.
6. When it is determined that the density of your current film is too high or low.
7. After any changes in room lighting or electrical current has been made.

## B. Procedures for making a step-test -

1. Assemble a clean, white, non-watermarked, 20 lb. sheet of bond paper, along with a sampling of 5-10 documents which are typical in color and legibility of those that you will be filming.
2. Set the camera voltage at the LOWEST setting.
3. Record that voltage reading on the white sheet of paper.
4. Film the white sheet of paper and the record sampling.
5. Space the film.
6. Increase the voltage setting 5 volts or to the next highest setting.
7. Film the white sheet of paper with new voltage setting and the record sampling again.
8. Space the film.
9. Continue to advance the voltage setting by 5 volt intervals or to the next highest setting, recording new setting each time and then filming.

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EXHIBIT XI - STEP-TEST PROCEDURES (continued)

10. Process the film (be sure that you wait 24 hours before processing to allow for the latent image fade on the film).
11. Inspect your film and determine the best results overall, then set your camera at that setting.

If you cannot determine the best voltage, send your test strip to us and we will assist you.





