MIL-B-3461G
30 September 1979
SUPERSEDING
MIL-B-003461F
3 June 1977
USED IN LIEU OF
MIL-B-3461E
30 June 1973

#### MILITARY SPECIFICATION

BUTTON, INSIGNIA, METAL, UNIFORM AND CAP

This specification is approved for use by all Departments and Agencies of the Department of Defense.

#### 1. SCOPE

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- 1.1 Scope. This specification covers metal uniform and cap buttons with embossed designs used by the Military Departments.
- 1.2 <u>Classification</u>.— Buttons shall be of the following types, styles, classes, subclasses and sizes, as specified (see 1.2.1, 6.2, 6.5 and 6.6).

Type I - Button, Insignia, Metal Uniform
Style 1 - Air Force, Silver Plated

Style 2 - Army

Class A - Army, Gold Plated, Solid Design

Class B - Army, Gold Plated, Pierced Design

Class C - Army, Corps of Engineers, Gold Plated, Pierced Design

Class D - Army, JROTC Division, Gold Plated, Solid Design

Class E - Army, Nickel Plated, Pierced Design (See 1.2.1 and 6.6)

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be used in improving this document should be addressed to: Director, The Institute of Heraldry, US Army, Cameron Station, Alexandria, VA 22314, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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    Style 3 - Marine Corps
      Class A - Gold Plated
      Subclass 1 - High Contour (Officers)
      Subclass 2 - Low Contour (Enlisted Personnel)
    Style 4 - Navy
      Class A - Gold Plated
      Class B - Bronze
      Class C - Silver Plated
    Style 5 - Coast Guard (see 6.3)
      Class A - Gold Plated
      Class B - Bronze
Type II - Button, Insignia, Metal Cap
    Style 1 - Air Force, Silver Plated
    Style 2 - Army
      Class A - Army, Gold Plated, Solid Design
      Class B - Army, Gold Plated, Pierced Design
      Class C - Army, Corps of Engineers, Gold Plated,
                 Pierced Design
      Class D - Army, JROTC Division, Gold Plated,
                 Solid Design
      Class E - Army, Nickel Plated, Pierced Design
                 (See 1.2.1 and 6.6)
    Style 3 - Marine Corps
       Class A - Gold Plated
       Subclass 1 - High Contour (Officers)
       Subclass 2 - Low Contour (Enlisted Personnel)
       Class B - Black Enameled
       Subclass 1 - High Contour (Officers)
       Subclass 2 - Low Contour (Enlisted Personnel)
    Style 4 - Navy
      Class A - Gold Plated
      Class B - Bronze
      Class C - Silver Plated
    Style 5 - Coast Guard (See 6.3)
      Class A - Gold Plated
      Class B - Bronze
    Style 6 - Coast Guard Auxiliary (See 6.3)
Type III - Button, Insignia, Metal, Cuff Link, Air Force
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1.2.1 <u>Sizes</u>.- Button sizes shall be as shown in table I. Sizes shall be given in lignes where 40 lignes equal one inch.

TABLE	I	Sizes	(in	Lignes) l/
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Army	Army Corps of Engineers	Air Force	Marine Corps	Navy				Army <u>2</u> / Special
20	25	20	22	22-1/2	22-1/2	22-1/2	25	2.5
25	30	25	27	28	28	28	30	36
30	36	30	40	35	35 •	35	36	
36		36		40	40	•		
		45						

 $\frac{1}{2}$ / A tolerance of plus or minus 1 ligne will be permitted.  $\frac{2}{2}$ / These are the sizes available for the types I and II, style 2, class E buttons and are restricted for use by The United States Army Band and Ceremonial Units of the 3rd Infantry.

#### 2. APPLICABLE DOCUMENTS.

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

#### SPECIFICATIONS

FEDERAL

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UU-P 553 - Paper, Wrapping, Tissue

PPP-B-636 - Box, Shipping, Fiberboard

PPP-B-676 - Boxes, Setup

V-T-276 - Thread, Cotton

STANDARDS

FEDERAL

FED-STD-151 - Metal, Test Methods

MILITARY

MIL-STD-105 - Sampling Procedures and Tables for

Inspection by Attributes

MIL-STD-129 - Marking for Shipment and Storage DRAWING

THE INSTITUTE OF HERALDRY

4-4-92 - Buttons, Insignia, Metal, Uniform and Cap

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

#### 3. REQUIREMENTS

- 3.1 Standard samples. Unless otherwise specified (see 6.2), a standard sample of the finished button required shall be furnished by the contracting officer. With the exception of the standard samples of the Coast Guard, Coast Guard Auxiliary and Army 20 ligne buttons the standard samples furnished shall be used for matching color and finish only.
- 3.2 First article.— When specified (see 6.2), before production is commenced a sample of the finished button shall be submitted or made available to the contracting officer or his authorized representative for inspection and tests as specified in 4.2. The approval of the first article authorizes the commencement of production but does not relieve the contractor of responsibility for compliance with the provisions of this specification. The first article shall be manufactured in the same facilities to be used for the manufacture of the production items.
- 3.3 <u>Materials</u>. Materials shall conform to the referenced specifications and the requirements specified herein.
- 3.3.1 Copper base alloys. Copper base alloys shall be rolled, polished, free from pits, scale (including red oxide), dents, nicks, cracks, scratches, segregations and foreign inclusions that will not be removed in later processing. When tested as specified in 4.4.1, the chemical composition of the applicable copper base alloy shall be as specified in table II.

TABLE II Chemical composition of copper base alloys .-

Alloy	Copper				nganese (max)	Zinc O	thers max)
Yellow brass	64.0-68.5		.15	.05		Remain-	
Red brass	84.0-86.0		.05	•05		Remain- der	.15
Nickel silver	63.0-66.5	16.5-19.5	.10	.25	.50	Remain- der	
Low brass	78.5-81.5		.05	.05		Remain- der	.15
Free cutting							
brass	60.0-63.0		3.75	.35		Remain- der t	

1/ Cobalt counting as nickel.

3.5.2 Stamping, trimming and piercing. The embossed die shall be struck in a manner to ensure a well defined die struck outline. The button shall be trimmed and when applicable pierced to the die struck outline of the area specified. All edges shall be clean smooth and free from burrs, drag, step and rough edges. The stamping and trimming and when applicable the piercing operation shall not damage or distort the design or alter the shape of the button.

### 3.6 Detail of components.-

# 3.6.1 Type I (Uniform buttons).-

3.6.1.1 Shells and liners.— Except for oxidized silver buttons, all shells and when applicable liners, shall be fabricated from the red brass specified in 3.3.1. Shells for oxidized silver buttons shall be fabricated from nickel silver specified in 3.3.1. The thickness of the shells shall be as specified on drawing 4-4-92. When liners are required, the liners shall be 0.011 plus or minus 0.002 inch thick with 80 lines plus or minus 5 lines to the inch. Each liner shall have a raised platform to support the areas of embossed design on the shell and to ensure the proper positioning of the liner. The raised platform shall not be visible after assembly. Except for raised embossed areas, style 2, class D shells shall be flat across the face. The rim of the face of the shell shall be burnished to produce a 30 to 40 degree angled bevel as shown on drawing 4-4-92.

3.6.1.2 Back and shanks.— Backs and shanks shall be fabricated from low brass specified in 3.3.1. The thickness of the backs and shanks shall be as specified on drawing 4-4-92. Except for type I, style 2, classes A (20 ligne), D and E, type I, style 4, classes A, B and C, sizes 22-1/2 and 35 ligne and type I, style 5, classes A and B, sizes 22-1/2, 35, and 40 ligne buttons, the type of shank shall be as specified (see 6.2). The type I, style 2, class A (20 ligne) shall have a tunnel shell self shank. The type I, style 2, classes D and E buttons, the type I, style 4, classes A, B and C, sizes 22-1/2, 35, and 40 ligne and type I, style 5, classes A and B, sizes 22-1/2 and 35 ligne buttons shall have a hopper back.

#### 3.6.1.3 Assembly.-

3.6.1.3.1 Pierced shells and liners. Pierced shells and liners shall be assembled with the lines of the liner parallel, within 5

degrees, for buttons larger than 25 lignes and 10 degrees for buttons 25 lignes or smaller, to the horizontal center line of the design on the shell and with the liner fitted against the back of the design on the shell within 1/32 inch. Further assembly shall be as specified in 3.6.1.3.2.

- 3.6.1.3.2 Shells, liners, button backs and shanks.— Final assembly shall be as shown on drawing 4-4-92. The position of the shank, self-shank or hopper back shall be such that if a rod is inserted in the eye of either shank or self-shank or hopper back buttons, the rod shall be parallel to the lines of the background of the design of the 22, 22-1/2, 25 and style 3, 27 ligne buttons and at right angles to the parallel lines on the design of all other uniform buttons. A variation of 10 degrees maximum will be permitted.
- 3.6.1.3.3 Hopper back. When tested as specified in 4.4.8, the button shall not abrade or break the sewing thread.
- 3.6.1.4 <u>Fastening devices.</u>— When an attaching device is required (see 6.2), the attaching device shall be as specified herein.
- 3.6.1.4.1 Toggles, split pin or ring.— When split pin or ring type toggles are specified (see 6.2), the toggles shall be furnished detached. Split pin or ring type toggles shall be made from hard-drawn steel wire, zinc coated to withstand salt spray test specified in 4.4.3, for a period of 96 hours without indication of red rust. Split pin or ring type toggles shall conform to the applicable design and dimensions shown on drawing 4-4-92.
- 3.6.1.4.2 Toggles, bodkin.— When bodkin toggles are specified (see 6.2), the toggles shall be made from hard drawn nickel wire specified in 3.3.1, and shall have a nickel plated brass cap. The toggles shall conform to the applicable design and dimensions shown on drawing 4-4-92. The cap may be made from any type brass.
- 3.6.1.4.3 Washers, button. Button washers, when specified (see 6.2), shall be nickel plated, yellow brass conforming to the applicable design and dimensions shown on drawing 4-4-92.
- 3.6.1.4.4 <u>Links.</u>— Links for connecting matched pairs of uniform buttons, when required (see 6.2), shall be either chain or pin type as specified. The pin type link shall be furnished detached.

- 3.6.1.4.5 Link, chain.— The chain link shall consist of six links conforming to the applicable design and dimensions shown on drawing 4-4-92, and formed from red brass specified in 3.3.1. The links shall not be soldered but shall be given a hot nickel plating after which a 24 karat gold electroplated finish (english finish) shall be applied. The breaking strength of the chain shall be not less than 15 pounds and shall not deform or break when tested as specified in 4.4.4.
- 3.6.1.4.6 <u>Link, pin.</u>— The pin link shall be made from any type brass round wire with a 24 karat gold plated finish and shall conform to the applicable design and dimensions shown on drawing 4-4-92.
- 3.6.2 Type II (Cap buttons).— Unless otherwise specified (see 6.2), all cap buttons shall be furnished with a screw tube.
- 3.6.2.1 Shells and liners. The shells and when applicable the liners shall be as specified in 3.6.1.1.
- 3.6.2.2 Backs, screwpost and screw tube.— Backs shall be made from low brass specified in 3.3.1, and the thickness of the back shall be as specified on drawing 4-4-92. The screw post and screw tube shall be made from free cutting brass specified in 3.3.1, and shall conform to the details and dimensions shown on drawing 4-4-92. Except for style 3 (Marine Corps) buttons all type II buttons shall have a regular back. Style 3 buttons shall have a depressed back.
- 3.6.2.3 Assembly. Type II button shall be assembled as specified in 3.6.1.3, except the shank positioning requirements shall not apply. Screwposts shall be centered on and soldered or swedged to the back of the button.
- 3.6.3 Type III buttons. Cuff link buttons shall be made from nickel silver specified in 3.3.1, and shall conform to the details and dimensions on drawing 4-4-92.
- 3.7 Finish.-
- 3.7.1 Plating.-
- 3.7.1.1 Gold and silver plating.— Gold and silver plating shall be electrodeposited using gold specified in 3.3.2 or silver specified in 3.3.3, as applicable. Plating shall be uniform and

continuous over the entire plated surface. Except for the type III buttons, when gold plating is required, only the face of the shell, and when applicable the face of the liner shall be plated. All surfaces of the type III buttons and the shells of the silver plated button shall be plated. When tested as specified in 4.4.5, the average quantity of gold or silver on the button sample unit tested shall be not less than the amount specified in table III. In addition, no one dozen buttons shall contain less than 90 percent of the quantity of gold or silver specified in table III, when tested as specified in 4.4.5. Except as otherwise specified (see 3.6.1.4.5), the use of a white metal under plating shall not be permitted for gold plated items.

Table III Weight of gold or silver (grains) per dozen buttons .-

									Army		
	Ligne	Air Force	Marin	e N	avy	Coast G	uard	Solid	Pierced	Corps of	JROT
	size	-	Corps		-	Auxili	ary	Design	Design	Engineer	s
		Silver	Gold	Gold	Silver	Silver	Go1d	Gold	Gold	<u>Gold</u>	<u>Go</u>
	20	6.0						1.0			
	20 1/	20.0									
	22		1.0								
2:	2-1/2 4	/ &	:	1.0	10.0	6	2.0				
_	25 2/								1.5	1.5	
	25	12.0						1.0			0.5
	25 <u>3</u> /			-					0.5	0.5	
	27		1.5								
	28			1.25		8	2.5		-		
	30 <u>2</u> /								2.25	2.25	
	30	18.0		_				1.5			0.75
	30 <u>3</u> /								0.75	0.75	
	35			2.0	24.0	12	4.0			***	
	36 <u>2</u> /								3.0	3.0	
	36	24.0		_				2.0			1.0
	36 <u>3</u> /								1.0	1.0	
	40		3.25	2.5	30.0		5.0				
	4.5	36.0									

<sup>1/</sup> Cuff link button

 $<sup>\</sup>overline{2}$ / Pierced design shell

<sup>3/</sup> Pierced design liner

<sup>4/</sup> When the button is to be procured for use on the service cap frame or shoulder mark, the gold content specified shall not apply however the button front and rim shall be 24 karat gold electroplated.

# 3.7.1.2 Nickel plating .-

- 3.7.1.2.1 <u>Buttons</u>.- Buttons shall be bright nickel plated. plating shall be a minimum of 0.0001 inch thick and shall be continuous over the plated surface.
- 3.7.1.2.2 Washers, link and toggles. Washers, links and toggles (split pin, ring or bodkin) shall be bright nickel plated. The plating shall be a minimum of 0.0002 inch thick and shall be continuous over the plated surface.
- 3.7.2 Lacquering. Except for enameled and nickel plated buttons, the front of all buttons shall be lacquered using lacquer specified in 3.3.6. The lacquer shall be baked for a period of not less than 1/2 hour at 300°F and shall be hard, level, continuous adherent and free from dust or other foreign inclusions. When tested as specified in 4.4.6.1, there shall be no change in appearance except for a slight yellowing around the highlights. When tested as specified in 4.4.7, the lacquer shall not flake or peel.
- 3.7.3 Enameling. When required, enameling shall be accomplished using enamel specified in 3.3.5. The baked enamel shall be hard, level, continuous adherent, uniform in color and free from dust or other foreign inclusions. When tested as specified in 4.4.7, the enamel shall not flake or peel.
- 3.7.4 Individual finish and color requirements. The color finish of the buttons shall match the color and finish of the applicable standard or approved sample. The details of the finish shall be specified in table IV.

# Table IV Finish .-

BUTTON FINISH Type I: -- Silver plated, oxidized relieved satin finish Style 1 and a mirror-like burnished rim. Style 2: classes A, -- Gold plated, matte finish with polished highlights and a mirror-like burnished rim. B, C & D class E -- Bright nickel plated with a mirror-like burnished rim. Style 3, class A -- Gold plated, polished finish and a mirror-like burnished rim. Style 4: class A -- Gold plated, matte finish with polished highlights and a mirror-like burnished rim. -- Bronze, oxidized, relieved satin finish. class B -- Silver plated, oxidized relieved satin finish class C and a mirror-like burnished rim. Style 5: class A -- Gold plated, matte finish with polished highlights and a mirror-like burnished rim. class B -- Bronze, oxidized, relieved satin finish... Type II: Style 1 -- Silver plated, oxidized relieved satin finish and a mirror-like burnished rim. Style 2: classes A, -- Gold plated, matte finish with polished high-B, C & D lights and a mirror-like burnished rim. class E -- Bright nickel plated with a mirror-like burnished rim. Style 3: class A -- Gold plated, matte finish with polished highlights and a mirror-like burnished rim. class B -- Dull black enamel finish. Style 4: class A -- Gold plated, matte finish with polished highlights and a mirror-like burnished rim. class B -- Bronze, oxidized, relieved satin finish. class C -- Silver plated, oxidized relieved satin finish and a mirror-like burnished rim. Style 5: class A -- Gold plated, matte finish with polished highlights and a mirror-like burnished rim. class B -- Bronze, oxidized, relieved satin finish. Style 6 -- Silver plated, matte finish with polished highlights and a mirror-like burnished rim. Type III -- Silver plated, oxidized relieved satin finish

and a burnished rim.

- 3.8 Marking. The contractor shall stamp his trade-mark or other identifying marks legibly on the back of each button. The height of the mark shall not exceed 1/16 inch.
- 3.9 Workmanship.- Buttons shall be clean, well made and shall meet the acceptable quality levels established by this specification. The button shall be free from burrs, fins, cracks, sharp or ragged edges and any defect which will affect appearance or serviceability.
- 4. QUALITY ASSURANCE PROVISIONS
- 4.1 Inspection responsibility.— Unless otherwise specified in the contract or order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the supplier may use his own or any other facilities suitable for the performance of 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 <u>First article inspection</u>.— When a first article is required, testing shall be made on a completely fabricated button for all provisions of this specification applicable to the end product examinations and tests.
- 4.3 <u>Sampling for inspection and acceptance</u>. Sampling for inspection and acceptance shall be in accordance with MIL-STD-105, except where otherwise indicated.
- 4.3.1 Inspection of components.-
- 4.3.1.1 Testing of components. In addition to the quality assurance provisions of the subsidiary specifications and standards, inspection shall be performed on components and materials listed in Table V for test characteristics shown. The inspection level shall be S-1. The requirements are applicable to the lot average.



### Table V Components testing .-

and lots para method para meth	dper s/u reported Unit as
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Copper base alloy, as applicable	Chemical composition	3.3.1	4.4.1	Nearest 0.1% ea.	
					for ea
				,	alloy or
	·				equal

4.3.1.2 <u>Certification of compliance.</u>— Materials listed below may be accepted on the basis of a contractor's certification of compliance for requirements specified in the applicable paragraphs of this specification.

Component	Characteristic	Rqm't para.
Gold for plating	Karat	3.3.2
Silver for plating	Fineness	3.3.3
Solder	Material identification	3.3.4
Enamel (organic)	Material identification	3.3.5
Lacquer	Material identification	3.3.6
Shell back and liners	Thickness	3.6.1
Split pin or ring type toggles	Material identification and type of coating	3.6.1.4.1
Bodkin toggle	Temper of wire and material	
	identification of cap	3.6.1.4.2
Pin link	Material and finish	
	identification	3.6.1.4.6

4.3.2 <u>In-process inspection.</u>— Inspection shall be made at any point or during any phase of the manufacturing process to determine whether operation or assemblies are as specified. The Government reserves the right to exclude from consideration for acceptance any material or service for which in-process inspection has indicated nonconformance. In-process inspection shall be conducted to see that accomplishment of the following is in accordance with the specification requirements.

Requirement, operation Characteristics Rqm't para or assembly Gold plating white metal underplating 3.7.1.1

#### 4.3.3 Inspection of the end item.

4.3.3.1 Visual examination of buttons. - Examination shall be made at a distance of approximately 16 to 18 inches. The defects found during examination shall be classified in accordance with 4.3.3.1.1, 4.3.3.1.2 and 4.3.3.1.3. The lots shall be inspected in accordance with 4.3.3.1.4. The unit of product for the examinations in 4.3.3.1.1, 4.3.3.1.2 and 4.3.3.1.3, shall be one completely fabricated button and one toggle, split pin, ring, chain link, pin type link, washer and screw tube, as applicable.

4.3.3.1.1 Examination of buttons for defects in finish, design, material, construction, workmanship and markings.— Defects designated by an asterisk (\*) shall be classified as major when seriously affecting appearance or serviceability and minor when affecting appearance or serviceability but not seriously.

Table VI Classification of defects .-

		Class	ifica	ation
Examine	Defects	Major	(*)	Minor
Color and	Not as specified	<b>x</b>		
finish	Does not compare favorably with standard or approved sample	·x		
Button	Any plated area broken, cut-	_		
front	through, peeled or blistered	x		-
	Discoloration, stain or speck	-	*	_
Lacquer	Missing when required	x	-	-
-	Hazy, cloudy or powdering	-	•••	x
	Foreign matter imbedded	-	-	x
	Not smooth, not uniform, not			
	continuous or not adherent, i.e.	•		
	flaking, blistering, peeling or			
	has runs, sags, or drops		*	
Enamel	Missing	<b>x</b>	-	
	Not adherent	x	-	
	Burnt		*	
	Bubbles, pits or cracks	-	*	
	Inclusion of foreign matter	-	*	
	Stained or darkened	-	*	
Design	Detail altered, does not conform			
	to Government hub or standard			
	sample	X		
	Warp, twist or distortion pro-			
	ducing irregular surface			
	contour or outlined	X		

	Any significant detail obliterated	<b>x</b>		
	Any significant detail reduced,			
	i.e., does not compare favorably		_	
	with approved sample		*	
	Evidence that grooved lines per			
	inch of liners is not within			
	specified tolerance (measure			
	when in doubt)			X
	Not type, style, class, subclass			
	or size specified	X		
Metal	Surface spotted or open grained,			
	i.e., appearing as pitted,			
	porous or crystalized	<b>X</b>		
Piercing	Not pierced where specified	x		
	Edges not clean cut and smooth;			
	not free from burrs, drag,			
	step and rough edges	-	*	
Assembly of	Liner not positioned properly,			
pierced	i.e., parallel lines off			
design button	horizontal more than 5 degrees,			
	for buttons larger than 25			
	ligne and more than 10 degrees			
	for buttons 25 ligne or less	x		
	Liner not fitted against back			
	of design on shell within			
	specified tolerance		*	
Workmanship	Metal mark, such as, dig, dent or			
	scratch on polished surface or			
	in background, noticeable at 16			
	inches	_	*	
	Pinhole, crack or rupture	x		
	Solder spatter on front	x		
Assembly	Sharp edge, burr or fin appearing			
	on front, edge or back of button		*	
	Rolled edge not flush with back			
	by more than 1/32 inch at any			
	point			. X
	Looseness, i.e., shell edge not			
	closed in, securely clinching			
	the back	x	-	-
	Edge cracked or split	x	_	-
Shank	Missing, out of position, or is			
	not type specified	<b>x</b>		
	Eye of hopper back not formed as			
	required		*	
	•			

	Bent, loose, deformed or otherwise			
	impaired		*	
	Solder spatter on back exceeding			
	1/8 inch in maximum dimension			- <b>X</b>
	Sharp edge, fin or burr in eye of			
	hopper back		*	
	Eye of shank improperly positioned			
	by more than 10 degrees		*	
Threaded post	Missing	x		
•	Bent, loose, deformed or other-			
	wise impaired		*	
	Thread stripped, flattened or			
	damaged	×		
	Not as specified	_		- <b>X</b>
	Solder spatter on back exceeding			
	1/8 inch in maximum dimension			- <b>X</b>
Link; pin,	Deformed, twisted, bent or			
chain and	otherwise damaged	-	*	
cuff	Not specified type	x		
	Missing	x		
	Not attached to button (except			
	pin type link)	-	-	X
	Sharp edge, fin or burr	-	*	_
Toggles,	Toggle or cap missing	x	_	-
bodkin	Not type specified	-	-	x
	Cap loose	-	*	
	Deformed, bent, twisted or			
	otherwise damaged	-	*	
	Sharp edge, fin burr	-	*	-
	Not attached to button	-	-	<b>x</b> .
Marking	Missing or not as specified	_	-	X
	Illegible or misspelled	-	-	x
	Misplaced or incorrect size	-	-	x

4.3.3.1.2 Visual examination of unattached components (toggles, split pin or ring, chain link, pin type link, washer, button and screw tubes, as applicable.— The components which are not attached to the buttons shall be examined in accordance with the classification of defects shown in table VI and table VII.

	Bent, loose, deformed or otherwise			
	impaired		*	
	Solder spatter on back exceeding			
	1/8 inch in maximum dimension			<b>x</b>
	Sharp edge, fin or burr in eye of			
	hopper back		*	
	Eye of shank improperly positioned			
	by more than 10 degrees		*	
Threaded post	Missing	x		
·	Bent, loose, deformed or other-			
	· wise impaired		*	
	Thread stripped, flattened or			
	damaged	X		
	Not as specified	-		
	Solder spatter on back exceeding			
-	1/8 inch in maximum dimension		-	<b>X</b>
Link; pin,	Deformed, twisted, bent or		_	
chain and	otherwise damaged	-	*	
cuff	Not specified type	x		
	Missing	x		
	Not attached to button (except			
	pin type link)	-	- →	X
-	Sharp edge, fin or burr	-	*	
Toggles,	Toggle or cap missing	x	-	-
bodkin	Not type specified	_	_	X
	Cap loose	-	*	
	Deformed, bent, twisted or		_	
	otherwise damaged	-	*	
	Sharp edge, fin burr		*	-
	Not attached to button	-	-	x
Marking	Missing or not as specified	_	-	X
	Illegible or misspelled	-	-	x
	Misplaced or incorrect size	-	-	x

4.3.3.1.2 Visual examination of unattached components (toggles, split pin or ring, chain link, pin type link, washer, button and screw tubes, as applicable.— The components which are not attached to the buttons shall be examined in accordance with the classification of defects shown in table VI and table VII.

# Table VII Classification of unattached components.-

Examine	Defects
Screw tube	Threads stripped, flattened or damaged.
	Not type specified.
	Opening obstructed, will not pass threaded
	post of corresponding size.
	Bent, damaged or deformed affecting service- ability.
Washer, button	Bent, damaged or defective affecting service-
Toggles, split	ability.
pin or ring,	Deformed, bent twisted or otherwise damaged.
type link	Not type specified.
	Sharp edge, burr or sliver.
	Loose fit to shank, i.e., may become detached
	in use.
	Attached to button.

- 4.3.3.1.3 Examinations of buttons and components for defects in dimensions.— Any dimension that is not within the specified tolerance shall be classified a defect.
- 4.3.3.1.4 <u>Inspection levels and acceptable quality levels (AQL's)</u>.-The inspection levels and AQL's expressed in defects per hundred units shall be as follows:

				Inspection		1	AQL's	
					level	Ma	jor	Minor
For	defects	applicable	to	4.3.3.1.1	II	2	2.5	10.0
For	defects	applicable	to	4.3.3.1.2	S-3	(one	class)	2.5
For	defects	applicable	to	4.3.3.1.3	S-2	one	class)	4.0

4.3.4 End item testing. Testing of the completely fabricated button shall be performed in accordance with table VIII for the characteristics shown therein. The inspection level shall be S-1, the AQL shall be 6.5 defects per hundred units and the number of determinations per sample unit shall be one.

Characteristic	Rqm't para	Test method	Rqm't Indi- vid- ual unit	appl to Lot aver- age	Sample unit	Results reported as
Assembly: Hopper back	3.6.1.3.3	4.4.8	x		l but-	Pass
Toggles, split pin or ring resistance						fail
to salt spray	3.6.1.4.1	4.4.3	<b>x</b>	- <del>-</del> -	3 ea.	Pass or fail
Link chain, ten-		_				
sile strength	3.6.1.4.5	4.4.4	<b>x</b>		1	Pass or fail
Plating:					_	
Silver plating	3.7.1.1 & table III	Std comm'l 4.4.5.2 (in case of	- -	x	12 but- tons	Nearest 0.1 grain
Gold plating:	3.7.1.1 & table III	dispute)				8
Shell	cable iii	Std Comm'1	×	-	12	Near-
		4.4.5.1 (in	-	x	but-	est
		case of			tons	0.1
Liner		dispute) Std Comm'l			-10	grain
ninei		4.4.5.1 (in	x	- <b>x</b>	12 but-	Near- est
		case of		•	tons	0.1
		dispute)				grain
Nickel plating:						_
Identification	3.7.1.2.1	Std comm'l	X		<u>1</u> /	Pass or fail
Thickness	3.7.1.2.2	Std comm'1	<b>x</b>	·-	1/	Near- est 0.00001
Lacquer tests:						inch
Liver of sulfur	3.7.2	4.4.6.1	<b>x</b>	-	l but- ton	Pass or fail
Soldering (shank)	3.5.1	4.4.2.1	x	in and the second se	l but-	Pass
Soldering or swedging	3.5.1	4.4.2.2	x	-	l but-	fail Pass or
(screw post)					. = ==	fail
Enamel adherence test	3.7.3	4.4.7	x	-	l but- ton	Pass or fail

4.3.5 Examination for count of buttons in intermediate containers.—Buttons packaged for shipment shall be examined to determine conformance with package markings and specified quantity. The sample unit for this examination shall be one box (interior package). Any box containing less than the specified or marked quantity of buttons shall be classified as a defect. When the buttons are carded the inspection level shall be S-2 and the AQL shall be 4.0 defects per hundred units. When the buttons are bulk packed the inspection level shall be S-1 and the AQL shall be 2.5 defects per hundred units. The lot size shall be the number of intermediate containers for carded buttons and the number of unit packages for bulk packed buttons.

4.3.6 Examination of preparation for delivery.— 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 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 and the AQL shall be 2.5 defects per hundred units.

Examine	Defect
Markings, exterior	Missing, incorrect, illegible or improper
and interior	size, location, sequence or method of application.

Materials

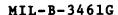
Component missing, damaged or otherwise defective, affecting serviceability.

Workmanship

Inadequate application of components such as incomplete closure of envelope and container flaps, insecure seating of fastening device, tissue wrapping incomplete, voids inadequately filled and bulging or distortion of containers.

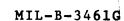
Weight

Net weight exceeds the requirements.



# 4.4 Tests.-

- 4.4.1 Chemical composition test.— Chemical composition shall be determined in accordance with test method lll of FED-STD-151. Results shall be evaluated to determine compliance with the requirements in 3.3.1.
- 4.4.2 Tests for soldered and swedged connections.-
- 4.4.2.1 Tests for shank type buttons.— The shank type button, except self shank and hopper back buttons, shall be placed in an appropriate testing device so that the shank is maintained in a vertical position. A steadily increasing compression load shall be applied directly upon the upright shank until the eye is noticeably elongated. Remove the compression load and examine the joint for failure to determine conformance with 3.5.1.
- 4.4.2.2 Test for screw post type buttons. The screw post type button (soldered or swedge button back), shall be placed in an appropriate testing device so that the screw post is maintained in a vertical position. A steadily increasing tension load to 50 pounds shall be applied directly upon the upright post. Remove the button from testing device and examine joint to determine conformance with 3.5.1.
- 4.4.3 <u>Salt spray test</u>. The salt spray test shall be in accordance with test method 811 of FED-STD-151, to determine conformance with 3.6.1.4.1.
- 4.4.4 Chain link test. The chain shall be placed in a suitable testing device and a steadily increasing direct tension load up to 15 pounds shall be applied to the chain to determine conformance with 3.6.1.4.5.



4.4.5 Test for gold and silver content. Standard commercial laboratory test methods shall be used to determine gold and silver content conformance with 3.7.1. In case of gold or silver content dispute, the procedure specified in 4.4.5.1 and 4.4.5.2, as applicable shall be used.

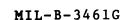
4.4.5.1 Gold content. Boil 12 shells or 12 liners, as applicable, with 60 ml. 1:1 nitric acid (HNO3) in a 400 ml. beaker using a small flame or hot plate. Continue boiling until all metals, except gold, are in solution. Dilute to 200 ml. with hot water. Filter through a rapid ashless filter paper and wash several times with hot water. Take the filter paper with fold (cutting off any excess filter paper), wrap in a 2x2 inch piece of silver-free lead foil, and roll into a ball. Place cupel in a muffle furnance for one hour at 1000 degrees C. Remove from the furnance, and examine hollow for flakes of gold, impurities and discolored gold bead. If any of these conditions are noted, add additional lead shot and return cupel to the muffle furnance for one hour. Otherwise, cool the gold bead and weigh.

4.4.5.2 Silver content. - Boil 12 shells or 12 Air Force cuff link buttons, as applicable, with 60 ml. 1:1 nitric acid (HNO3) in a 400 ml. beaker using a small flame or hot plate. Continue boiling until all metals are in solution. Dilute in volumetric flask to 1000 ml. Pipette a 200 ml. aliquot from the flask into a 400 ml. beaker. Heat to boiling and add HCL (3:100) drop-bydrop from a pipette until precipitation is complete (1 ml. of HCL solution precipitates about 0.038 grams of silver). When solution has cooled and precipitate has settled, determine whether percipitation is complete by adding a few drops of the HCL (3:100). If solution remains clear, filter on a weighed porcelain Gooch crucible. Wash the precipitate several times with HNO3 (1:200) and finally with cold water. Protect the silver chloride precipitate from the light. Dry in an oven for not less than two hours, cool and weigh the silver chloride. The silver content shall be calculated as follows:

Quantity of silver/doz.
Buttons in grains + wt. AgCL x 15.4324 x .7526 x 5

### 4.4.6 Tests for lacquered buttons.-

4.4.6.1 <u>Liver of sulfur test</u>.— Buttons to be tested shall be immersed in a two percent by weight of dry liver of sulfur (sulfurated) and distilled water solution, at a temperature of



100 degrees F. to 110 degrees F.; for a period of 5 minutes. The buttons shall then be removed and rinsed in warm, then cold, then hot water, after which they shall be wiped gently with an absorbent cellulose material, allowed to air dry at room temperature for a period of one hour and then examined to determine conformance with 3.7.2.

- 4.4.7 Adherence test. A sharp, pointed instrument shall be drawn or wriggled around the beveled edge of the button or across a similar flat polished section, cutting through the enamel to the metal. During this test observe the enamel coating to determine conformance with 3.7.3.
- 4.4.8 Test for hopper backs.— Hopper back buttons shall be hand sewn to any cloth material with four double cotton threads conforming to type IA3 or IB3, 4 ply of V-T-276. The sewn button shall be twisted 180 degrees in opposite directions, five times in each direction and then examined to determine compliance with 3.6.1.3.3.
- 5. PREPARATION FOR DELIVERY
- 5.1 Packaging. Packaging shall be level A or C, as specified (see 6.2).
- 5.1.1 Level A.-
- 5.1.1.1 Unit packaging .-
- 5.1.1.1.1 Uniform buttons (plated).— Except for type I, style 3 buttons uniform buttons with chain links attached, and type III buttons, two gross (288) of 20, 22-1/2, 25, 28 and 30 ligne button or one gross (144) of 35, 36, 40 and 45 ligne on one type, style, class, subclass or size only shall be bulk packed in a set-up paperboard box conforming to type I, variety 1, class A, style 4 of PPP-B-676. Closure shall be in accordance with the appendix of the box specification.
- 5.1.1.1.1.1 Type I, style 3 and type III buttons.— Twenty four uniform buttons with or without toggles or twenty four cap buttons of one type, style, class, subclass and size shall be evenly spaced and mounted on a white bristol board card having a minimum thickness of 0.010 inch. The buttons shall be mounted by forcing the button shank through precut holes in the bristol



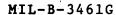




board. Before the buttons are mounted, the card shall first be covered with a sheet of white glazed paper having a minimum basis weight of 55 pounds per ream and then by a sheet of white antitarnish tissue paper conforming to type II, class 1 of UU-P-553. The two sheets shall be of equal size with the edges aligned and shall be of sufficient size to fold over and completely inclose the face of the buttons with an overlap of not less than 2 inches. The sheets shall extend beyond each end of the card so that after the button faces are inclosed, the extended ends can be folded over to cover the protruding shanks. At the option of the manufacturer twenty four (24) Navy or Coast Guard cap buttons shall be packaged in a suitably sized transparent polyethlene bag of 0.0015 inch thickness (+ 20 percent tolerance). The bag shall be formed with heat sealed seams that are straight, continuous and parallel to each other and the formed edges of the bag. final closure of the bag shall be heat sealed with the seal made as close as possible to the open end. Prior to or during the heat sealing operaion, all excess air within the bag shall be expelled. Twelve such packages, totaling 288 buttons, shall be packed in a set-up paperboard box conforming to type I, variety l, class A, style 4 of PPP-B-676. Closure shall be in accordance with the appendix of the box specification.

5.1.1.1.2 Cuff link or uniform buttons with link chain attached.— One pair of cuff links or one pair of uniform buttons with link chain attached shall be mounted on a piece of white bristol board card not less than 0.010 inch thick. Each card shall be completely inclosed in a wrap consisting of two thicknesses of anti-tarnish tissue paper conforming to type II, class 1 of UU-P-553.

5.1.1.1.3 Accessories for plated buttons.— Except for Navy screw post tubes, when split pins, toggle rings, screw post tubes or link pins are required with plated buttons, 144 toggle rings, split pins or screw tubes or 72 pin links shall be placed in an end opening style kraft paper envelope. The envelope shall be made from 60 pound minimum basis weight kraft paper and shall be securely sealed and placed within the applicable intermediate container before closure is effected. For Navy screw post tubes, 24 tubes shall be packaged in a suitable sized transparent polyethlene bag of 0.0015 inch thickness (+ 20 percent tolerance). The 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 final closure of the bag shall be heat sealed with the seal made as close as possible to the open end. Prior to or



during the heat sealing operation, all excess air within the bag shall be expelled. Twelve (12) such packages, totaling 288 screw post tubes, shall be placed within the applicable containers before closure is effected.

- 5.1.1.2 Unplated buttons.— Two gross (288) of unplated buttons of one type, style, class, subclass, size and shank length shall be bulk packed in a snug-fitting, set-up paperboard box conforming to type I, variety 1, class A, style 4 of PPP-B-676. Box closure shall be in accordance with the appendix of the box specification.
- 5.1.1.1.2.1 Accessories for unplated buttons.— When split pins, toggle rings, screw post tubes or link pins are required with unplated buttons, 288 toggle rings, split pins or screw tubes or 144 pin links shall be placed in an end opening style kraft paper envelope. The envelope shall be made from 60 pound minimum basis weight kraft paper and shall be securely sealed and placed within the applicable intermediate container before closure is effected.
- 5.1.1.3 Accessories (split pins, toggle rings, pin type links, button washers or screw tubes).— When ordering separately in bulk 1440 split pins, toggle rings or button washers or 720 pin links or 500 screw tubes shall be bulk packed in a snug-fitting paperboard box conforming to type I, variety 1, class A, style 4 of PPP-B-676. Box closure shall be accomplished in accordance with the appendix of the box specification.

#### 5.1.1.2 Intermediate packaging.-

- 5.1.1.2.1 Cuff link or uniform buttons with chain link attached.— One hundred pair of cuff link or uniform buttons with chain links attached, packaged as specified in 5.1.1.1.1.2, shall be packaged in a snug-fitting set-up paperboard box conforming to type I, variety 1, class A, style 4 of PPP-B-676. Box closure shall be in accordance with the appendix of the box specification.
- 5.1.2 <u>Level C.-</u> Buttons and accessories shall be packaged to afford adequate protection against deterioration and damage during shipment from the supply source to the first receiving station. The supplier's commercial method may be used, provided it meets these requirements.



- 5.2 Packing. Packing shall be level A, B or C, as specified (see 6.2).
- 5.2.1 Level A.- Buttons of one type, style, class, subclass, size and shank length or back packaged as specified in 5.1.1, shall be packed in a snug-fitting fiberboard shipping container conforming to class weather resistant, V3s or V3c of PPP-B-636. Closure shall be in accordance with the appendix of the applicable container specification. The quantity of buttons per shipping container shall be as specified in table IX.
- 5.2.2 <u>Level B.</u> Buttons of one type, style, class, subclass, size and shank length or back, packaged as specified in 5.1.1, shall be packed in a snug-fitting fiberboard box conforming to class Domestic, grade 275 of PPP-B-636. Closure shall be in accordance with the appendix of the container specification. The quantity of buttons per shipping container shall be in accordance with table IX.

Table IX Number of buttons per shipping container.-

	Size	#buttons per ship- ping container	unit pack-	Gross per shipping container
Style 1 - Air Force				
Hopper back	25	13,824	Bulk	96
Hopper back		6,048	Bulk	42
Short shank		6,048	Bulk	42
Short shank		13,824	Bulk	96
Regular shank		6,048	Bulk	42
Screw post, cap		5,184	Carded	36
Regular shank	45	3,168	Bulk	22
Style 2 - Army (Pierced & soli	d)	-		
and Corps of Engine	ers			_
Short shank	36	6,048	Bulk	42
Short shank	30	13,824	Bu1k	96
Short shank	25	13,824	Bulk	96
Hopper back	36	6,048	Bulk	42
Hopper back	30	13,824	Bulk	96
Regular shank w/toggle	30	13,824	Bulk	96
Hopper back	25	13,824	Bulk	96

Size	<pre>#buttons per ship ping containe</pre>	pack-	Gross per shipping container
Screw post, cap 25	5,184	Carded	36
Style 2 - Army, JROTC Division	•		
Regular shank 36	6,912	Bu1k	48
Short shank	17,280	Bu1k	120
Hopper back	6,912	Bulk	48
Hopper back	17,280	Bulk	120
Hopper back	13,824	Bu1k	96
Style 3 - Marine Corps			
Regular shank 40	2,880	Carded	20
Regular shank	8,640	Carded	60
Screw post, cap 27	8,640	Carded	60
Styles 4, and 5, and 6- Navy, Coast Guard, and Coast Guard Auxiliary			
Regular or short shank 40	4,032	Bulk	28
Hopper back	6,048	Bulk	42
Hopper back22-1/2	13,824	Bu1k	96
Hopper back	4,032	Bulk	28
Screw post, cap22-1/2	5,184	Carded or bag	36 ged

- 5.2.3 <u>Level C.-</u> Buttons packaged as specified in 5.1, shall be packed in such a manner to insure carrier acceptance and safe delivery at destination at the lowest transportation rates available for such supplies. Shipping containers shall be in accordance with the rules and regulations of carriers applicable to the mode of transporation.
- 5.3 Marking. In addition to any special marking required by the contractor or order, unit packages, interior packages and shipping containers shall be marked in accordance with MIL-STD-129.
- 5.3.1 Polyethylene bagged packages. Polyethlene bagged packages shall have the required information legibly printed or



stamped in black directly on the bag across the center face or on a white paper label inserted within the bag, so as to permit ready identification. The bag or label shall indicate the following information:

STOCK NUMBER NOMENCLATURE SIZE QUANTITY

#### 6. NOTES

- 6.1 <u>Intended use</u>. The buttons covered by this specification are intended to be worn on certain uniforms of the United States Military Services.
- 6.2 Ordering data. Purchasers should exercise any desired options offered herein, and procurement documents should specify the following:
  - (a) Title, number and date of this specification.
  - (b) Type, style, class, subclass (when applicable) and size of button required (see 1.2).
  - (c) When standard samples will not be furnished (see 3.1).
  - (d) When first articles are required (see 3.2).
  - (e) When a Government hub will not be furnished (see 3.4).
  - (f) When the contractor is required to furnish his dies to the Government upon completion of the contract (see 3.4.1).
  - (g) The type of back and when applicable the length of shank required (see 3.6.1.2).
  - (h) The type of attaching device required, when applicable (see 3.6.1.4).
  - (i) When a screw tube will not be required with cap buttons (see 3.6.2).
  - (j) Selection of applicable levels of packaging and packing (see 5.1 and 5.2).
- 6.2.1 Contract data requirements.— Data conforming to Department of Defense Data Item Descriptions DI-R-4803, DI-R-4805, DI-T-4901, DI-T-4902, DI-T-4903 and DI-T-4904 will usually be required for delivery in connection with this specification for Marine Corps procurements. For other than Marine Corps procurement, the cognizant procuring activity will provide comparable

Data Item Descriptions. When so required, such data will be specified for delivery ona DD-1423 included in the contract.

- 6.3 <u>Coast Guard</u>. The Coast Guard and Coast Guard Auxiliary standard samples (see 3.1) may be obtained by addressing the following: Commanding Officer, U.S. Coast Guard Supply Center (Attn: Code 310), 830 Third Avenue, Brooklyn, New York 11232.
- 6.4 Army gold plated (20 ligne) solid design button.— Standard samples of the Army gold plated (20 ligne) solid design button may be obtained by addressing the following: Director, The Institute of Heraldry, US Army, Attn: DAAG-HDT, Cameron Station, Alexandria, VA 22314.
- 6.5 Hopper back button. Army and Air Force hopper back buttons have been designed as sew-on type only and will replace the long, regular and shortshank as the standard. These buttons are not to be used with toggles, bodkins or rings. The Navy hopper back button is designed to be both a sew-on type and a bodkin secure type, where applicable.
- 6.6 Army standard button. The standard button for the Army will be a solid design button. Pierced design buttons with the various backs may be sold commercially but will not be Government procured. The Army Class E buttons are restricted to use by the U.S. Army Band and Cerimonial units of the 3rd Infantry.

Custodians:

Army - IH
Air Force - 11
Navy - SA
Review Activities:
Air Force - 99, 45
Navy - SA, MC
DLA - CT
User Activities:
Navy - CG

Project No. 8455-0304

Preparing Activity:

The Institute of Heraldry, United States Army

FIGURE

29

Drawing No. 4-4-92

revision dated <u>6 May 1977</u>. This copy is for information only. The dwg referenced in para 2.1 governs.

BUTTONS, INSIGNA, METAL, UNIFORM & CAP



AIR FORCE



COAST GUARD



MARINE CORPS



NAV'

FIGURE 2 - Buttons, Insignia, Metal, and Cap; Air Force, Marine Corps, Coast Guard and Navy



**ARMY** 

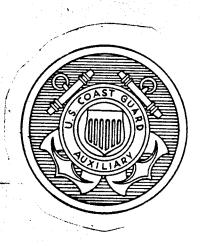


CORPS OF ENGINEERS ARMY



JROTC DIVISION ARMY

FIGURE 3 - Buttons, Insignia, Metal, Uniform and Cap; Army



US COAST GUARD AUXILIARY

FIGURE 4 - Buttons, Insignia, Metal, Uniform; Coast Guard Auxiliary

STANDARDIZATION DC WENT IMPROVEMENT PROPOSAL	
INSTRUCTIONS: This form is provided to solicit beneficial comments which nenhance its use. DoD contractors, government activities, manufacturers, vendor the document are invited to submit comments to the government. Fold on lines and send to preparing activity. Attach any pertinent data which may be of use there are additional papers, attach to form and place both in an envelope address response will be provided to the submitter, when name and address is provided, the 1426 was received and when any appropriate action on it will be completed NOTE: This form shall not be used to submit requests for waivers, deviations or requirements on current contracts. Comments submitted on this form do not to waive any portion of the referenced document(s) or to amend contractual recommends.	s, or other prospective users of son reverse side, staple in corner, in improving this document. If sed to preparing activity. A within 30 days indicating that relarification of specification constitute or imply authorization
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MIL-B-3461G Button, Insignia, Metal, Uniform and Cap	
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TVENDOR USER MANUFACTURER	
I. HAS ANY PART OF THE DOCUMENT CREATED PROBLEMS OR REQUIRED IN	ITERPRETATION IN PROCUREMENT
USE? IS ANY PART OF IT TOO RIGID, RESTRICTIVE, LOOSE OR AMBIGUOL	
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C. REASON FOR RECOMMENDED CHANGE(S)	
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	DATE

DD FORM 1426

EDITION OF 1 JAN 72 WILL BE USED UNTIL EXHAUSTED.