

KK-L-165C
 May 1, 1969
 SUPERSEDING
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 June 10, 1964

FEDERAL SPECIFICATION

LEATHER, CATTLEHIDE, VEGETABLE TANNED AND
 CHROME RETANNED, IMPREGNATED: AND SOLES

This specification was approved by the Commissioner, Federal Supply Service, General Services Administration, for the use of all Federal agencies.

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers requirements for full grain, impregnated and nonimpregnated, vegetable tanned and chrome retanned, cattlehide sole leather and cut stock.

1.2 Classification.

1.2.1 Types, classes, subclasses and styles. The leather and cut stock shall be furnished in the following types, classes, subclasses, and styles as specified (see 6.2).

- Type I - Factory (for shoemaking).
- Type II - Finders (for shoe repair).
- Type III - Vegetable-tanned, impregnated (for shoemaking and shoe repairing).
- Type IV - Chrome-retanned, impregnated (for shoemaking and shoe repairing).

- Class 1 - Backs.
- Class 2 - Bends.
- Class 3 - Soles.
 - Style 1 - Men's
 - Style 2 - Women's

 - Subclass (a) - Full soles (outer).
 - Subclass (b) - Full soles (middle).
 - Subclass (c) - Half soles (taps).
- Class 4 - Top lifts.
 - Style 1 - Men's
 - Style 2 - Women's
- Class 4a - Under lifts.
 - Style 1 - Men's
 - Style 2 - Women's
- Class 5 - Shoulders.
- Class 6 - Strips.
- Class 7 - Bellies.

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2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein:

Federal Specifications:

UU-P-268 - Paper, Kraft, Untreated, Wrapping.
PPP-B-636 - Box, Fiberboard.
PPP-F-320 - Fiberboard; Corrugated and Solid, Sheet Stock
(Container Grade), and Cut Shapes.

Federal Standards:

Fed. Std. No. 123 - Marking for Domestic Shipment (Civilian Agencies).
Fed. Test Method Std. No. 311 - Leather, Methods of Sampling and Testing.

(Activities outside the Federal Government may obtain copies of Federal specifications, standards, and handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402).

(Single copies of this specification and other Federal specifications required by activities outside the Federal Government for bidding purposes are available without charge from the Business Service Centers at the General Services Administration Regional Offices in Boston, New York, Washington, D.C., Atlanta, Chicago, Kansas City, Mo., Fort Worth, Denver, San Francisco, Los Angeles, and Seattle, Wash.)

(Federal Government activities may obtain copies of Federal specifications, standards, and handbooks and the Index of Federal Specifications and Standards from established distribution points in their agencies.)

Military Specification:

MIL-L-43432 - Leather, Packaging and Packing of.

Military Standards:

MIL-STD-105 - Sampling Procedures and Tables for Inspection by Attributes.
MIL-STD-129 - Marking for Shipment and Storage.

(Copies of Military Specifications and Standards required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

3. REQUIREMENTS

3.1 Material.

3.1.1 Tannage. Types I, II, and III shall be vegetable tanned. Type IV shall be tanned with chrome and vegetable tanning materials.

3.1.2 Impregnation (types III and IV). Types III and IV shall be impregnated with elastomers and resins (see 6.3).

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3.2 Physical requirements.

3.2.1 Trim.

3.2.1.1 Class 1 (backs), class 2 (bends), class 5 (shoulders), and class 7 (bellies). The leather shall be furnished in the form of backs, bends, shoulders or bellies as required for the class specified (see 6.2) and shall conform to the applicable definition as listed under "Definition of terms" in Fed. Std. 311.

3.2.1.2 Class 3 (subclass (a) outer soles, subclass (b) middle soles, subclass (c) half soles), class 4 (top lifts), and class 4A (under lifts). The cut stock shall be furnished in the form of outer soles, middle soles, half soles, top lifts or under lifts as required for the style, class and subclass specified (see 6.2). When cut stock is purchased directly by the Government, the size shall be as specified (see 6.2) and the periphery of the cut part shall be not less than the periphery of the applicable Government pattern, but may be larger.

3.2.1.3 Class 6 (strips). The strips shall be $13 \pm 1/8$ inches wide and the length shall be governed by the width of the bend from which they are cut.

3.2.2 Thickness. The thickness of all classes and subclasses shall be as specified (see 6.2).

3.2.2.1 Class 1 (backs), class 2 (bends), class 4 (top lifts), class 4A (under lifts), class 5 (shoulders), class 6 (strips), class 7 (bellies).

3.2.2.2 Class 3 (soles). If the soles have not been leveled, a thickness tolerance of $-0, \pm 1$ iron shall be permitted.

3.2.3 Cutting.

3.2.3.1 Class 3 (soles).

3.2.3.1.1 Subclass (a) (outer soles) and subclass (c) (half soles). Outer soles and half soles shall be cut from bends.

3.2.3.1.2 Subclass (b) (middle soles). Middle soles shall be cut from backs or shoulders.

3.2.3.2 Class 4 (top lifts). Top lifts shall be cut from bends.

3.2.3.3 Class 4A (under lifts). Under lifts shall be cut from backs or shoulders.

3.2.3.4 Class 6 (strips). Strips shall be cut from bends with the long dimension of the strips perpendicular to the backbone (see figure 14).

3.2.4 Cracking. The leather shall not crack when tested as specified in 4.3.

3.2.5 Piping. The leather shall not pipe when tested as specified in 4.3.

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3.2.6 Compressibility. The compressibility of the leather shall be no greater than the values indicated below when tested as specified in 4.3.

<u>Type of leather</u>	<u>Compressibility, percent, maximum</u>
I	16.0
II	13.0
III	18.0
IV	18.0

3.2.7 Shrinkage temperature (types III and IV).

3.2.7.1 Type III. The type III leather shall not shrink at or below 75°C when tested as specified in 4.3.

3.2.7.2 Type IV. The type IV leather shall not shrink at or below 90°C when tested as specified in 4.3.

3.2.8 Water absorption (types III and IV). The leather shall gain not more than 30 percent of its weight by water absorption when tested as specified in 4.3.

3.3 Chemical requirements.

3.3.1 Paranitrophenol. Unless otherwise specified (see 6.2), the leather shall not contain less than 0.18 percent nor more than 0.70 percent paranitrophenol fungicide when tested as specified in 4.3.

3.3.2 The leather shall conform to the requirements of table I when tested as specified in 4.3.

TABLE I. Chemical requirements

<u>Characteristic</u>	<u>Type I</u>		<u>Type II</u>		<u>Type III</u>		<u>Type IV</u>	
	<u>Min.</u>	<u>Max.</u>	<u>Min.</u>	<u>Max.</u>	<u>Min.</u>	<u>Max.</u>	<u>Min.</u>	<u>Max.</u>
Water-soluble material, percent ^{1/}	-	33.0	-	33.0	-	-	-	-
Hide substance, percent ^{1/}	28.0	-	28.0	-	20.0	-	20.0	-
Chloroform-soluble material, percent ^{1/}	2.5	-	2.5	-	18.0	-	18.0	-
Degree of tannage	61.0	-	61.0	-	-	-	-	-
Acetone insoluble material, percent ^{2/}	-	-	-	-	20.0	-	20.0	-
pH value	3.0	-	3.0	-	3.0	-	3.0	-

^{1/} Calculated on the moisture free basis.

^{2/} Percent of chloroform-soluble material.

3.4 Workmanship. The leather and cut stock shall conform to the quality and grade of product established by this specification. Occurrence of defects shall not exceed the applicable acceptable quality levels.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements.

4.1.1 Certificate of compliance. Where certificates of compliance are submitted, the Government reserves the right to check test such items to determine the validity of the certification.

4.2 Inspection. Sampling for inspection shall be performed in accordance with Fed. Std. 311 except when otherwise indicated hereinafter.

4.2.1 Component and material inspection. In accordance with 4.1 above, components and materials shall be tested in accordance with all the requirements of referenced specifications, drawings and standards, unless otherwise excluded, amended, modified, or qualified in this specification or applicable purchase documents.

4.2.2 In-process inspection. Inspection shall be made at any point or during any phase of the manufacturing process to determine whether cutting operations are accomplished as specified. The Government reserves the right to exclude from consideration for acceptance any material or service for which in-process inspection has indicated non-conformance.

4.2.3 Examination of the end item. The classification of defects for the visual and dimensional examinations shall be in accordance with 4.2.3.1 and 4.2.3.2. The sample unit for these examinations shall be one back, bend, sole, lift, shoulder, belly or strip as applicable. The lot size shall be expressed in units of one back, bend, lift, shoulder, belly or strip. Sampling procedure for these examinations shall be in accordance with Fed. Std. 311 except that a sample size of 15 and a rejection number of 2 shall be applicable for dimensional examinations on lots consisting of 91 or more units of product.

4.2.3.1 Examination for visual characteristics. Visual examination of type III and type IV leather should be conducted prior to impregnation.

Examine	Defects
Trim	Not as specified
Quality: Class 1	Any defect or combination of defects listed in table II which impair the value of the cutting area by more than 144 square inches.
Class 2	Any defect or combination of defects listed in table II which impair the value of the cutting area by more than 100 square inches.
Class 3 Subclasses (a), (b), and (c)	Any defect or combination of defects listed in table III except where qualified as an acceptable characteristic.

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Examine	Defect
Quality: Class 4	Any defect or combination of defects listed in table II.
Class 4a	Open brand, open scratch, open insect bite, hole or deep cut within 1/2 inch of any edge.
Classes 5, 6 and 7	Any defect or combination of defects listed in table II which impair the value of the cutting area by more than 10 percent.

TABLE II. Defects for classes 1, 2, 4, 5, 6, and 7

Class of defects	Figure No.	Defects
Fiber quality	1 and 1a	Butt wrinkles, or grain wrinkles indicative of poor fiber quality.
Soft spots	2	Soft or weak spots.
Brands	3	Open or raised brand.
Scratches	4	Open scratches.
Fat wrinkles	5	Heavy fat wrinkles.
Insect bites	6	Open insect bites.
Grain damage	7 and 7a	Deep grain cuts, extensively broken or cracked grain.
Grub damage	8 and 8a	Open grub hole.
Cleanliness	9	Stains, discoloration, and unremoved hair.
Slaughter cuts	10	Deep slaughter cuts.
Leveling	11 and 11a	Excessively thick layer of leather removed from flesh side during leveling
Fleshiness	12 and 12a	Excessively fleshy.
Tannage	13	Raw streak.

TABLE III. Defects and acceptable characteristics for class 3 soles

Class of defects	Figure No.	Acceptable characteristics	Defects
Fiber quality	1 and 1a	Butt wrinkle in heel area.	Butt wrinkle in shank or fore part. Grain wrinkles indicative of poor fiber quality.
Soft spots	2	Slight soft spots in heel or shank areas.	Soft or weak spots in ball or toe areas.
Brands	3	Well-healed, smooth-edged brand in heel seat area of outer soles. Well-healed brands in middle soles when not in stitch area.	Open or raised brand in heel. Any brand in shank or fore part.

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TABLE III. Defects and acceptable characteristics for class 3 soles (cont'd)

Class of defects	Figure No.	Acceptable characteristics	Defects
Scratches	4	Well-healed scratches. Open scratches in middle soles when not in stitch area or in shank area, the length dimension of the scratch is parallel to length dimension of middle sole.	Open scratches.
Fat wrinkles	5	Medium or slight fat wrinkles. Heavy fat wrinkles in middle soles and in heel or shank area of outer soles.	Heavy fat wrinkles in fore part <u>1</u> /
Insect bites	6	Well-healed insect bites. Open insect bites in middle soles.	Open insect
Grain damage	7 and 7a	Slight grain cuts or slight grain damage. Rough grain in heel area.	Deep grain cuts. Rough grain or extensively broken or cracked grain in fore part or shank.
Grub damage	8 and 8a	Well-healed grub damage, open grub hole in heel seat area. Four or less open grub holes in fore part or shank area of middle sole provided they are not in stitch area.	Open grub hole in shank or fore part.
Cleanliness	9	Stains, discoloration or unremoved hair in middle soles, and in outer soles and half soles when appearance is not seriously affected.	Stains, discoloration or unremoved hair which seriously affect appearance.
Slaughter cuts	10	Slight slaughter cuts. Shallow slaughter cuts in heel area.	Deep slaughter cuts. Shallow slaughter cuts in shank or fore part.
Leveling	11 and 11a	Bled soles may be used as middle soles.	Bled sole <u>2</u> /.
Fleshiness	12 and 12a	Slightly fleshy.	Excessively fleshy.
Tannage	13	-	Incomplete tannage evident by raw streak.

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- 1/ A heavy fat wrinkle has depth noticeable by a slight corrugated feel at the grain surface. When the leather is bent grain side out, the fat wrinkle will bend more easily and show greater strength than the areas adjacent to the wrinkle.
- 2/ Bled soles are full grain soles which have had an excessively thick layer of leather removed from the flesh side during leveling. Such soles lack firmness and usually have all vein markings removed from the flesh side.

4.2.3.2 Examination for dimensional characteristics.

Examine	Defects
Periphery 1/ (classes 3, 4 and 4a)	Less than periphery of applicable Government pattern.
Width 2/ (class 6)	Width less than 12-7/8 inches or more than 13-1/8 inches.
Thickness 3/	Not as specified.

1/ When required (see 3.2.1.2).

2/ The width shall be determined at three points equally spaced along the length of the strip.

3/ Thickness shall be determined in accordance with method 1011 of Fed. Std. 311 using a standard wedge type gage. One thickness determination shall be made on classes 4, 4a and 7. For classes 4 and 4a, the thickness shall be determined at the breast of the heel and for class 7, at the center of the backbone edge of the strip.

4.2.4 Examination of preparation for delivery requirements.

4.2.4.1 Classes 1, 2, 5, 6, and 7 (all types). An examination shall be made in accordance with the provisions of MIL-L-43432 to determine that packaging, packing and marking requirements of section 5 of this specification are complied with.

4.2.4.2 Classes 3, 4 and 4a (all types, styles and subclasses). Sampling procedure shall be performed in accordance with MIL-STD-105. An examination shall be made to determine that packaging, packing and marking requirements of section 5 of this specification are complied with. Defects shall be scored in accordance with the list below. The sample unit shall be shipping container fully prepared for delivery with the exception that it need not be sealed. Defects of closure listed below shall be examined on shipping containers fully prepared for delivery. The lot size shall be the number of shipping containers in the end item inspection lot. The inspection level shall be S-2 and the AQL shall be 2.5 defects per 100 units.

Examine	Defects
Marking (exterior and interior)	Omitted; incorrect; illegible; of improper size, location, sequence, or method of application.
Materials	Any component missing. Any component damaged.
Workmanship	Inadequate application of components, such as incomplete closure of container flaps, improper taping, loose strapping, inadequate stapling. Bulged or distorted container.

Examine	Defects
Content	Number of pairs per bundle is more or less than required. <u>1/</u> Number of bundles per shipping container is more or less than required.

1/ For this defect, one bundle from each shipping container in the sample shall be examined.

4.3 End item testing. The methods of testing specified in Fed. Std. 311, wherever applicable and as listed in table IV shall be followed. Except when otherwise specified, sampling procedure for testing of classes 1, 2, 5, and 7 shall be in accordance with the provisions of non-fabricated leather as specified in Fed. Std. 311. The pieces for chemical testing of classes 1 and 2 leather shall be taken from the locations shown in figure 15. Locations A, C and J shall be used for class 1 leather, and locations A, B and J shall be used for class 2 leather. Sampling procedure for testing classes 3, 4, 4a, and 6 shall be in accordance with the provisions for fabricated leather articles as specified in Fed. Std. 311 except that the sample size shall be 15 regardless of lot size. The lot size for the cut parts shall be expressed in terms of one sole, top lift, under lift, or strip as applicable. The sample unit for testing class 3 shall be 1 cut part, but may be increased to 2 cut parts when necessary to obtain the required test specimens. The sample unit for testing classes 4 and 4a shall be 2 cut parts. The sample unit for testing class 6 shall be 1 strip. For class 6 the specimens shall be obtained from the backbone end of the strip one inch in from the end. All test reports shall contain the individual values utilized in expressing the final result. The lot shall be rejected if any one of the following conditions exist:

- a. More than two test failures occur for compressibility, shrinkage temperature, or water absorption.
- b. More than one test failure occurs for cracking or piping.
- c. Any composite test result fails to meet the specified requirement.

TABLE IV. Tests

Characteristic	Requirement paragraph	Test method	Requirements applicable to:	
			Sample unit	Composite
Material	3.1	<u>1/</u>	-	-
Tannage	3.1.1	<u>1/</u>	-	-
Cracking	3.2.4	4.4.1	X	-
Piping	3.2.5	4.4.1	X	-
Compressibility	3.2.6	4.4.2	X	-
Shrinkage temperature	3.2.7	4.4.3	X	-
Water absorption	3.2.8	4.4.4	X	-
Paranitrophenol	3.3.1	6711	-	X
Water-soluble material	3.3.2	6341	-	X
Hide substance	3.3.2	6441	-	X
Chloroform-soluble material	3.3.2	6341 <u>2/</u>	-	X
Degree of tannage	3.3.2	6631	-	X
Acetone insoluble material	3.3.2	6371	-	X
pH value	3.3.2	6621	-	X

1/Unless otherwise specified, a certificate of compliance is required and will be acceptable for the requirement stated.

2/The dried chloroform-soluble material shall be used in determining the acetone insolubles.

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4.4 Tests.

4.4.1 Piping and cracking. Resistance of piping shall be determined in accordance with method 4111 of Fed. Std. 311 and resistance to cracking shall be determined in accordance with method 4021 of Fed. Std. 311. The diameters of the mandrels for these determinations shall be as indicated below:

<u>Leather thickness (irons)</u>	<u>Diameter of mandrel (inches)</u>
5 and less	1
5-1/2 to 8	2
8-1/2 and above	3

4.4.2 Compressibility. Compressibility shall be determined in accordance with method 4411 of Fed. Std. 311. The specimen for classes 1 and 2 shall be obtained from location A indicated on figure 15. The specimen for class 3 shall be obtained from as close to the center of the sole as is practicable. The specimen for class 6 shall be obtained from the backbone end of the strip. If the periphery of class 4 and 4a is such that the required specimen size cannot be obtained, the entire lift shall be used as the specimen. When determining thickness, the specimen shall be placed grain side up on the anvil of the thickness gage. To eliminate errors due to warping, care shall be taken to assure the surface of the anvil is in complete contact with the flesh side of the leather.

4.4.3 Shrinkage temperature. The shrinkage temperature shall be determined in accordance with method 7011 of Fed. Std. 311 with the following exceptions: The specimen shall be extracted with chloroform in accordance with method 6341 of Fed. Std. 311 except that the specimen shall not be composited. The extracted specimen shall be air dried until the odor of chloroform is no longer perceptible. The air dried specimen shall then be completely immersed in distilled water at 20° to 25°C. for not less than 16 hours; after the required time for immersion, the shrinkage temperature shall be determined.

4.4.4 Water absorption. Water absorption shall be determined in accordance with method 8111 of Fed. Std. 311 except that the procedure and calculation of results shall be as follows:

A hole 1/8 inch in diameter shall be punched in one end of the specimen. The center of the hole shall be located approximately 1/4 inch from the end and at the approximate center of the width dimension. Each specimen shall be weighed and the weight recorded as W_1 . A metal clip shall be inserted in the hole, and the specimen and attached clip shall be weighed together. This weight shall be recorded as W_2 . Eight 9-1/4 inch lengths of 14 gauge water resistant plastic coated wire having a diameter of 0.125 inch shall be used to prevent the specimens from touching the bottom of the glass tray in which they are to be immersed. A 1/4 inch end section of each length of wire shall be bent at approximately a 90 degree angle to prevent the wire from rolling. Each length of wire shall be placed on the bottom of a 18 by 12 inch rectangular glass tray (Fisher catalog No. 15-241C or equal) with the length of the wire parallel to the width of the tray. The distance between adjacent wires shall be approximately 2 inches. A volume of distilled water (to the nearest 5 cubic centimeters), at $23 \pm 1^\circ\text{C}$, equivalent to 10 times the total weight of the specimens shall be added to the glass tray. The specimens with metal clips attached shall be completely immersed in the water by being placed on the wire, grain side up, in such a manner that the specimens do not touch the bottom or sides of the glass tray. There shall be 4 rows of specimens with not more than 4 specimens in each row. The distance between adjacent specimens shall be not less than 1/2 inch. Any specimen that tends to float after a 15 minute period shall be submerged by placing a glass rod on the specimen. When all the specimens are completely immersed, the tray shall be covered. After the specimens have been immersed for $24 \pm 1/4$ hours, the tray shall be uncovered and the specimens removed from the water by gripping the metal clip with tongs or other suitable device. The specimens shall be hung up and air dried for 2 minutes. After the required drying time, the specimens shall be lightly blotted on any cut edges which show water droplets.

4.4.4 (cont'd) Water absorption. The grain side and flesh side of the specimens shall not be blotted. Immediately after blotting, each specimen with attached metal clip shall be weighed and the weight recorded as W_2 . The amount of water absorbed by each specimen shall be calculated as follows:

$$\text{Water absorbed, percent} = \frac{W_3 - W_2}{W_1} \times 100$$

Where:

W_1 = Weight of original specimen, grams.

W_2 = Weight of original specimen and metal clip, grams.

W_3 = Weight of specimen and metal clip after immersion, grams.

- NOTES: 1. All weighings shall be made to the nearest 0.01 gram.
2. The amount of water absorbed by the test specimen shall be reported to the nearest 0.1 percent.

5. PREPARATION FOR DELIVERY

5.1 Packaging. Packaging shall be level A or C as specified (see 6.2).

5.1.1 Classes 1, 2, 5, 6, and 7 (all types).

5.1.1.1 Levels A and C. Backs, bends, shoulders, bellies and strips, of like description only, shall be packaged in accordance with the applicable requirements of MIL-L-43432.

5.1.2 Classes 3, 4, and 4A (all types, styles and subclasses).

5.1.2.1 Level A. Soles and lifts of like description only, shall be evenly stacked and unit packaged in the quantities as specified in table V. Each package of full soles, half soles and lifts shall be secured with jute or cotton cord or twine.

5.1.2.2 Level C. Soles and lifts shall be packaged to afford adequate protection against deterioration and physical damage during shipment from the supply source to the first receiving activity. The supplier may use his standard practice when it meets these requirements.

5.2 Packing. Packing shall be level, A, B or C as specified (see 6.2).

5.2.1 Classes 1, 2, 5, 6, and 7 (all types).

5.2.1.1 Levels A, B, and C. Backs, bends, shoulders, bellies and strips, of like description only, shall be packed in accordance with the applicable requirements of MIL-L-43432.

5.2.2 Classes 3, 4, and 4A (all types, styles and subclasses).

5.2.2.1 Level A. Soles and lifts of the like description only, packaged as specified in 5.1.2, shall be packed in quantities as specified in table V within a snug-fitting fiberboard shipping container conforming to style RSC-L, grade V2s of PPP-B-636. The inside of each shipping container shall be fitted with a taped box liner conforming to type CF, class weather-resistant, variety DW, grade V15c of PPP-F-320. Each container shall have the contents completely covered on the top and bottom with a sheet of 30-pound minimum basis weight kraft paper conforming to grade B of UU-268. Each shipping container shall be closed, waterproofed, and reinforced in accordance with the appendix of the container specification.

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TABLE V. Packaging and packing quantities

Item	Size	Unit packages (pairs)	Packing quantities (pairs)
Class 3 (soles):			
Subclass (a) and (b)	9	15	60
Subclass (a) and (b)	10	20	60
Subclass (a) and (b)	11	10	60
Subclass (a) and (b)	12	10	60
Subclass (a) and (b)	13	5	60
Subclass (c)	All	10	120
Classes 4 and 4A (lifts)	All	12	360

5.2.2.2 Level B. Soles and lifts of the like description only, packaged as specified in 5.1.2, shall be packed in quantities as specified in table V within a snug-fitting fiberboard shipping container conforming to style RSC-L, type CF (variety SW) or SF, class domestic, grade 275 of PPP-B-636. The inside of each shipping container shall be fitted with a taped box liner conforming to class domestic, variety DW, grade 275 of PFF-F-320. Each container shall have the contents completely covered on the top and bottom with a sheet of 30-pound minimum basis weight kraft paper conforming to grade B of UU-P-268. Each shipping container shall be closed in accordance with method II as specified in the appendix of the container specification.

5.2.2.2.1 When specified (see 6.2), the shipping container shall be a grade V3c or V3s fiberboard box fabricated in accordance with PPP-B-636 and closed in accordance with the appendix of the container specification. The shipping container material may also be grade V4s of PPP-F-320.

5.2.2.3 Level C. Soles and lifts, packaged as specified in 5.1.2, shall be packed in a manner to insure carrier acceptance and safe delivery at destination at the lowest transportation rate for such supplies. Containers shall be in accordance with rules or regulations of carriers applicable to the mode of transportation.

5.3 Marking.

5.3.1 Civil agencies. In addition to any special marking required by the contract or order, interior packages and shipping containers shall be marked in accordance with Fed. Std. No. 123.

5.3.2 Military agencies. In addition to any special marking required by the contract or order, interior packages and shipping containers shall be marked in accordance with Fed. Std. No. 123.

5.3.3 Military agencies. In addition to any special marking required by the contract or order, interior packages and shipping containers shall be marked in accordance with MIL-STD-129.

6. NOTES

6.1 Intended use. The leather and cut parts are intended for use as components in boots and shoes.

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6.2 Ordering data. Purchasers should select the preferred options permitted herein and include the following information in procurement documents:

- (a) Title, number, and date of this specification.
- (b) Type, class, subclass, and style required (see 1.2).
- (c) Size, when classes 3, 4 and 4a are purchased directly by the Government (see 3.2.1.2).
- (d) Thickness required (see 3.2.2).
- (e) When parantrophenol is not required (see 3.3.1).
- (f) Selections of applicable levels of packaging and packing (see 5.1 and 5.2).
- (g) When weather-resistant grade fiberboard shipping containers are required for level B packing (see 5.2.2.2.1).

6.3 Impregnating materials. Impregnation with a blend of the following elastomers and resins is known to improve the resistance of leather to abrasion and water absorption:

Elastomers: Polymeric substances such as polyisobutylene, polybutene, or copolymers such as butyl rubber (GR-1) which are insoluble in acetone and alcohols, but are soluble in hydrocarbon solvents and chlorinated solvents.

Resins: Polymerized or extracted resins that are almost completely saponifiable and are soluble in a great variety of organic solvents including hydrocarbons, chlorinated compounds, acetone and alcohol.

6.4 Supersession data. The correlation between the classes of the superseded KK-L-165b and the changed classes specified herein is as follows:

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<u>Classes</u>	<u>Classes</u>
--	Class 5 official
Class 5 - Shoulders	Subclass d - Shoulders
Class 7 - Bellies	Subclass e - Bellies

MILITARY CUSTODIANS:

Army - GL
Navy - SA
Air Force - 11

Review activities:

Army - MD
Navy - SA
Air Force - 82, 85

User activity:

Navy - MC

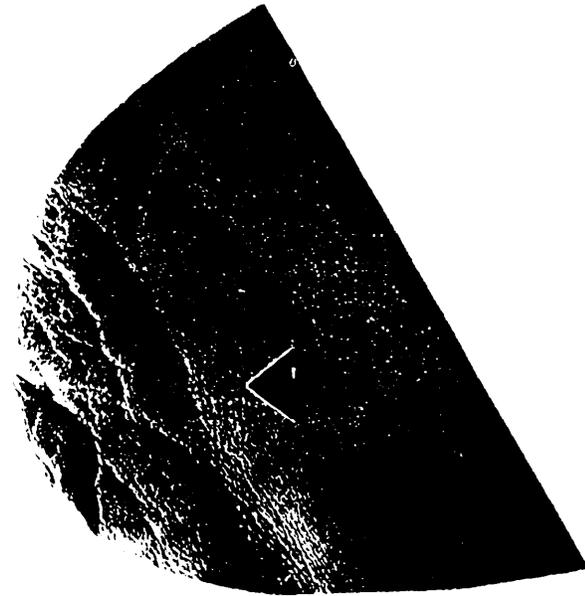
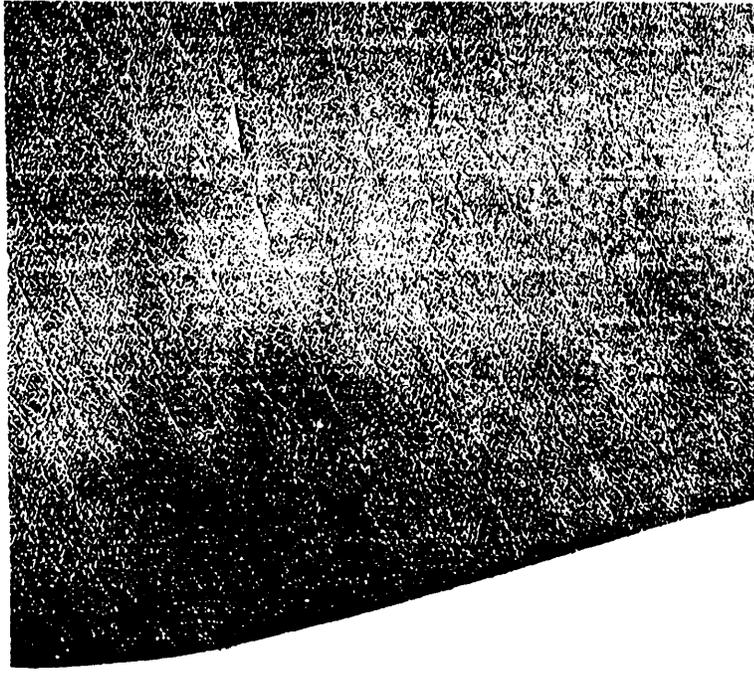
Preparing activity:

Army - GL

CIVIL AGENCIES INTEREST:

AGR
COM-NBS
DC
GSA-FSS
HEW
JUS-FPI
VA-DMS

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BUTTY CONDITION—Butt wrinkles causing lack of uniformity in thickness.

POOR FIBER—This wrinkle pattern is typical of certain low cuts on the hide, adjacent to the leg.

Figure 1.—Fiber quality. (See also figure 1a.)

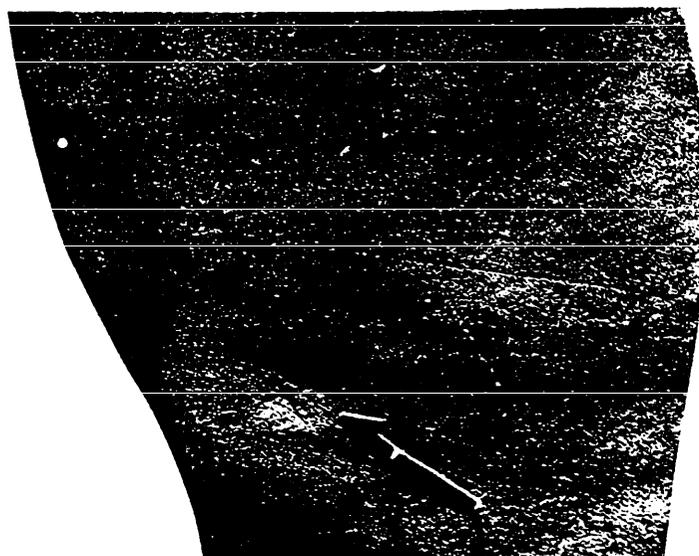
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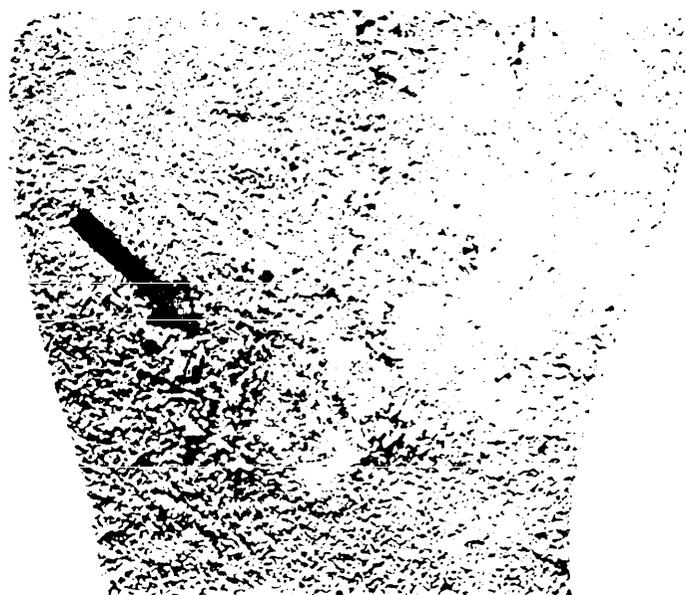
POOR FIBER—This wrinkle pattern is typical of a neck sole

Figure 1a.—Fiber quality. (See also figure 1.)

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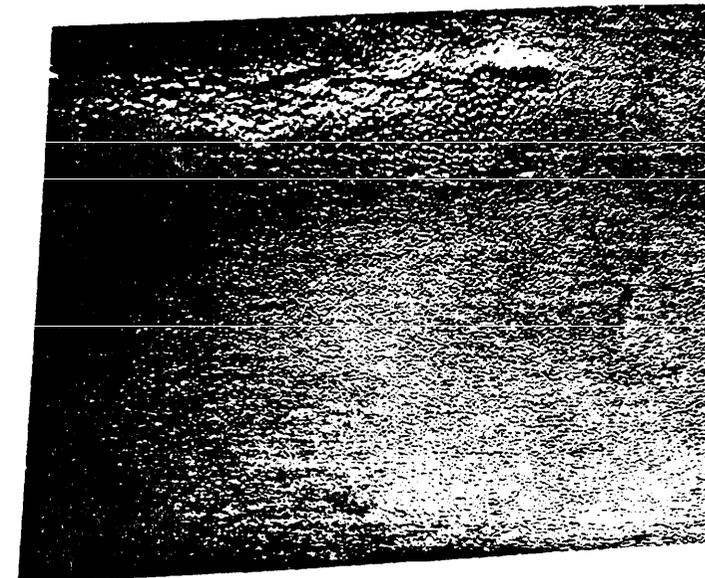
Typical visual characteristics of a soft spot on the grain side.



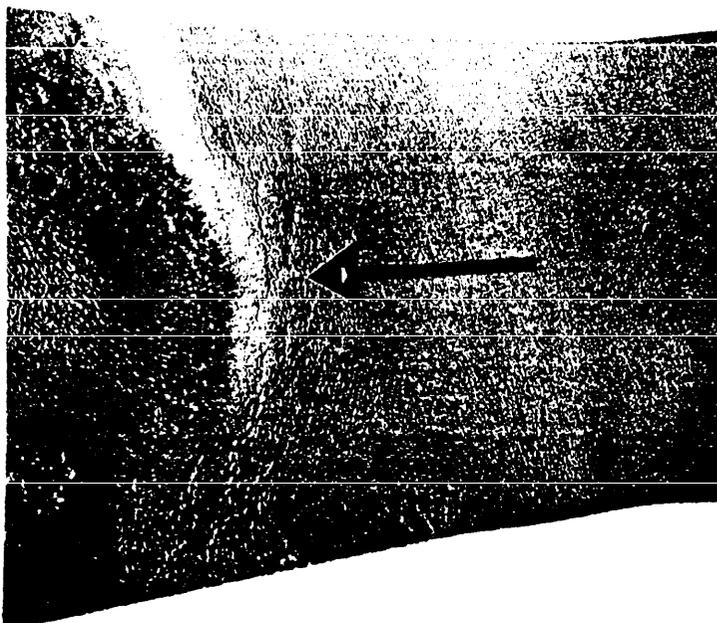
Typical visual characteristics of a soft spot on the flesh side

Figure 2.—Soft spots.

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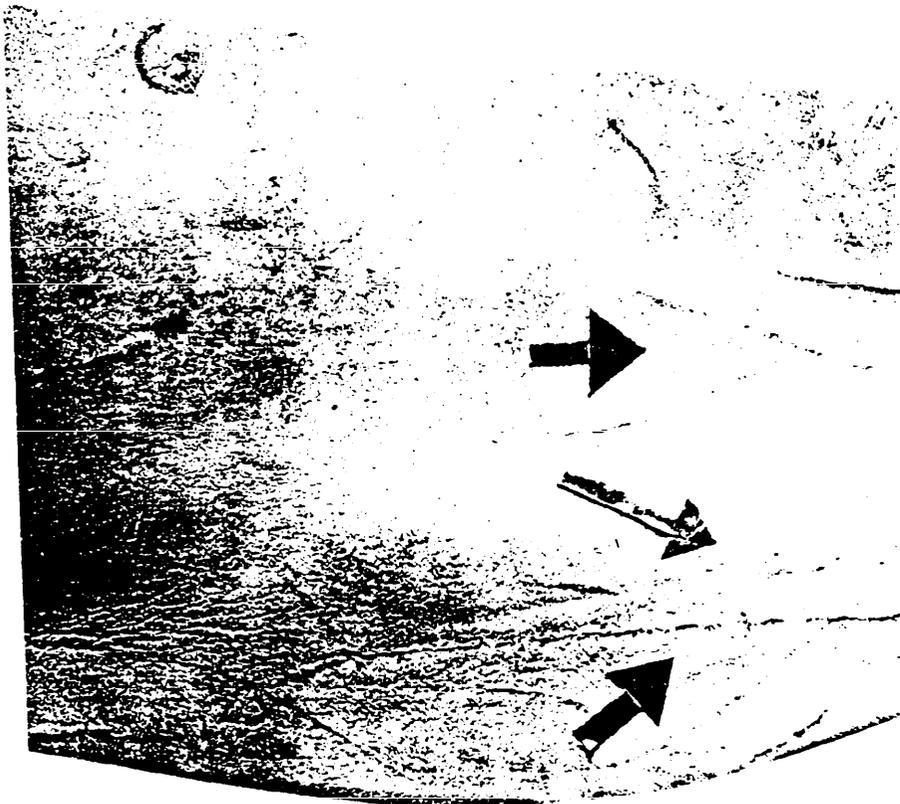
OPEN OR RAISED BRAND.



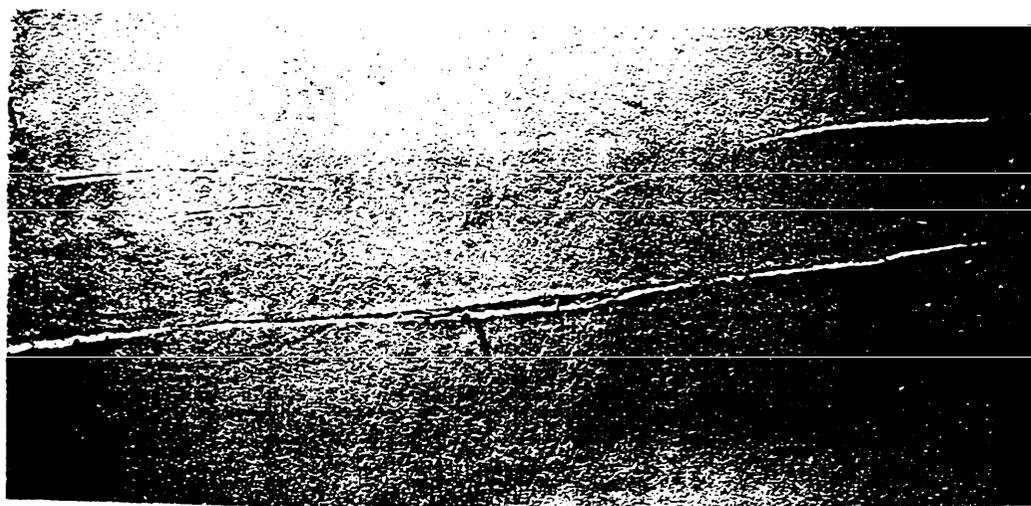
WELL HEALED, SMOOTH-EDGED BRAND.

Figure 3.—Brands.

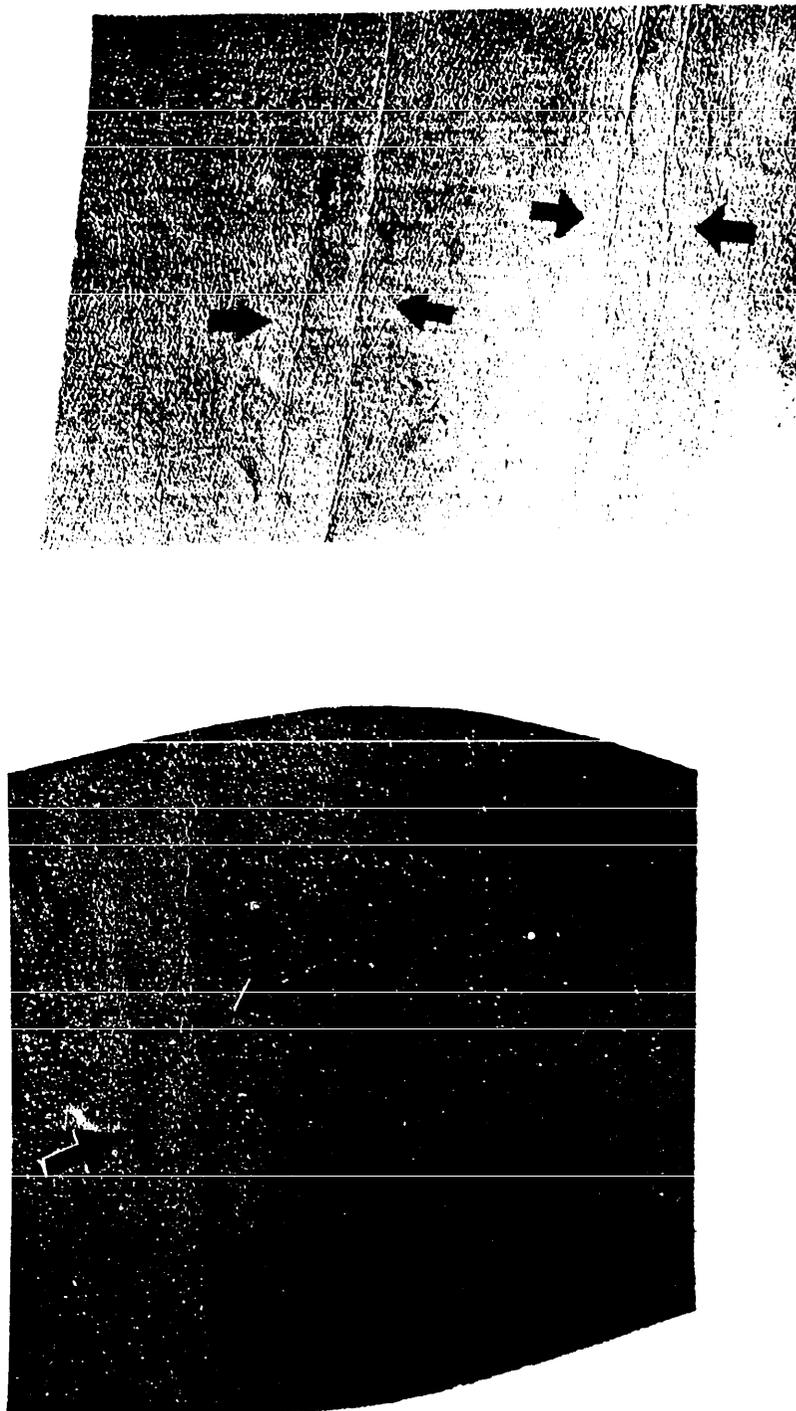
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WELL-HEALED SCRATCHES.



OPEN SCRATCHES.

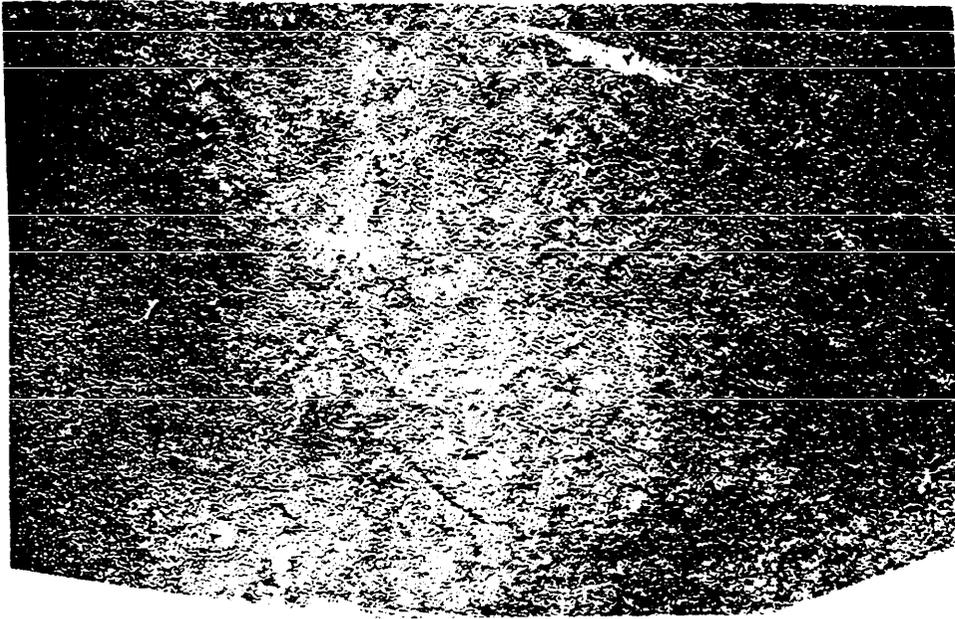


MEDIUM FAT WRINKLES.

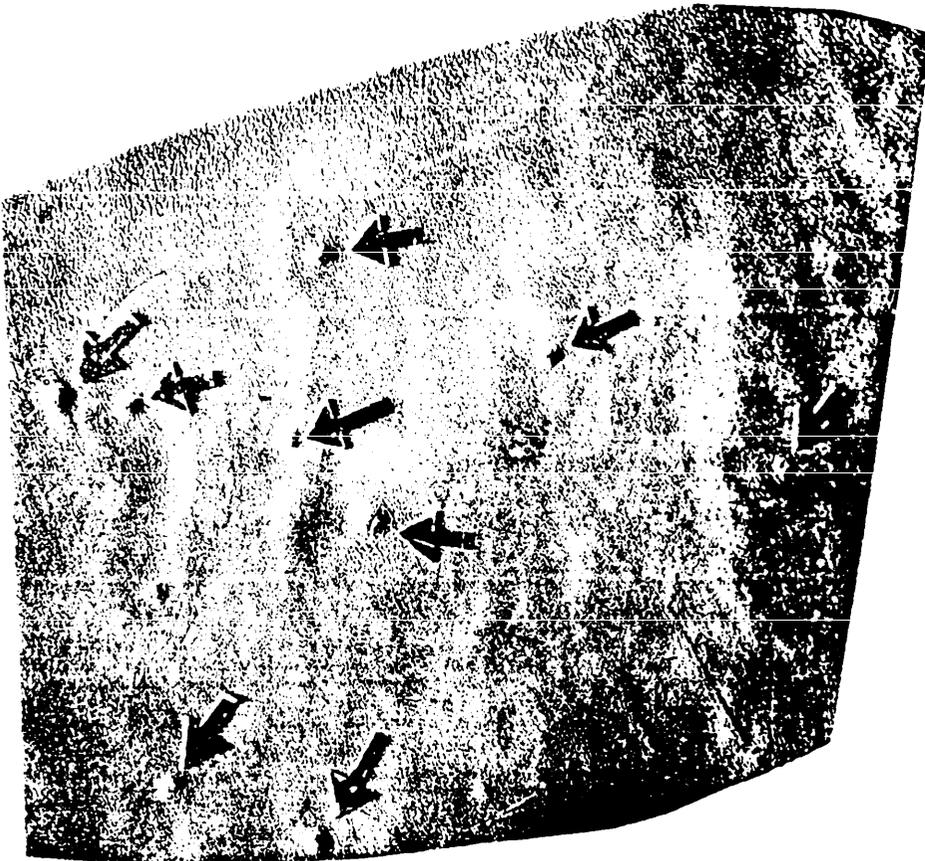
HEAVY FAT WRINKLES

Figure 5.—Fat wrinkles.

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OPEN INSECT BITES.



WELL-HEADED INSECT BITES.

Figure 6. - Insect bites.

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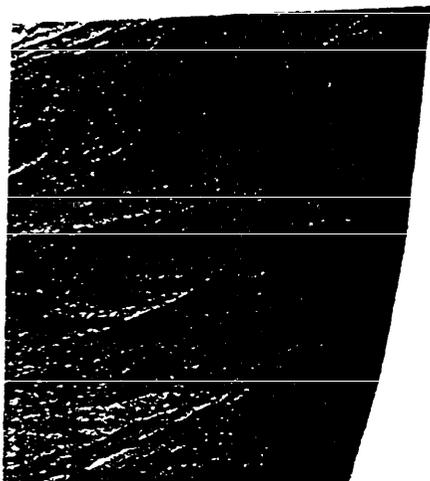


SLIGHT GRAIN CUTS.

Figure 7.—Grain damage. (See also figure 7a.)

SLIGHT GRAIN DAMAGE.

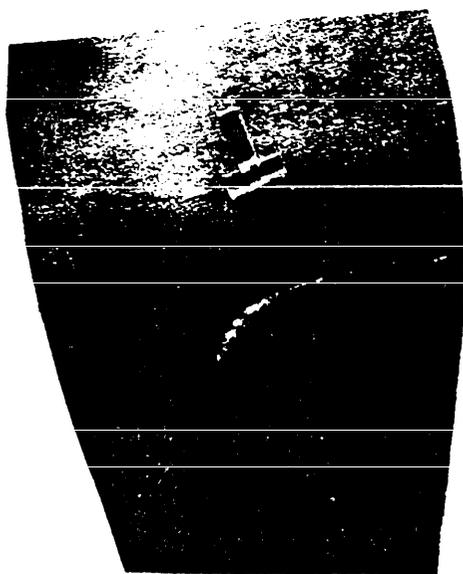
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ROUGH GRAIN.



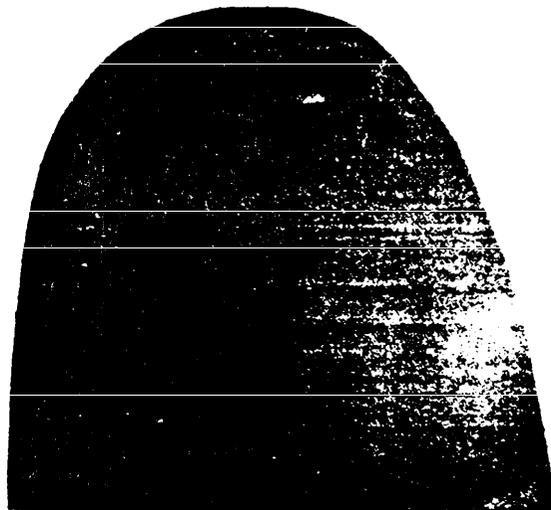
EXTENSIVE BROKEN OR CRACKED GRAIN.



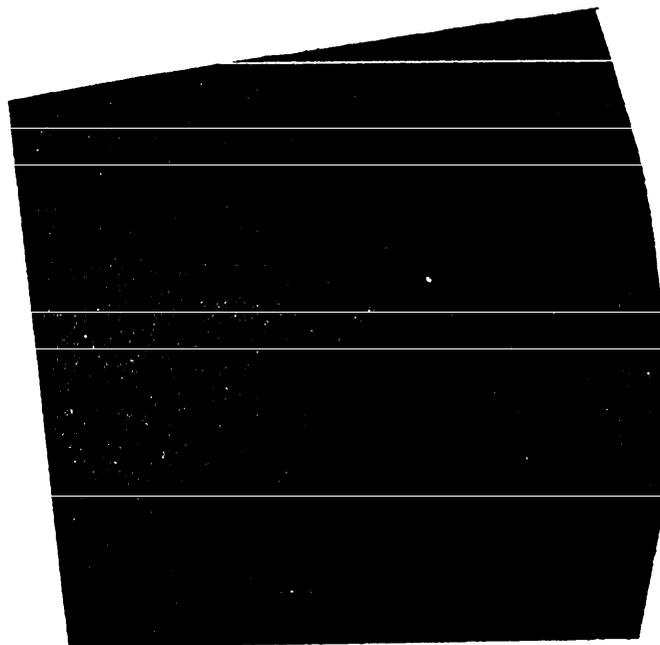
DEEP GRAIN CUTS.

Figure 7a.—Grain damage. (See also figure 7.)

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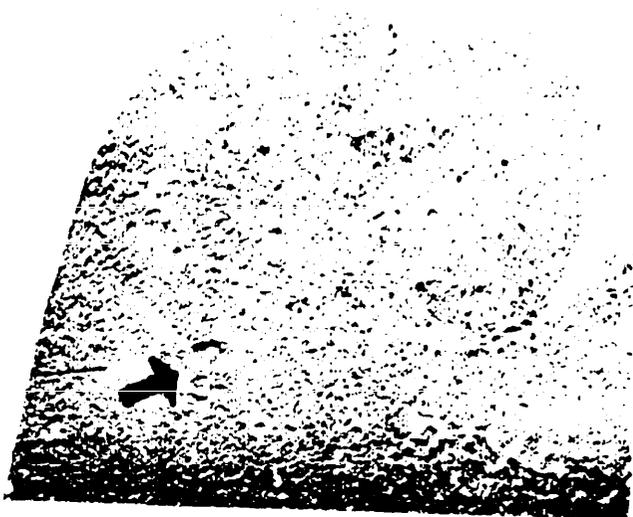
WELL-HEALED GRUB DAMAGE.



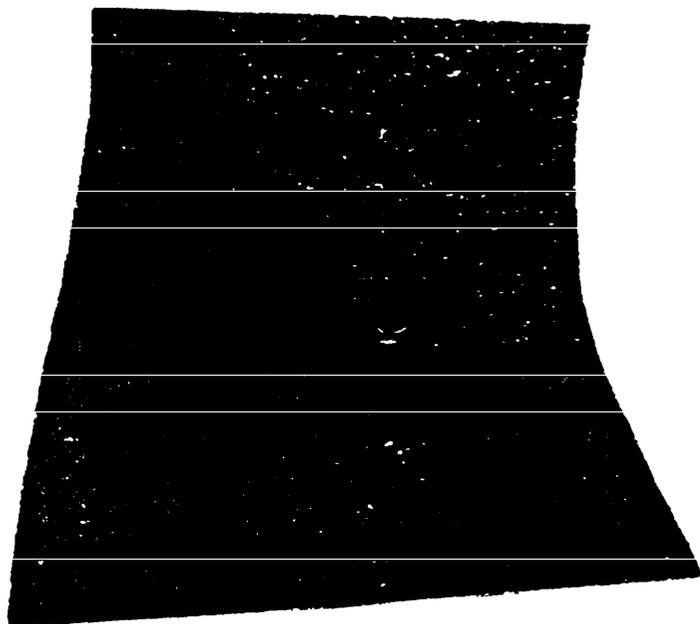
OPEN GRUB HOLE.

Figure 8.—Grub damage, grain side. (See also figure 8a.)

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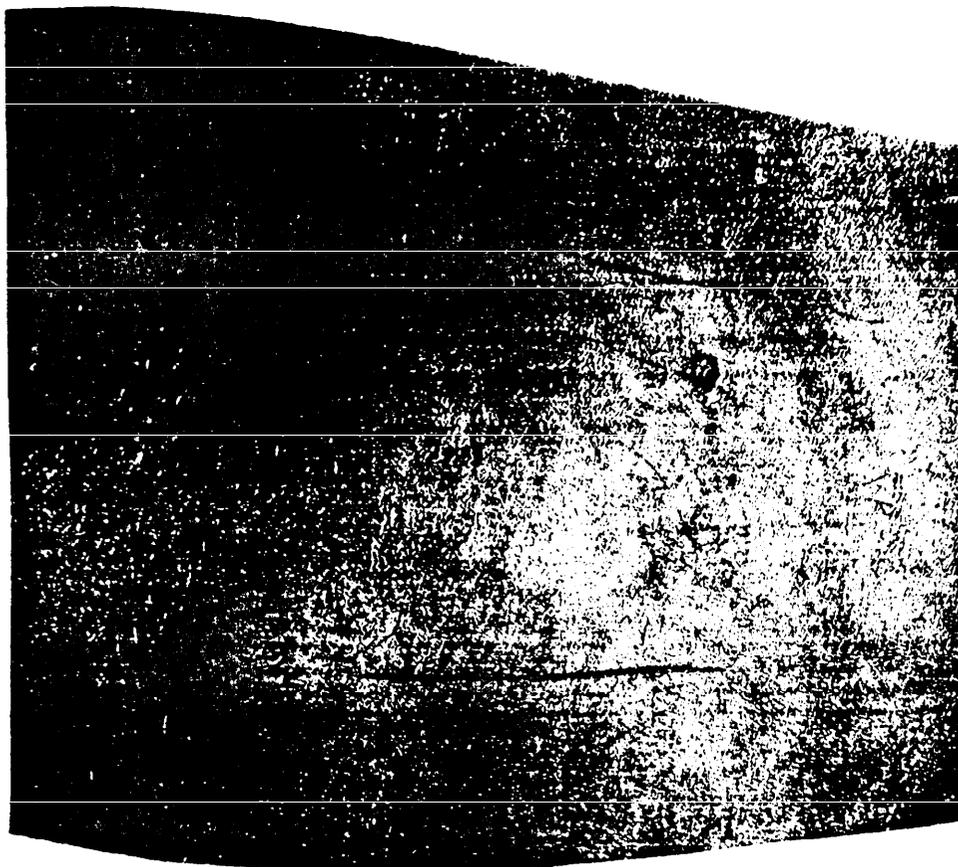
WELL-HEALED GRUB DAMAGE.



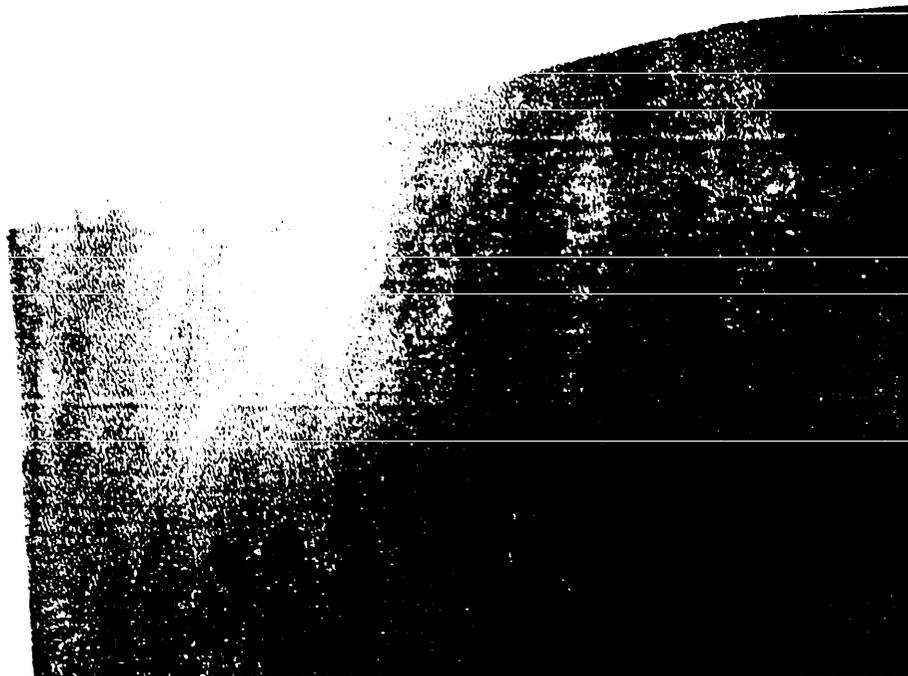
OPEN GRUB HOLE

Figure 8a.—Grub damage, flesh side. (See also figure 8.)

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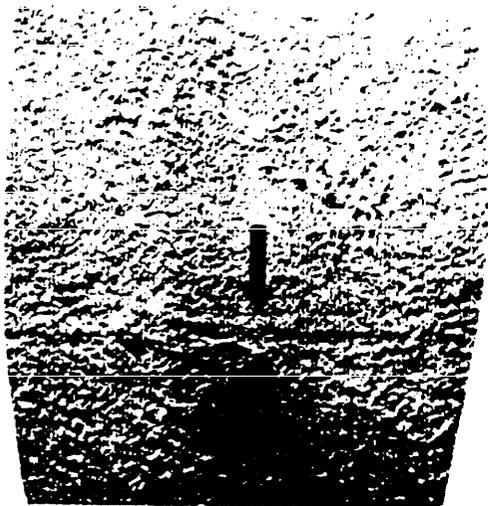
UNREMOVED HAIR.



DISCOLORATION.

Figure 9. - Cleanliness, grain side.

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SLIGHT SLAUGHTER CUTS.

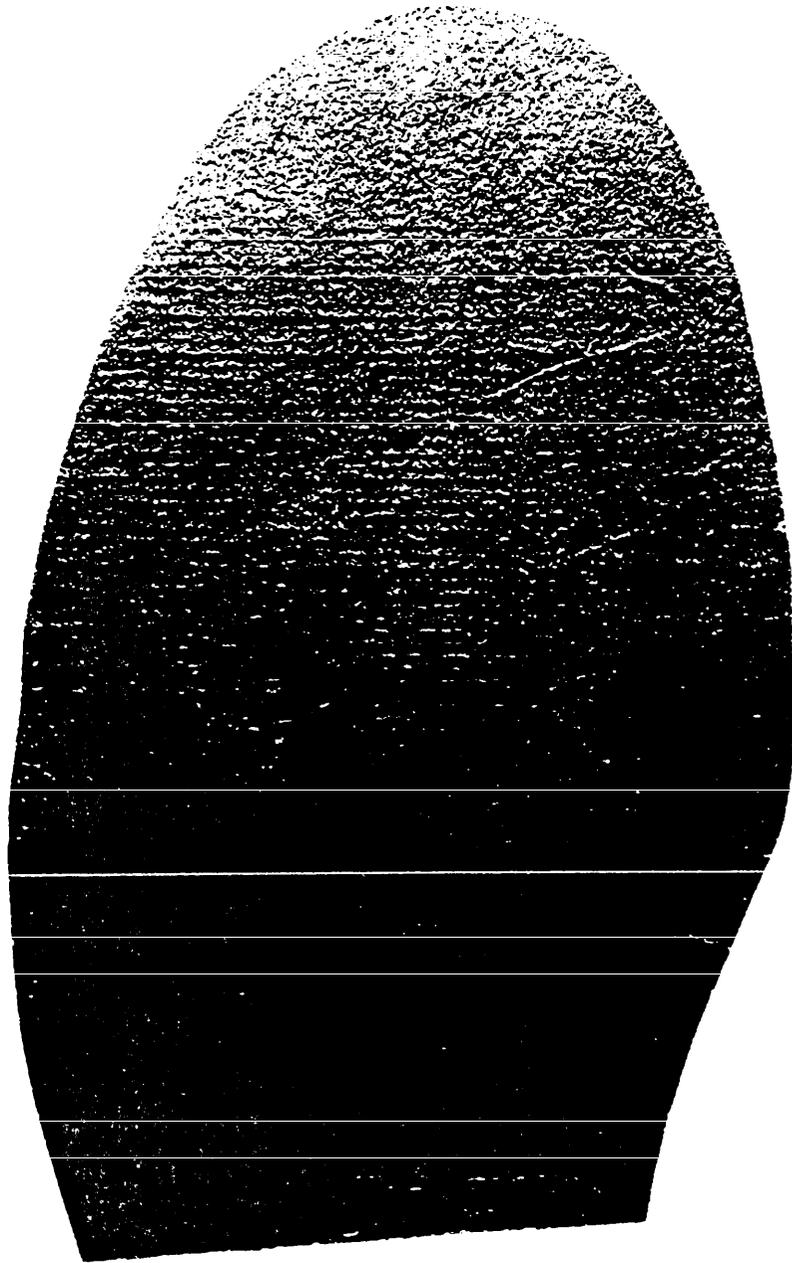


SHALLOW SLAUGHTER CUTS.



DEEP SLAUGHTER CUTS

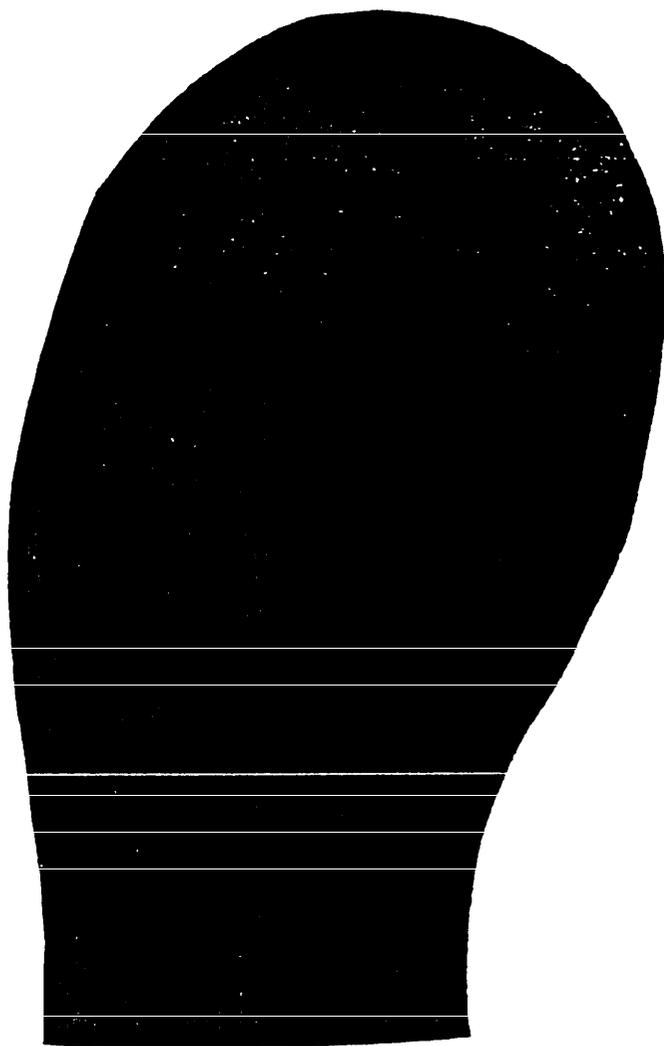
Figure 10.—Slaughter cuts



LEATHER HAS BEEN REMOVED FROM THE FLESH SIDE OF THIS OUTER SOLE TO PROVIDE UNIFORM THICKNESS. THE RESIDUAL VEIN MARKINGS PROVIDE EVIDENCE THAT THE THICKNESS OF LEATHER REMOVED WAS NOT EXCESSIVE AND THAT NO GREAT INJURY TO THE LEATHER HAS OCCURRED.

Figure 11. - Leveling, flesh side. (See also figure 11a.)

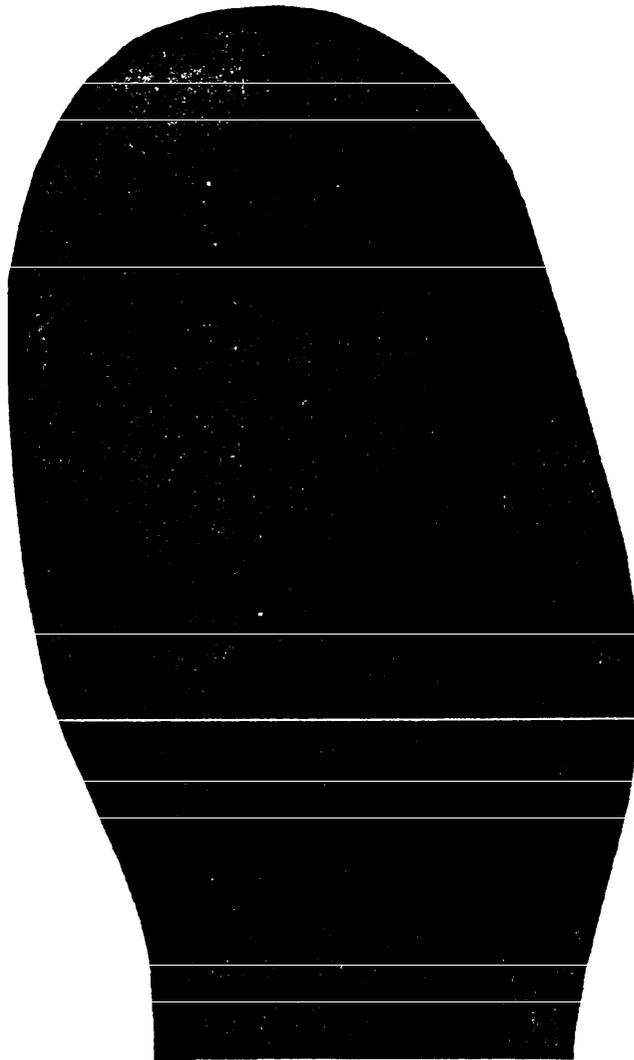
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ABSENCE OF VEIN MARKINGS INDICATE THAT AN EXCESSIVELY THICK LAYER OF LEATHER HAS BEEN REMOVED FROM THE FLESH SIDE OF THIS OUTER SOLE. THIS APPEARANCE FACTOR IS TYPICAL OF BLED SOLES.

Figure 11a. - Leveling, flesh side. (See also figure 11.)

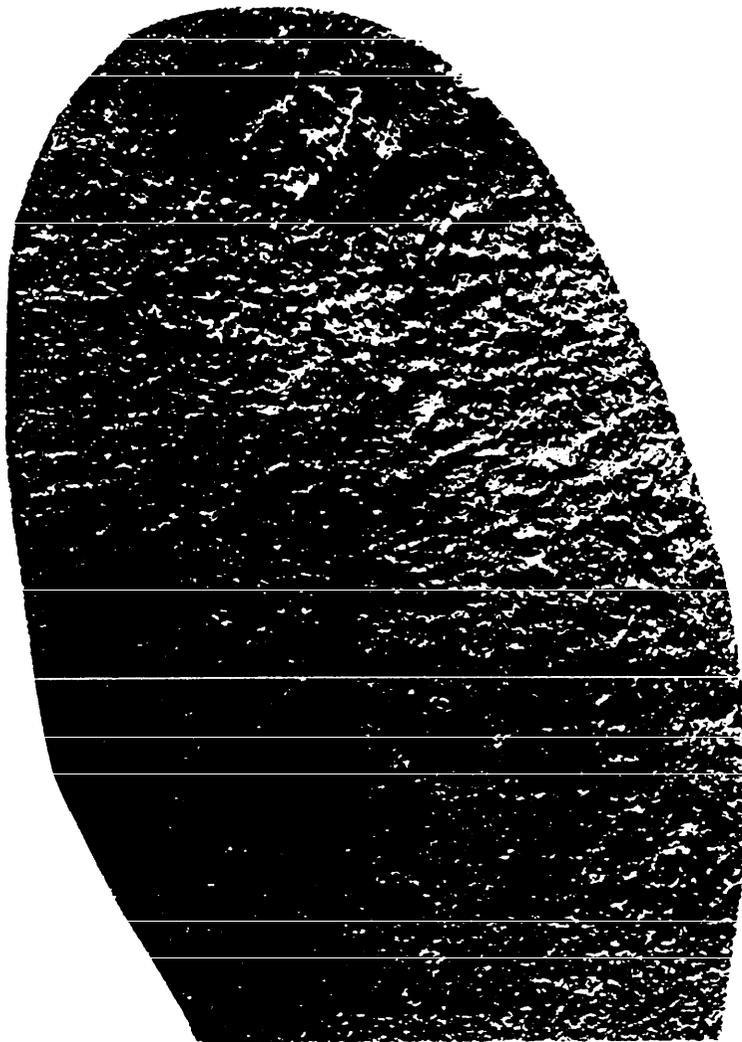
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SLIGHTLY FLESHY.

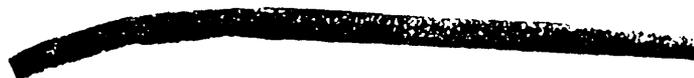
Figure 12.—Fleshiness. (See also figure 12a.)

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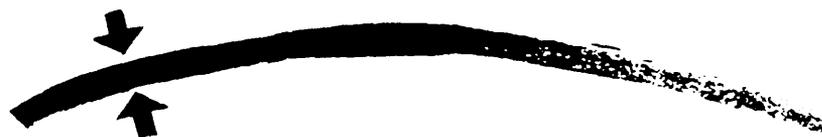


EXCESSIVELY FLESHY

Figure 12a.—Fleshiness. (See also figure 12.)



Tanning agents have penetrated completely through the leather. No visible raw streaks.



Visible raw streaks show that tanning agents have not penetrated completely through the leather.

Figure 13.—Tannage. (Side views of cut soles.)

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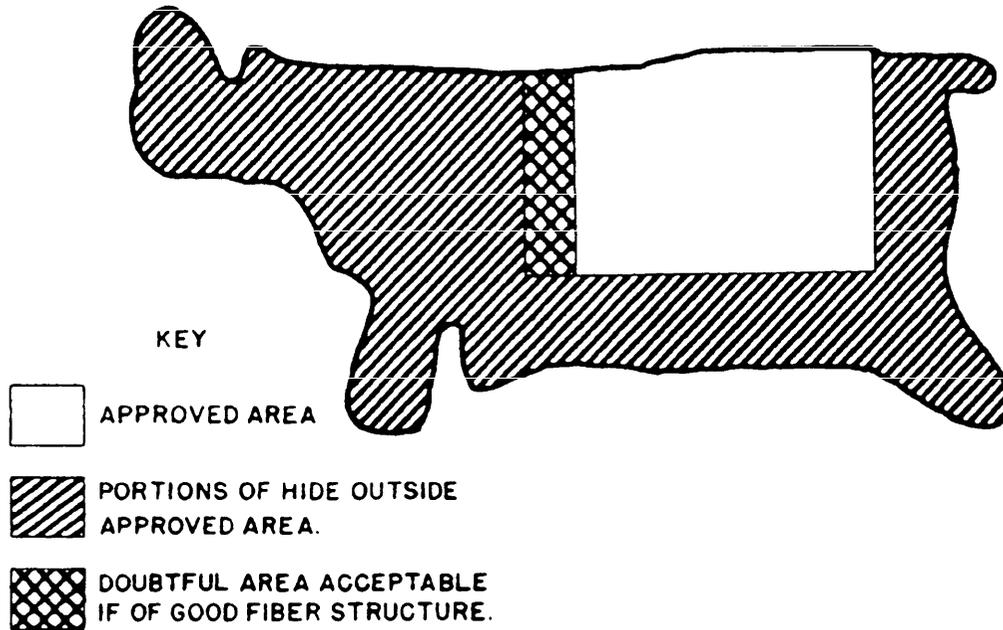


Figure 14.—Location on bend for cutting strips.

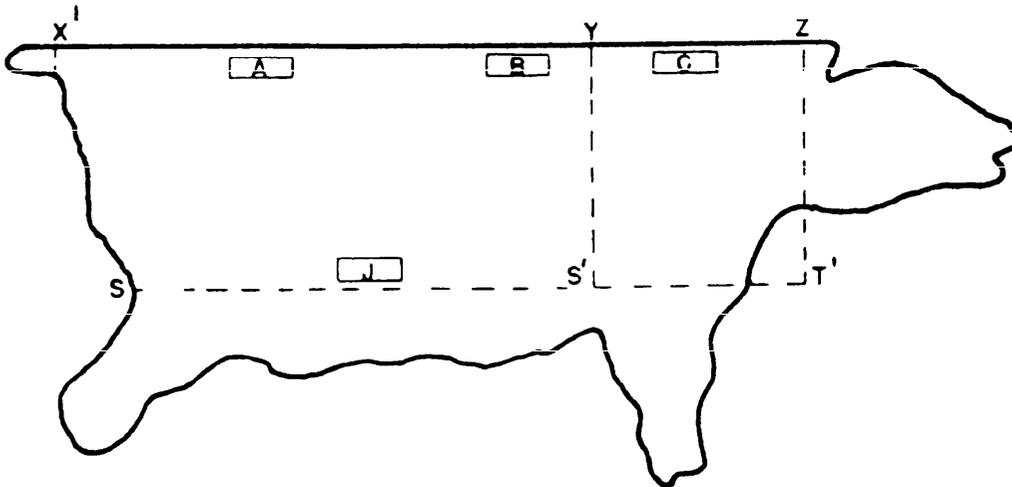


Figure 15.—Location of pieces for chemical tests.

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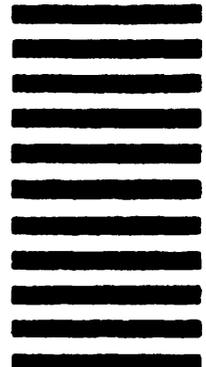


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