

MIL-M-9105D(USAF)  
23 April 1971  
SUPERSEDING  
MIL-G-9105C(USAF)  
12 October 1961

## MILITARY SPECIFICATION

## MITTEN, INSERTS

(Gloves, Air Crew, Mitten Style, Leather, Type N-2)

## 1. SCOPE

1.1 This specification covers one type of leather mitten furnished in one size and designated Type N-2.

## 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 the specification to the extent specified herein.

## SPECIFICATIONS

## Federal

V-T-276	Thread, Cotton
V-T-295	Thread, Nylon
KK-L-169	Leather, Horsehide, Chrome Tanned, For Gloves, Garments, And Equipage
DDD-L-20	Label, For Clothing, Equipage And Tentage (General Use)

## Military

MIL-W-5664	Webbing, Textile, Elastic, Cotton
MIL-B-17757	Boxes, Fiberboard, Corrugated (Modular Sizes)

## STANDARDS

## Federal

FED-STD-311	Leather, Methods Of Sampling And Testing
FED-STD-751	Stitches, Seams, And Stitchings

## Military

MIL-STD-105	Sampling Procedures And Tables For Inspection By Attributes
MIL-STD-129	Marking For Shipment And Storage

MIL-M-9105D(USAF)

## PATTERN DRAWINGS

Air Force

45D18785

Pattern N-2 Glove, Emergency Rescue

(Copies of specifications, standards, drawings, and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer )

## 3. REQUIREMENTS

- \* 3.1 First article approval. When specified (see 6.2), before production is commenced, a left or right hand mitten shall be submitted or made available to the contracting officer or his authorized representative for inspection as specified in 4.4. The approval of the first article authorizes the commencement of production, but does not relieve the supplier of the responsibility for compliance with all provisions of this specification. The first article shall be manufactured by the supplier in the same facilities to be used for the manufacture of the production items.
- \* 3.2 Guide samples. Samples, when furnished, are solely for guidance and information to the supplier (see 6.3). Variations from this specification may appear in the sample, in which case this specification shall govern.
- 3.3 Materials.
  - \* 3.3.1 Leather. Except for the following additional requirements, the leather shall be horsehide fronts conforming to type I, class 2, 1-1/2 to 2-1/2 ounces of KK-L-169. Loose, spongy, or flanky leather shall not be permitted. Salt stains, grown over cuts or scratches, or any other minor defects that do not affect the appearance or wearing qualities of the mittens will be accepted. The flesh side of the leather used in the mittens shall be smooth, clean, and free from coarse fibers. The color of the leather shall be brown conforming to USAF color shade No 1533 (see 6.4).
  - 3.3.2 Webbing. The elastic webbing for the shirring shall be cotton, 1/2 inch wide, conforming to class 1 of MIL-W-5664.
  - \* 3.3.3 Thread. The thread for sewing the mitten shall be nylon, matching the shade of the leather, and conforming to size E, type I or II, class 1 or 2, or type III of V-T-295 except that cotton thread, identical in shade to the nylon thread, ticket No. 30, 3 ply or ticket No. 20, 4 ply conforming to type IA3 of V-T-276 may be used in the shirring operations.
  - 3.4 Design. The mittens shall be all leather, with an elastic shirring on the back of the wrist.
  - 3.5 Construction. Unless otherwise specified, the tolerance on dimensions shall be plus 1/16, minus zero inch.
  - \* 3.5.1 Stitches, seams, and stitching. Stitches, seams, and stitching types used in the construction of the mittens shall be in accordance with FED-STD-751. Except for the shirring of the palm, all seaming and stitching shall be as specified in Table I. All ends of seams shall be securely backstitched not less than 3/8 inch or shall be caught in another seam.

TABLE I. Sewing Operations

No.	Manufacturing Operations Requirements	Stitch Type	Seams and Stitching Type	Stitch per Inch
1.	Preparation before cutting. Before cutting, the leather shall be dampened and properly worked with all the stretch pulled out in the length direction (parallel to backbone).			
2.	Cutting. All leather components shall be cut from one piece of leather and in the length direction.			
3.	Join thumb to palm. The thumb shall be sewn to the palm portion by inseam closing, 1/16 to 1/8 inch gage, in accordance with the notches on the patterns, with the welt inserted.  The narrow end of the welts shall be caught in the back-closing seam.  A leather welt strip approximately 1/4 inch wide shall be inserted as a seam reinforcement guard and shall overlap the thumb welt 1/4 inch. The strap shall finish 1/8 inch beyond the outside of the closing seam and shall extend to within 3/4 inch of the top of the finished mitten and shall not be caught in the top hem.	301	SSj-1	9-11
4.	Attach elastic shirring. An elastic shirring, 2-1/2 (plus or minus 1/4) inches long, when relaxed, shall extend across the back of the mitten at the wrist line in accordance with the prick marks on the pattern. The webbing shall be stretched 100 percent when applied and shall be securely stitched with two rows of stitching 1/16 to 3/32 inch gage. The ends of the thread shall be tied or backstitched. The elastic shall be on the inside of mitten.  As an alternate, one row of zig-zag stitching may be used in lieu of the two single rows of stitching.	301  304	SSa-2  SSa-1	6-7  6-7
5.	Shirr palm. The palm shall be shirred, between notches, as shown on pattern.	501		6-7
6.	Join to back. The back shall be joined by outer seam closing, with a single row of stitching, 1/8 inch from edge.	301	SSa-1	9-11
7.	Finish. The top of the mitten shall be turned under 3/8 inch $\pm$ 1/16 inch and shall be stitched all around with a single row of stitching 3/16 to 5/16 gage. The mittens shall be properly blocked on commercial electric or steam heated forms.	301	EFa-1	9-11

MIL-M-9105D(USAF)

- \* 3.5.2 Pairing. Right and left hand mittens shall be paired and shall be tacked together with 2 to 4 threads per tack. Tacking shall be performed with a ply of thread which will permit the mittens to be pulled apart without tearing the leather.

3.6 Patterns. The manufacturer's working patterns shall be identical in size and shape to the patterns referenced on Pattern Drawing 45D18785.

3.7 Contractor's label. Each mitten shall be permanently and legibly marked for identification in a contrasting color at the wrist on the inside, approximately 1/2 inch from the top of the palm side, in accordance with Type III or IV, Class 4 of DDD-L-20, except that the following specific nomenclature and information shall be provided

Mitten, Inserts, N-2  
 Specification No \_\_\_\_\_  
 FSN \_\_\_\_\_  
 Contract No. \_\_\_\_\_  
 Contractor Name \_\_\_\_\_

- \* 3.8 Construction. The mittens shall be made with the operations listed in Table I. The supplier is not required to follow the sequence of operations listed.
- \* 3.9 Measurements. The finished mitten shall be 5 inches  $\pm 1/4$  inch wide and the overall length shall be 11 inches  $\pm 1/4$  inch when measured on a flat surface.
- \* 3.10 Workmanship. The mittens shall be constructed in a thoroughly workman-like manner. The finished mittens shall be clean and free from any defects that might affect appearance or functionality.

#### 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 supplies and services conform to prescribed requirements.
- \* 4.2 Inspection. Inspection shall be in accordance with provisions set forth in MIL-STD-105, except where otherwise indicated herein.
  - 4.2.1 Components. Except as otherwise required by this specification, the quality assurance provisions for components and materials shall be in accordance with the applicable specifications and standards referenced herein. When there is a conflict in quality assurance provisions, this specification shall govern.

### 4.3 Examination for acceptance.

- \* 4.3.1 End item. The defects found during examination of the end item shall be classified as specified in 4.3.1.1 and 4.3.1.2. The inspection level for 4.3.1.1 shall be II of MIL-STD-105, and the inspection level for 4.3.1.2 shall be II of MIL-STD-105, and the inspection level for 4.3.1.2 shall be S-3 of MIL-STD-105. The acceptable quality level for 4.3.1.1 shall be 2.5 for major defects per hundred units and 6.5 for total defects per hundred units and the acceptable quality level for 4.3.1.2 shall be 4.0 defects per hundred units, and the selection of the sample shall be by pairs. The unit of product shall be one mitten and the selection of the samples shall be by pairs. The lot size shall be expressed in terms of one mitten.
- \* 4.3.1.1 Visual examination of mittens. The mittens shall be examined for the defects specified in Table II. Defects with an asterisk (\*) in the classification column shall be classified as a major defect when affecting serviceability seriously and as a minor defect when affecting serviceability but not seriously. Any asterisked (\*) defect seriously affecting appearance shall be scored as a minor defect.
- \* 4.3.1.2 Dimensional examination of mittens. The thickness of each leather part of the mittens shall be measured in accordance with the procedure for "Fabricated Leather Articles" in method 1011 of FFD-STD-311
- \* 4.3.2 Examination of preparation for delivery requirements. An examination shall be made to determine if preservation and packaging, packing, and marking requirements of Section 5 have been met. The sample unit shall be one shipping container fully prepared for delivery, with the exception that it need not be sealed. The lot size shall be the number of shipping containers in the end item inspection lot. The inspection level shall be S-2 of MIL-STD-105, and the AQL shall be 2.5 defects per hundred units. Shipping containers fully prepared for delivery shall be examined for defects of closure and scored as follows

<u>Examine</u>	<u>Defect</u>
Marking (exterior and interior)	Omitted, incorrect, illegible, of improper size, location, sequence, or method of application
Materials	Any component missing Any component damaged, affecting serviceability
Workmanship	Inadequate application of components, such as incomplete closure of case liners, containers flaps, loose strapping, inadequate stapling Bulging or distortion of containers
Weight or content (exterior and interior)	Number of intermediate packages in more or less than required, gross or net weight exceeds requirements.

- \* 4.4 First article inspection. The first article submitted in accordance with 3.1 shall be inspected as specified in 4.3.1.1 and 4.3.1.2 for compliance with design, construction, workmanship and dimensional requirements.

MIL-M-9105D(USAF)

TABLE II. Design, Material, and Workmanship

Examine	Defect	Major	Minor
Pairing	Not properly mated, e.g., not right and left within the pair	X	
	Wide variation in color		X
	Not tacked together		X
Color	Not specified color, color not uniform, or shaded parts clearly noticeable		X
Design	Not as specified or any leather part not cut in strict accordance with the pattern (unless otherwise indicated herein)	X	
Cleanliness	Spots or stains clearly noticeable, seriously affecting appearance		X
Material (leather)	Any through hole, cut, tear, or rip	X	
	Not horsehide	Y	
	Not full grain	Y	
	Loose or spongy leather	X	
	Flanky leather		
	Not soft or pliable	X	
	Grain damage penetrating deeply into leather fiber, e.g., open scratch or grub hole	Y	
	Grain damage not penetrating deeply into leather fiber (not applicable to minute, superficial, surface break provided the condition or frequency of same does not have serious affect on appearance)		Y
	Deep fat wrinkles seriously affecting Serviceability	X	
	Fat wrinkles affecting appearance or affecting serviceability but not seriously		X
	Brittle or bony area, scar, weak, or thin spot, abraded area, or otherwise defective, seriously affecting serviceability	X	

MIL-M-9105D(USAF)

TABLE II. Design, Material, and Workmanship (Cont'd)

Examine	Defect	Major	Minor
Material (leather) (Cont'd)	Bony area, scar, abraded area, or otherwise defective, affecting serviceability but not seriously		X
	Flesh cut, affecting serviceability		*
	Salt stains or any other form of pronounced discoloration or healed grub marks or any other healed damage present to a degree, seriously affecting appearance of the item		X
	Flesh side of leather not smooth or contains flesh in excess of 1-square inch in total area		X
	Distinct difference in grain structure between parts seriously affecting appearance (not applicable to welts)		X
Construction and workmanship (general)	Any component misplaced or any operation omitted or not properly performed		*
	Any component missing	X	
	Any component not securely affixed	X	
	Any workmanship damage seriously affecting serviceability, e.g., scissor or knife cut	X	
	Any workmanship damage, seriously affecting appearance or affecting serviceability but not seriously		X
	Any mend in leather, i.e., patch (not applicable to restitched seam repair)	X	
	Needle chews likely to develop into a hole	X	
Seams and stitching	Any open seam except wrist hem		
	NOTE: When one or more stitches are broken or two or more consecutive skipped stitches or run-offs occur on a single stitched seam or on both rows of stitching on a double-stitched seam, it shall be classified as a major defect. When one or more stitches or run-offs occur on only one row of a double-stitched seam, it shall be classified as a minor defect.		

MIL-M-9105D(USAF)

TABLE II. Design, Material, and Workmanship (Cont'd)

Examine	Defect	Major	Minor
Seams and stitching (Cont'd)	Open seam or wrist hem		X
	Not specified seam type	Y	
	Not specified stitch type	X	
	Any row of stitching omitted	Y	
	Loose stitch tension, resulting in a loosely secured seam	Y	
	Tight stitch tension, resulting in cutting of leather or breaking of stitches when normal pull is applied	X	
	Ends of stitching not backstitched or caught in another seam		X
	Gage of stitching irregular or not as specified		*
	Puckering or pleating where not intended		*
	Any part caught in unrelated row of stitching		*
	One or two stitches per inch less than specified	Y	
	More than the specified maximum number of stitches per inch, damaging leather	Y	
	Poorly assembled, affecting serviceability but not seriously, e g , elastic webbing attached on bias so that mitten is slightly malformed		X
	Not constructed with specified number of pieces of leather	Y	
Marking	Missing, incomplete, correct, not legible, not specified size, not in proper location, or not accomplished in the specified manner		X



MIL-M-9105D(USAF)

## 5. PREPARATION FOR DELIVERY

- \* 5.1 Packaging Packaging shall be Level A or C as specified (see 6.2).
- \* 5.1.1 Level A. Each pair of mittens shall be placed in a clear polyethylene film bag of 0.003 inch thickness ( $\pm 20$  percent tolerance). The polyethylene bag shall be formed with heat-sealed seams that are straight, continuous and parallel to each other and the formed edges of the bag. The closure shall be by heat-seal. During closure, excess air shall be expelled from the bag.
- \* 5.1.2 Level C. Mittens shall be packaged to afford adequate protection against damage during shipment from the supply source to the first receiving activity. The supplier may use his standard practice when it meets this requirement.
- \* 5.2 Packing shall be Level A, B, or C as specified (see 6.2).
- \* 5.2.1 Level A. Thirty pairs of mittens packaged as specified shall be packed in a fiberboard shipping container conforming to class weather-resistant, size 1 of MIL-B-17757. Level A packages shall be packed three in length, one in width and ten in depth. Closure and reinforcing requirements for the boxes shall be as specified in the appendix of the box specification.
- \* 5.2.2 Level B. Thirty pairs of mittens packaged as specified shall be packed in a fiberboard shipping container conforming to class domestic, grade 275, size 1 of MIL-B-17757. Level B packages shall be packed three in length, one in width and ten in depth. Closure of the boxes shall be in conformance with the requirements of the appendix of the box specification.
- \* 5.2.3 Level C. Mittens 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 conform to carrier rules and regulations applicable to the mode of transportation.
- \* 5.3 Marking. In addition to any special marking required by contract or order, shipping containers shall be marked in accordance with MIL-STD-129.
- \* 5.3.1 Polyethylene packages. The polyethylene packages shall have the following legibly printed or stamped in black across the center face of the bag or on a white paper label which shall be placed within the bag in such a manner that the information is visible from outside the bag.

Federal Stock Number  
 Nomenclature  
 Quantity  
 Size

## 6. NOTES

6.1 Intended use. The mittens covered by this specification are intended to be worn over the Type N-3B knit wool gloves, and in extremely cold conditions, they are to be worn under the Type N-4B two-piece outer glove assembly also, making a total of four gloves on each hand.

MIL-M-9105D(USAF)

- \* 6.2 Ordering data. Procurement documents should specify the following
  - a. Title, number, and date of this specification.
  - b. Selection of applicable levels of preservation and packaging and packing required (see 5.1 and 5.2).
  - c. Requirement for first article sample (see 3.1 and 4 4).
- \* 6.3 Samples. For access to samples, address the procuring activity issuing the invitation for bids.
- 6.4 USAF color shades. A sample of USAF color shades may be obtained from the procuring activity or as directed by the contracting officer.
- 6.5 Figure. Figure 1 indicates the general appearance of the mitten and is for information only.
- \* 6.6 The margins of this specification are marked with an asterisk to indicate where changes (additions, modifications, corrections, deletions) from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Custodian.  
Air Force - 82

Preparing Activity  
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Review Activity  
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Project No. 8415-F708

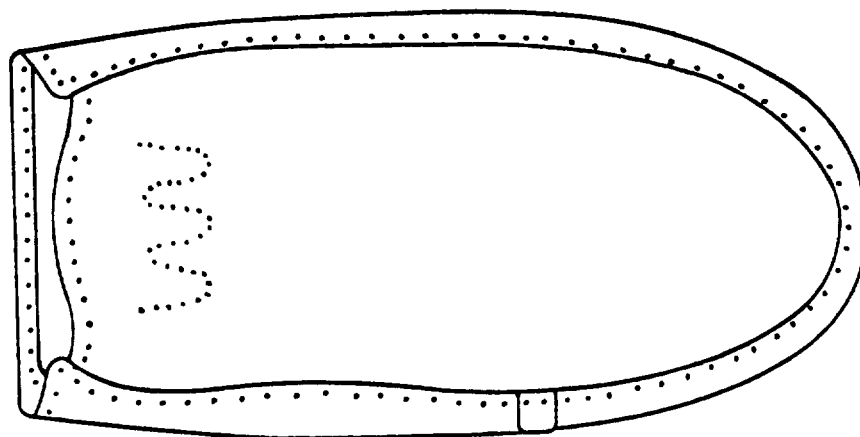
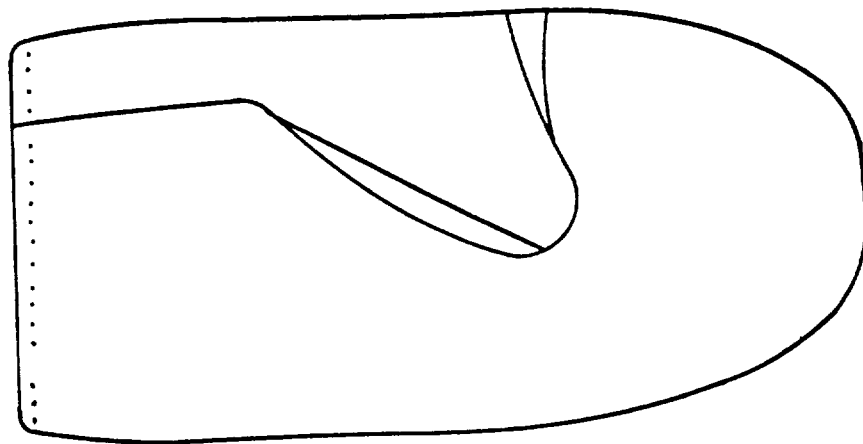


FIGURE 1. Mitten.

<b>SPECIFICATION ANALYSIS SHEET</b>		Form Approved Budget Bureau No 22-R255
<b>INSTRUCTIONS</b> This sheet is to be filled out by personnel, either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity. Comments and suggestions submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or serve to amend contractual requirements.		
SPECIFICATION		
ORGANIZATION		
CITY AND STATE	CONTRACT NUMBER	
MATERIAL PROCURED UNDER A <input type="checkbox"/> DIRECT GOVERNMENT CONTRACT <input type="checkbox"/> SUBCONTRACT		
1 HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE? A. GIVE PARAGRAPH NUMBER AND WORDING.		
B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES		
2 COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID		
3. IS THE SPECIFICATION RESTRICTIVE? <input type="checkbox"/> YES <input type="checkbox"/> NO (If "yes", in what way?)		
4 REMARKS (Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)		
SUBMITTED BY (Printed or typed name and activity - Optional)		DATE

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REPLACES EDITION OF 1 OCT 64 WHICH MAY BE USED.

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