

MIL-H-81735A(AS)
19 October 1983
 SUPERSEDING
 MIL-H-81735(AS)
 23 March 1970

MILITARY SPECIFICATION

HELMETS, FLIGHT DECK CREWMAN'S, IMPACT RESISTANT

This specification is approved for use by the Naval Air Systems Command, Department of the Navy, and is available for use by all Departments and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers the requirements for one type, four sizes and seven colors of an impact resistant, flight deck crewman's helmet and its components, the cloth helmet, the two part, front and back, molded plastic shield, and the two part, front and back, unicellular plastic foam pad (see 6.2.1b).

1.2 Classification. The impact resistant, flight deck crewman's helmets shall be of the following sizes and colors, as specified (see 6.2.1c).

1.2.1 Size. The cloth helmet shall be of the following sizes:

SIZE 1/

6-3/4	7	7-1/4	7-1/2
-------	---	-------	-------

1/ Patterns for these sizes are available (see 6.3).

1.2.2 Color. The color of the cloth helmet shall be khaki and the plastic shield shall be of the following colors:

COLORS (see 3.5.2)

White	Irish Green
Pimento Red	Cocoa Brown
Purple	Lemon Yellow
Royal Blue	

Beneficial comments (recommendations, additions, deletions) of any pertinent data which may be of use in improving this document should be addressed to: Engineering Specifications and Standards Department (Code 93), Naval Air Engineering Center, Lakehurst, NJ 08733, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

MIL-H-81735A(AS)

2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications and standards. Unless otherwise specified, the following specifications and standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS) specified in the solicitation, form a part of this specification to the extent specified herein.

SPECIFICATIONS

FEDERAL

DDD-L-20	Label, for Clothing, Equipage, and Tentage (General Use)
PPP-B-636	Boxes, Shipping, Fiberboard
PPP-T-45	Tape, Gummed, Paper, Reinforced and Plain, for Sealing and Securing

MILITARY

MIL-P-116	Preservation, Methods of
-----------	--------------------------

STANDARDS

FEDERAL

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

2.1.2 Other Government documents, drawings and publications.
The following other Government documents form a part of this specification to the extent specified herein.

DRAWINGS

NAVAL AIR SYSTEMS COMMAND

323AS100	Cloth Helmet Assembly, Impact Resistant Flight Deck Crew Helmets
323AS101	Back Pad Assembly, Impact Resistant Flight Deck Crew Helmets

MIL-H-81735A(AS)

DRAWINGS (Continued)

NAVAL AIR SYSTEMS COMMAND (Continued)

323AS102	Front Pad Assembly, Impact Resistant Flight Deck Crew Helmets
323AS107	Plastic Shield Assembly, Back, Impact Resistant Flight Deck Crew Helmets
323AS108	Plastic Shield Assembly, Front, Impact Resistant Flight Deck Crew Helmets
323AS109	Filler, Back Pad, Impact Resistant Flight Deck Crew Helmets

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

2.2 Other publication. The following document forms a part of this specification to the extent specified herein. The issue of the documents which are indicated as DoD adopted shall be the issue listed in the current DoDISS and the supplement thereto, if applicable.

COLOR ASSOCIATION OF THE UNITED STATES, INCORPORATED

TCA Cable Numbers and Colors

(TCA Cable Numbers and Colors may be obtained from the Color Association of the United States, Incorporated, 200 Madison Avenue, New York, NY 10016.)

2.3 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

3. REQUIREMENTS

3.1 First article. Unless otherwise specified, the impact resistant flight deck crewman's helmets, cloth helmets, front and back plastic shields, and front and back unicellular plastic foam pads furnished under this specification shall be a product which has been inspected and has passed the first article inspection specified in 4.3 through 4.3.2.

3.2 Materials and components. The materials and components shall conform to applicable specifications, standards and drawings and shall be as specified herein.

MIL-H-81735A(AS)

3.3 Design. The helmet shall be an unlined cloth shell with a cushioned front and back plastic shield to protect the cranium. The cloth helmet, front and back pad assembly, and the front and back plastic shield assembly shall conform in appearance to 323AS100, 323AS101, 323AS102, 323AS107, and 323AS108.

3.4 Construction. The construction of the cloth helmet, pads and plastic shields shall conform to 323AS100, 323AS101, 323AS102, 323AS107, 323AS108 and 323AS109, as applicable.

3.4.1 Cutting. The cloth helmets shall be cut in strict accordance with the furnished patterns which provide for seam allowance, size, shape, placement of the components, directional lines for cutting, and notches or markings for the proper assembly of all the parts. The directional lines shall be in the warp or rib direction, as applicable. The component parts of the cloth helmet shall be cut from the same ply of the lay. The chin and tab straps may be cut from the ends. The chin and tab straps may also be prefabricated, from one continuous piece of the cloth, and then cut to the specified length. The cut edges of the nylon snap tab tapes shall be seared or treated, prior to the fabrication of the helmet, to prevent fraying. No sharp edges shall be formed nor shall the searing or treatment have a deleterious affect on the tapes.

3.4.2 Shade and size marking. Except for the chin and tab straps, which may be cut from the ends, all the component parts shall be marked or ticketed, by any commercial method, to insure a uniform shade and proper assembly throughout the cloth helmet. No metal fastening device or sewn-on ticket shall be used. The shade and size markings shall be accomplished by the use of an ink pad numbering machine, rubber stamp, or pencil, provided the markings do not show through to the outside of the helmet and are not deleterious to the cloth. The markings, placed on the seam allowance, shall not be visible on the outside. The adhesive type shade and size marking tickets may be used, for the shade and size markings, provided they conform to 3.4.2.1. The assembled cloth helmet shall not contain any shade or size marking tickets. The bundling method may be used in lieu of the shade and size marking, provided it conforms to 3.4.2.2.

3.4.2.1 Adhesive shade and size marking tickets. The adhesive shade and size marking tickets shall be fabricated from paper with a thermoactivated adhesive applied on one side. The adhesive shall not discolor or damage the cloth and the adhesive mass shall not adhere to the cloth, upon removal of the ticket. The heat used to attach the thermoactivated adhesive tickets shall not stiffen, harden, or scorch the cloth.

3.4.2.2 Bundling method. The bundling method may be used, in lieu of the shade and size marking, provided each bundle contains parts cut only from the same piece of the cloth. The bundle shall be numbered

MIL-H-81735A(AS)

or otherwise identified, for the shade and size, to assure that the component parts of the assembled cloth helmets are from the same piece of the cloth and for the proper size helmet.

3.4.3 Seams and stitching. All the seams and stitching used in the fabrication of the helmets shall conform to 323AS100. All the regular sewing shall be accomplished with Stitch Type 301, 9 to 12 stitches per inch, except that the stitching of chin strap fastener tape ends shall be 14 to 18 stitches per inch and shall be backstitched $1/4 + 1/8$ inch. The earpiece sections shall be attached to the helmet with Stitch Type 504 and then with Stitch Type 301 as specified in 323AS100. The coated cloth shall be attached at the earpiece sections slots with Stitch Type 304, 26 to 30 stitches per inch, $3/32 + 1/32$ inch wide. The snap tabs shall be attached to the helmet with Stitch Type 304, 26 to 30 stitches per inch, $3/32 + 1/32$ inch wide. The chin and tab straps shall each be attached to the helmet with two rows of Stitch Type 304, 26 to 30 stitches per inch, $3/16 + 1/32$ inch wide. An additional row of Stitch Type 304 stitching shall be employed over the one used to attach the cut end of the straps to the helmet, in such a manner that the cut end of the chin and tab straps shall be completely hidden by the stitching. All the stitch types shall conform to FED-STD-751. Except for the seam construction on the inside of the nylon snap tab tapes, hook and pile fastener tapes, the point of attachment of the earpiece sections, slots, coated cloth, and the visible end of the bias binding tape, no cut or raw edge shall be visible. All the seam edges shall be properly forced out and shall not contain any folds. No seam or component shall be twisted, puckered, or pleated and no part of the cloth helmet shall be caught in an unrelated operation or seam. All the thread ends shall be trimmed to a maximum length of $3/8$ inch. The number of zigzag stitches per inch shall be determined by counting the number of needle holes per inch and subtracting one. A zigzag stitch shall be defined as the thread between two needle holes.

3.4.3.1 Sewing. Each row of stitching shall be straight and parallel to the seam edge. The straightness of the stitching in any row shall be maintained within a tolerance of plus or minus $1/32$ inch. The ends of the stitching that are not caught in other seams or stitching shall be securely backstitched by overlapping on themselves for at least $1/2$ inch. The thread breaks, skips, and runoffs shall be overstitched not less than one inch. The thread tension shall be maintained so that there shall not be any loose or tight stitching and the lock shall be embedded in the materials sewn together.

3.4.4 Use of adhesive. In all the cementing operations, the surface to which the adhesive is to be applied shall be thoroughly cleaned with a suitable solvent so that any surface contaminant is removed. The surface shall be clean prior to cementing. Care shall be exercised to insure that the fastener tape and the plastic shield are not

MIL-H-81735A(AS)

damaged and the adhesion between both shall not be impaired in any way by the prolonged exposure to the solvent. The solvent used shall evaporate completely prior to the application of the adhesive, and shall leave no residue. The cemented areas shall not contain any trapped air, channels, or wrinkles. The adhesive shall be controlled to insure that old adhesive or adhesive which has partly or completely polymerized shall not be used. The containers for the adhesive shall be free from congealed adhesive before being refilled.

3.4.5 Cementing of the hook and pile fastener tapes. The cementing of the hook and pile fastener tapes shall be undertaken utilizing the technique and precautions outlined in 3.4.4 so that, prior to the inspection of the assembled helmet, the adhesive shall have developed its optimum bonding properties and the adherence of all the hook and pile fastener tapes shall comply with the requirements of this specification. The adhesive, when dry or cured, shall present a neat and uniform appearance. The adhesive shall not be allowed to remain in clots nor permitted to extend in such a manner as to result in localized stiffness, which might result in discomfort to the wearer. The adhesive, upon drying or curing, shall not cause the tapes to shrink or pucker at any point. The adhesive shall not be allowed to run over the edges of the tapes to form stiff or hard needle points.

3.4.5.1 Cementing of the hook fastener tapes to the front and back plastic shields. Cementing of the hook fastener tapes to the front and back plastic shields shall be in accordance with 3.4.5. The tapes shall be secured by the adhesive and in the locations specified in 323AS107 and 323AS108, as applicable. The tapes shall be cemented to the front and back plastic shields without tension. The adhesive shall be applied in a straight line, parallel to the edges of the tapes, and shall extend from just being visible to a minimum of 1/2 inch beyond the tape edges. The hook portion of the fastener tapes and the front and back plastic shields shall be free from congealed masses of the adhesive, and spots or stains resulting from excessive adhesive.

3.4.5.2 Cementing of the pile fastener tapes to the front plastic shield. Cementing of the pile fastener tapes to the front plastic shield shall be in accordance with 3.4.5. The tapes shall be secured by the adhesive and in the locations specified in 323AS108. The tapes shall be cemented to the front plastic shield without tension. The adhesive shall be applied in a straight line, parallel to the edges of the tapes and shall extend from just being visible to a minimum of 1/16 inch beyond the tape edges. The pile portion of the fastener tapes and the front plastic shield shall be free from congealed masses of the adhesive, and spots or stains resulting from excess adhesive.

MIL-H-81735A(AS)

3.4.5.3 Cementing of the pile fastener tapes to the front and back unicellular foam pads. The cementing of the pile fastener tapes to the front and back unicellular foam pads shall be in accordance with 3.4.5. The tapes shall be secured by the adhesive and in the locations specified in 323AS101 and 323AS102, as applicable. The tapes shall be cemented to the front and back pads without tension. The adhesive shall be applied in a straight line, parallel to the edges of the tape, and shall extend from just being visible to a maximum of 1/2 inch past the tape edges. The pile portion of the fastener tapes and the front and back pads shall be free from congealed masses of the adhesive, and spots or stains resulting from excess adhesive.

3.5 Color. The colors of the components shall be compared to the approved standard shade under natural (north sky) daylight or artificial daylight having a color temperature of 7500 degrees Kelvin.

3.5.1 Fibrous components. Except for the unicellular plastic foam pads, the color of the fibrous components of the cloth helmet shall be khaki, Marine Corps Shade 2101 or approximately match the crepe side of TCA Cable Number 70188 (see 2.2). The color of the front and back unicellular plastic foam pads shall be optional. The color of the hook and pile fastener tapes for the front and back pads shall be khaki, black or beige. The color of the thread shall match the color of the tape.

3.5.2 Plastic shields. The resin shall be pigmented so that the color of the molded plastic shields shall be uniform throughout. The use of any external method of application is prohibited. The color of the outer surface of the front and back plastic shields shall be as specified (see 6.2.1c) and shall approximately match the crepe side of the colors specified in table I.

TABLE I. Front and back plastic shield colors.

TCA Cable Number (see 2.2)	Color
70001	White
70042	Pimento Red
70060	Purple
70087	Royal Blue
70168	Irish Green
70192	Cocoa Brown
70205	Lemon Yellow

MIL-H-81735A(AS)

3.6 Label. The identification label shall be sewn on all the four sides to the inside of the cloth helmet at the back. The label shall conform to DDD-L-20, Type I, Class 1, Launderable Label. The label shall be 1-5/16 inches by 3 inches and shall contain the following information:

HELMETS, FLIGHT DECK CREWMAN'S, IMPACT RESISTANT
 SIZE
 MIL-H-81735A(AS)
 CONTRACT OR ORDER NO.
 NAME OF MANUFACTURER
 DATE OF MANUFACTURE (Month and Year)
 FSN

3.7 Workmanship. After completion of the final assembly, the helmets shall be thoroughly cleaned and all loose thread, lint, and foreign matter shall be removed. Each snap fastener shall be clinched without distortion, cracking, splitting, or cutting of the cloth, tape, or shield, as applicable. The helmets shall not contain any crack, nick, burr, sharp edge, unspecified hole, tear, needle chew, mend, patch, spot, stain, corrosion, scale, pit or dent. The plastic shields shall not be warped, distorted, chipped, splintered and all flash marks shall be removed. Because of the emergency use of these items, the importance of providing a product of uniform excellent quality cannot be overemphasized. The helmets shall be uniform in quality and shall be free from irregularities or defects which could adversely affect performance, reliability, or durability. The helmets shall conform to the quality and grade of product established by this specification. The occurrence of defects shall not exceed the acceptance criteria established herein.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or purchase order, the contractor 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.

MIL-H-81735A(AS)

4.2 Classification of inspection. The inspection requirements specified herein are classified as follows:

- a. First article inspection. First article inspection consists of examinations and tests performed on samples which are representative of the production item after award of a contract to determine that the production item conforms to the requirements of this specification (see 3.1 and 4.3 through 4.3.2).
- b. Quality conformance inspection. Quality conformance inspection consists of examinations and tests performed on individual products or lots to determine conformance of the products or lots with the requirements set forth in this specification (see 4.4 through 4.4.1.2).

4.3 First article inspection. The first article inspection of the impact resistant, flight deck crewman's helmets shall consist of the following examination and tests:

Visual examination	3.3 through 3.7, 4.5.1.1, table III, 323AS100 through 323AS102 and 323AS107 through 323AS109, as applicable
Dimensional check	4.5.1.1, table IV, 323AS100 through 323AS102 and 323AS107 through 323AS109, as applicable

4.3.1 First article samples. Unless otherwise specified, as soon as practicable after the award of the contract or order, the manufacturer shall submit three front or back plastic shields of each color, three front or back unicellular plastic foam pads, three cloth helmets of any size, or three assembled helmets, any cloth helmet size, of each plastic shield color specified in the contract or order, as applicable. The samples shall be representative of the construction, workmanship, components, and materials to be used during production. When a contractor is in continuous production of these plastic shields, pads, cloth helmets, or assembled helmets, as applicable, from contract to contract, submission of further first article inspection samples on the new contract may be waived at the discretion of the acquiring activity (see 6.2.1d). Approval of the first article inspection samples or the waiving of the first article inspection does not preclude the requirements for performing the quality conformance inspection. The first article inspection samples shall be furnished to the Government as directed by the contracting officer (see 6.2.1e).

MIL-H-81735A(AS)

4.3.2 First article information. Upon completion of the first article inspection program, all applicable inspection reports and pertinent comments and recommendations will be forwarded by the Government activity responsible for the inspection program (see 6.2.1e) to the contracting officer. One of the approved first article inspection samples of the plastic shields, pads, cloth helmets, or assembled helmets, as applicable, will be returned to the manufacturer for use in monitoring production. The other two shields, pads, cloth helmets, or assembled helmets, as applicable, will be destroyed in the first article inspection and shall not be considered as part of the quantity to be delivered under the contract or order.

4.4 Quality conformance inspection. The sampling and inspection levels and acceptance criteria shall conform to MIL-STD-105. The quality conformance inspection shall consist of the following:

- a. Visual examination of the plastic shields, pads, cloth helmets, or assembled helmets, as applicable.
- b. Dimensional check of the plastic shields, pads, cloth helmets, or assembled helmets, as applicable.
- c. Packaging.

4.4.1 Sampling.

4.4.1.1 Inspection lot.

4.4.1.1.1 Plastic shields. An inspection lot size shall be expressed in units of one front or back, as applicable, of the plastic shields of one color made essentially under the same conditions and from the same materials and components or shall consist of all the plastic shields of one color received by the assembled helmet manufacturer at one time. The sample unit shall be one front or back, as applicable, of the plastic shields of one color.

4.4.1.1.2 Pads. An inspection lot size shall be expressed in units of one front or back, as applicable, of the unicellular plastic foam pads made essentially under the same conditions and from the same materials and components or shall consist of all the pads received by the assembled helmet manufacturer at one time. The sample unit shall be one front or back, as applicable, of the unicellular plastic foam pads.

MIL-H-81735A(AS)

4.4.1.1.3 Cloth helmets. An inspection lot size shall be expressed in units of one cloth helmet of one size made essentially under the same conditions and from the same materials and components. The sample unit shall be one cloth helmet of one size.

4.4.1.1.4 Assembled helmets. An inspection lot size shall be expressed in units of one assembled helmet of one cloth helmet size and one color of the plastic shield (cloth helmet with the front and back plastic shields and the front and back pads attached) made essentially under the same conditions and from the same materials. The sample unit shall be one assembled helmet of one cloth helmet size and one color of the plastic shield (cloth helmet with the front and back plastic shields and the front and back pads attached).

4.4.1.1.5 Packaging. An inspection lot size shall be expressed in units of one fully prepared shipping container, containing front or back of the plastic shields of one color, front or back of the pads, cloth helmets of one size, or assembled helmets of one cloth helmet size and one color of the plastic shield (cloth helmets with the front and back plastic shields and the front and back pads attached), as applicable, fully prepared for delivery from essentially the same materials and components. The sample unit shall be one shipping container containing front or back of the plastic shields of one color, front or back of the pads, cloth helmets of one size, or assembled helmets of one cloth helmet size and one color of the plastic shield (cloth helmets with the front and back plastic shields and the front and back pads attached), as applicable, fully prepared for delivery with the exception that it need not be sealed.

4.4.1.2 Sampling for the examinations and tests of the plastic shields, pads, cloth helmets, assembled helmets, and packaging. The sample size, acceptance criteria, examinations and tests required for the plastic shields, pads, cloth helmets, assembled helmets, or packaging, as applicable, shall be as specified in table II.

4.5 Inspection methods.

4.5.1 Visual examination.

MIL-H-81735A(AS)

TABLE II. Sample size, acceptance criteria, tests and examinations of the plastic shields, pads, cloth helmets, and assembled helmets.

INSPECTION	METHOD	SAMPLE SIZE	ACCEPTANCE CRITERIA
Visual examination <u>1/</u>	4.5.1.1 and table III	Inspection Level II	An acceptable quality level of 2.5 defects per 100 units for major defects and 6.5 defects per 100 units for total (major and minor combined) defects
Dimensional check <u>1/</u>	4.5.1.1 and table IV	Inspection Level S-3	An acceptable quality level of 4.0 defects per 100 units
Packaging <u>2/</u>	4.5.1.2 and table V	Inspection Level S-2	An acceptable quality level of 2.5 defects per 100 units

1/ This inspection is applicable to the plastic shields, pads, and cloth helmets, when they are purchased individually and when they are a component of the assembled helmets.

2/ This inspection is applicable to the assembled helmets and to the plastic shields, pads, and cloth helmets, when they are purchased individually.

4.5.1.1 Plastic shields, pads, cloth helmets, and assembled helmets. Each front or back of the plastic shields of one color, each front or back of the pads, each cloth helmet of one size, or each assembled helmet of one cloth helmet size and one color of the plastic shield (cloth helmet with the front and back plastic shields and the front and back pads attached), as applicable, selected as a sample unit from the lot, shall be thoroughly checked dimensionally and examined visually to determine conformance to this specification. Each front and back plastic shield and unicellular plastic foam pad, in a set of the plastic shields or the pads, and the cloth helmet, as applicable, shall be visually examined and dimensionally checked, when they are components of the assembled helmet and when they are purchased individually. The classification and list of defects, tables III and IV, as applicable, shall be used to classify and enumerate the defects found.

MIL-H-81735A(AS)

TABLE III. Classification of defects for the visual examination of the plastic shields, pads, cloth helmets, and assembled helmets.

DEFECT	MAJOR	MINOR
<u>GENERAL</u>		
A. Any non-specified hole, dent, scissors or knife cut, tear, mend, burn, or weakening defect such as smash, multiple float, loose slub, needle chew, or abraded area	X	
B. Color of any fibrous component not as specified, not uniform, or contains one or more shade bars		X
C. Two or more thread ends not trimmed to a maximum length of 3/8 inch or two or more thread scraps not removed from the cloth helmet		X
D. Any seam in the unicellular plastic foam pad separating	X	
E. Any spot or stain	<u>1/</u>	
F. Any shade identification or size marking visible on the exterior		X
G. Any discoloration of the cloth caused by the removal of the shade and size marking ticket, any shade and size marking adhesive mass adhering to the cloth, any shade or size marking tickets not removed, or any unsightly slub		X
H. Any metal fastening device or sewn-on shade and size marking ticket	X	
I. Any portion of any cloth component stiffened, hardened, or scorched by any process of manufacturing	X	
<u>FASTENER TAPE</u>		
A. Less than 25 percent of the hooks or pile flattened or missing from any tape		X
B. 25 percent or more of the hooks or pile flattened or missing from any tape	X	
C. Any not of specified size	<u>2/</u>	

MIL-H-81735A(AS)

TABLE III. Classification of defects for the visual examination of the plastic shields, pads, cloth helmets, and assembled helmets (Continued).

DEFECT	MAJOR	MINOR
<u>FASTENER TAPE (Continued)</u>		
D. Any misplaced, not serving the intended purpose	X	
E. Any area of any hook tape, one inch or more in length, that contains thread scraps, lint, or other fibrous impurities affecting use		X
<u>METALLIC COMPONENTS</u>		
A. Any surface rough, misaligned, distorted or contains any nick, sliver, burr, sharp edge, or crack	X	
B. Any loose, detached, or otherwise not securely retained	<u>2/</u>	
C. Any surface unclean or contains embedded foreign matter		X
D. Any malformed, corroded, fractured, broken, chipped, bent, or distorted	X	
E. Snap fasteners <u>3/</u>		
1. Any mismatched or misplaced	X	
2. Any improperly clinched resulting in cutting of the tape, cloth, or plastic shield, as applicable	X	
3. Any not centered on any tape	X	
4. Any snap fastener stud not aligned with any tunnel socket causing a noticeable bulge or twist, when the tunnel is snapped closed	X	
5. Any not black chemically finished, finish missing, or not uniformly finished		X
<u>PLASTIC SHIELD</u>		
A. Color of any plastic shield not as specified, not homogeneous or uniform throughout, or achieved through the use of surface application	X	
B. Any seam or mend, any warped, distorted, chipped, splintered, dented, or contains any crack, sharp edge, nick or burr	X	

MIL-H-81735A(AS)

TABLE III. Classification of defects for the visual examination of the plastic shields, pads, cloth helmets, and assembled helmets (Continued).

DEFECT	MAJOR	MINOR
<u>PLASTIC SHIELD (Continued)</u>		
C. Any surface finish not as specified or any flash not removed		X
D. Cementing		
1. Cement on the plastic shield interior surfaces, along anyhook fastener tape edge, not visible or in excess of 1/2 inch		X
2. Cement on the front plastic shield exterior surface, along any pile fastener tape edge, not visible or in excess of 1/16 inch.		X
3. Any tape not located as specified	X	
4. Faulty adhesion, i.e., any portion of any tape separating	X	
5. Any trapped air, wrinkles, or channels in any cemented tape		X
6. Any adhesive on the surface of any hook or pile fastener tape	<u>2/</u>	
<u>PAD</u>		
A. Any component not cut in accordance with applicable drawings	X	
B. Back pad components not cemented as specified in applicable drawings	X	
C. Cementing		
1. Cement on the pads surfaces, along any pile fastener tape edge, not visible or in excess of 1/2 inch		X
2. Any tape not located as specified	X	

MIL-H-81735A(AS)

TABLE III. Classification of defects for the visual examination of the plastic shields, pads, cloth helmets, and assembled helmets (Continued).

DEFECT	MAJOR	MINOR
<u>PAD (Continued)</u>		
3. Faulty adhesion, i.e., any portion of any tape separating	X	
4. Any trapped air, wrinkles, or channels in any cemented tape		X
5. Any adhesive on the surface of any pile fastener tape	<u>2/</u>	
<u>COMPONENTS AND ASSEMBLY</u>		
A. Any component not as specified or any defect of a component or defect of assembly, not herein classified	<u>2/</u>	
B. Any component, component part, or required operation omitted, or any operation improperly performed, not herein classified	<u>2/</u>	
C. Any component part not cut in accordance with the patterns (see 3.4.1), not herein classified	X	
<u>SEAMS AND STITCHING</u>		
A. Accuracy of seaming		
1. Any seam, hem, or attachment of any component twisted, puckered, pleated; any part of the helmet or component caught in an unrelated operation or stitching; any seam edge not properly forced out or contains any fold		X
2. Ends of stitching that are not caught in other seams or stitching:		
a. Any not securely backstitched	X	
b. Any secure but backstitched for a distance less than 1/2 inch or the backstitching is not overlapped on itself	X	

MIL-H-81735A(AS)

TABLE III. Classification of defects for the visual examination of the plastic shields, pads, cloth helmets, and assembled helmets (Continued).

DEFECT	MAJOR	MINOR
<u>SEAMS AND STITCHING (Continued)</u>		
3. Thread breaks:		
a. Any not securely overstitched	X	
b. Any secure but overstitched for a distance less than one inch	X	
B. Gage of stitching <u>4/</u>		
1. Any stitching irregular, unevenly gaged, or not uniform		X
C. Open seams <u>5/</u>		
1. Any 1/4 inch or less		X
2. Any more than 1/4 inch	X	
D. Raw edges <u>6/</u>		
1. Any more than 1/4 inch but not more than 1/2 inch		X
2. Any more than 1/2 inch	X	
E. Seam and stitch type		
1. Not specified seam or stitch type	<u>2/</u>	
F. Stitch tension <u>7/</u>		
1. Any loose stitching or tight stitching, resulting in breaking of the stitches, when normal pull is applied	X	
G. Stitches per inch <u>8/</u>		
1. Stitches more or less than specified:		
a. One or two		X
b. More than two	X	

MIL-H-81735A(AS)

TABLE III. Classification of defects for the visual examination of the plastic shields, pads, cloth helmets, and assembled helmets (Continued).

DEFECT	MAJOR	MINOR
<u>LABEL</u>		
A. Size missing, incomplete, incorrect, or illegible	X	
B. Other than size information missing, incomplete, incorrect or illegible		X
C. Improperly located		X
D. Stitching omitted on one or more edges		X

- 1/ The defect shall be classified as major if it is on the outside of any plastic shield, otherwise it is to be classified as a minor defect.
- 2/ The defect shall be classified as major when it seriously affects the serviceability or appearance, otherwise it is to be classified as a minor defect.
- 3/ The snap fasteners shall be checked for proper function and attachment by snapping closed and unsnapping each of the snap fasteners at least three times.
- 4/ The gage of stitching defect shall be scored only when the condition exists for more than 2 inches on any row of stitching.
- 5/ A seam shall be classified as open when one or more stitches joining a seam are broken or when two or more continuous skipped stitches or runoffs occur. On double stitched seams, a seam shall be classified as open when either one or both sides of the seam contain any of the aforementioned for a single stitched seam.
- 6/ Any edge that should be turned under and is not, but is securely caught in the stitching, shall be classified as a raw edge. Any raw edge that is not securely caught in the stitching shall be classified as an open seam. Any raw edge visible in any joining seam of the helmet shall be classified as a raw edge defect.

MIL-H-81735A(AS)

- 7/ Puckering is evidence of tight tension or gathering of the material. When puckering is evident and is not caused by the gathering of the material, the stitching shall be inspected by exerting normal pull in the lengthwise direction of the stitching, by pulling taut, to straighten out the seam. The gathering of the material shall be classified as an accuracy of seaming defect.
- 8/ The stitches per inch defect shall be scored only when condition exists for more than 3 inches on any row of stitching.

TABLE IV. List of defects for the dimensions of the assembled plastic shields, pads, cloth helmets and assembled helmets.

EXAMINE	DEFECT
Measure each front and back plastic shield, each front and back unicellular plastic foam pad and the cloth helmet, as applicable	Any measurement deviating from the dimensions and tolerances as specified in 323AS100 through 323AS102 and 323AS107 through 323AS109, as applicable, shall be enumerated as a dimensional defect.

4.5.1.2 Packaging. Each of the fully prepared shipping containers containing fronts or backs of the plastic shields of one color, fronts or backs of the pads, cloth helmets of one size, or assembled helmets of one cloth helmet size and one color of the plastic shield (cloth helmets with the front and back plastic shields and the front and back pads attached), as applicable, selected as a sample unit from the lot, shall be visually examined to determine that the packaging, packing, and marking conform to this specification. The list of defects, table V, shall be used to enumerate the defects found.

MIL-H-81735A(AS)

TABLE V. List of defects for packaging.

ITEM	DEFECT
Exterior and Interior Markings	Missing, incorrect, incomplete, illegible; of improper size, location, sequence or method of application; markings not the same on the interior and exterior fiberboard containers or on the paper label in the polyethylene bag; information on the paper label in the polyethylene bag not readable through the film or no label in the film bag.
Materials	Any non-conforming component; any component or component part missing, damaged or otherwise defective.
Workmanship	Inadequate application of the components such as incomplete closure of any unit package, container flap, or loose strappings; bulging or distortion of any container; any unit container contains any metal fastening or stitches; any polyethylene bag damaged or any open or non-continuous heat sealed seams.
Exterior and Interior Weight or Content	Gross or net weight exceeds the requirement; more than one color of the plastic shields or size of the cloth helmets, as applicable, in the same container; not individually sealed within the polyethylene bag; any portion of any plastic shield, pad, cloth helmet, or assembled helmet, as applicable, distorted, bent, or deformed in the bagged condition; any portion of the shield, pad, helmet, or assembled helmet, as applicable, caught in any heat sealed seam; front and backs of the plastic shields or pads, as applicable, in the same container.

5. PACKAGING

5.1 Preservation. Preservation shall be level A or C, as specified (see 6.2.1f).

5.1.1 Level A.

5.1.1.1 Plastic shields. A paper label (see 5.3.1.1) shall be inserted and each front or back plastic shield, as applicable, shall be heat sealed individually within a snug fitting clear polyethylene bag in accordance with MIL-P-116, Method IC-3.

MIL-H-81735A(AS)

The individual front or back bagged shields, as applicable, of one color shall be packaged within a snug fitting fiberboard box conforming to PPP-B-636, Type CF, Domestic Class, Variety SW, Grade 275. The weight of the contents, in each package, shall not exceed 40 pounds. Each container shall be constructed and closed in accordance with the appendix to PPP-B-636. The body joint and the top and bottom flaps shall be firmly glued together as specified in PPP-B-636. The fiberboard container shall not contain any metal fastenings or stitches. All the seams and joints shall be sealed with 3 inch minimum wide tape conforming to PPP-T-45, Type III, Grade A, B or C.

5.1.1.2 Pads. A paper label (see 5.3.1.2) shall be inserted and each front or back pad, as applicable, shall be heat sealed individually within a snug fitting clear polyethylene bag in accordance with MIL-P-116, Method IC-3. The individual front or back bagged pads, as applicable, shall be packaged within a snug fitting fiberboard box conforming to PPP-B-636, Type CF, Domestic Class, Variety SW, Grade 275. The weight of the contents in each package shall not exceed 40 pounds. Each container shall be constructed and closed in accordance with the appendix to PPP-B-636. The body joint and the top and bottom flaps shall be firmly glued together as specified in PPP-B-636. The fiberboard container shall not contain any metal fastenings or stitches. All the seams and joints shall be sealed with 3 inch minimum wide tape conforming to PPP-T-45, Type III, Grade A, B or C.

5.1.1.3 Cloth helmets. The tunnel shall be snapped closed and each cloth helmet shall be folded along the central seam and then folded in half again so that the size of the folded helmet shall be approximately 6 by 11 inches. The chin strap shall be neatly placed on the helmet. A paper label (see 5.3.1.3) shall be inserted and each folded helmet shall be heat sealed within a snug fitting clear polyethylene bag in accordance with MIL-P-116, Method IC-3. Twenty bagged helmets of one size shall be packaged within a fiberboard container conforming to PPP-B-636, Type CF, Domestic Class, Variety SW, Grade 275. Every other helmet shall be in reverse position to the one on top of it. Each container shall be constructed and closed in accordance with the appendix to PPP-B-636. The body joint and the top and bottom flaps shall be firmly glued together as specified in PPP-B-636. The fiberboard container shall not contain any metal fastenings or stitches. All the seams and joints shall be sealed with 3 inch minimum wide tape conforming to PPP-T-45, Type III, Grade A, B or C.

5.1.2 Level C. The plastic shields of one color, pads, cloth helmets of one size, or assembled helmets of one size of the cloth helmet and one color of the plastic shield, as applicable, shall be packaged to afford the minimum degree of protection necessary to prevent deterioration or damage during shipment under normal environmental conditions and commercial modes of transportation.

MIL-H-81735A(AS)

5.2 Packing. Packing shall be level A, B or C as specified (see 6.2.1f). Shipping containers, insofar as possible, shall be uniform in size and shape and of minimum cube and tare weight. Each shipping container shall contain plastic shields of one color, cloth helmets of one size, or assembled helmets of one size of the cloth helmet and one color of the plastic shield, as applicable. Except for the assembled helmets, the fronts and backs of the plastic shields or pads, as applicable, shall not be packed in the same container.

5.2.1 Level A.

5.2.1.1 Plastic shields. Two intermediate packages containing plastic shields, packaged as specified in 5.1.1.1, shall be packed as specified in 5.2.2.1, except that the fiberboard containers shall be Weather-Resistant Class, Variety SW, Grade V3c or V3s. In addition, each container shall be reinforced in accordance with the appendix to PPP-B-636, except that metal strapping or banding shall not be used.

5.2.1.2 Pads. Two intermediate packages containing pads, packaged as specified in 5.1.1.2, shall be packed as specified in 5.2.2.2, except that the fiberboard container shall be Weather-Resistant Class, Variety SW, Grade V3c or V3s. In addition, each container shall be reinforced in accordance with the appendix to PPP-B-636, except that metal strapping or banding shall not be used.

5.2.1.3 Cloth helmets. Twelve intermediate packages containing 240 cloth helmets, packaged as specified in 5.1.1.3, shall be packed as specified in 5.2.2.3, except that the fiberboard container shall be Weather-Resistant Class, Variety SW, Grade V3c or V3s. In addition, each container shall be reinforced in accordance with the appendix to PPP-B-636, except that metal strapping or banding shall not be used.

5.2.2 Level B.

5.2.2.1 Plastic shields. Two intermediate packages containing plastic shields, packaged as specified in 5.1.1.1, shall be packed within a snug fitting fiberboard container conforming to PPP-B-636, Type CF or SF, Domestic Class, Variety SW, Grade 275. Each container shall be constructed and closed in accordance with the appendix to PPP-B-636. Toward the end of the contract or when there are less than the specified amount for the fronts, backs, or the same color per container, fronts, backs and mixed colors may be packed within the same shipping container (see 5.3.2).

MIL-H-81735A(AS)

5.2.2.2 Pads. Two intermediate packages containing pads, packaged as specified in 5.1.1.2, shall be packed within a snug fitting fiberboard container conforming to PPP-B-636, Type CF or SF, Domestic Class, Variety SW, Grade 275. Each container shall be constructed and closed in accordance with the appendix to PPP-B-636. Toward the end of the contract or when there are less than the specified amount for the fronts or backs per container, fronts or backs may be packed within the same shipping container (see 5.3.2).

5.2.2.3 Cloth helmets. Twelve intermediate packages containing 240 cloth helmets, packaged as specified in 5.1.1.3, shall be packed three in length, two in width, and two deep within a fiberboard container conforming to PPP-B-636, Type CF or SF, Domestic Class, Variety SW, Grade 275. Each container shall be constructed and closed in accordance with the appendix to PPP-B-636. The approximate outside dimensions shall be 36 by 15 by 11 inches. Toward the end of the contract or when there are less than the specified amount for the same size per container, mixed sizes may be packed within the same shipping container (see 5.3.2).

5.2.3 Level C. The packaged plastic shields, pads, cloth helmets, or assembled helmets, as applicable, which require packing for acceptance by the carrier, shall be packed within exterior type shipping containers in a manner that shall insure safe transportation, at the lowest rate, to the point of delivery. The shipment shall conform to the minimum requirements of the rules and regulations applicable to the mode of transportation selected.

5.3 Marking. In addition to any special marking required by the contract or order (see 6.2.lg), the interior and exterior fiberboard containers shall be marked in accordance with MIL-STD-129 and shall include the color of the plastic shield and the size of the cloth helmet, as applicable, and the date of manufacture (month and year).

5.3.1 Polyethylene bag. Prior to heat sealing, a white paper label, with legible and durable black letters and numerals, shall be placed inside each polyethylene bag. The label shall be placed so that the information on the label shall be capable of being read through the bag.

5.3.1.1 Plastic shields. The paper label for the plastic shields shall contain the following:

FRONT OR BACK PLASTIC SHIELD, as applicable
 IMPACT RESISTANT FLIGHT DECK CREWMAN'S HELMETS
 MIL-H-81735A(AS)
 CONTRACT OR ORDER NUMBER
 NAME OF MANUFACTURER
 DATE OF MANUFACTURE (Month and Year)
 FSN

MIL-H-81735A(AS)

5.3.1.2 Pads. The paper label for the pads shall contain the following:

FRONT OR BACK PAD, as applicable
 IMPACT RESISTANT FLIGHT DECK CREWMAN'S HELMETS
 MIL-H-81735A(AS)
 CONTRACT OR ORDER NUMBER
 NAME OF MANUFACTURER
 DATE OF MANUFACTURE (Month and Year)
 FSN

5.3.1.3 Cloth helmets. The paper label for the cloth helmets shall contain the following:

CLOTH HELMET
 IMPACT RESISTANT FLIGHT DECK CREWMAN'S HELMETS
 MIL-H-81735A(AS)
 SIZE
 CONTRACT OR ORDER NUMBER
 NAME OF MANUFACTURER
 DATE OF MANUFACTURE (Month and Year)
 FSN

5.3.2 Mixed sizes container. A white paper label, with legible black letters and numerals approximately 5 by 4 inches, shall be securely attached to the end and side of each fiberboard container containing fronts, backs and mixed colors of the plastic shields, front and backs of the pads, mixed sizes of the cloth helmets, or mixed sizes of the cloth helmets and mixed colors of the plastic shields, as applicable. The label shall contain the following information:

MIXED FRONTS AND BACKS, MIXED COLORS, MIXED SIZES,
 OR MIXED SIZES AND COLORS, as applicable
 Colors, sizes and quantity of each color and size,
 and quantity of the fronts and backs, as
 applicable

6. NOTES

6.1 Intended use. The impact resistant, flight deck crewman's helmets covered by this specification are intended for protection of the cranium and for identification of personnel on flight decks of carriers or landing strips of air stations. The helmet is designed for use with a head set for communication capabilities, and with the sound aural protector conforming to MIL-A-23899. The impact resistant, flight deck crewman's helmet, with the communication capabilities installed, is designated as HGU-24/P, regardless of the color of the plastic shield.

MIL-H-81735A(AS)

The impact resistant, flight deck crewman's helmet, with the sound aural protector installed, is designated as HGU-25/P, regardless of the color of the plastic shield.

6.2 Ordering data.

6.2.1 Acquisition requirements. Acquisition documents shall specify the following:

- a. Title, number and date of this specification.
- b. Which item is desired, i.e., front or back plastic shields, front or back pads, cloth helmets, or assembled helmets (cloth helmets, with the front and back plastic shields and the pads attached) and quantity desired (see 1.1).
- c. Size of the cloth helmets (see 1.2.1) and the color of the plastic shields (see 1.2.2), as applicable.
- d. Whether first article inspection is required (see 4.3.1).
- e. Name and address of the first article inspection facility and the name and address of the Government activity responsible for conducting the first article inspection program (see 4.3.1).
- f. Selection of applicable levels of preservation, packaging and packing (see 5.1 and 5.2).
- g. Whether any special markings are required (see 5.3).

6.2.2 Data requirements. When this specification is used in an acquisition which incorporates a DD Form 1423, Contract Data Requirements List (CDRL), the data requirements identified below shall be developed as specified by an approved Data Item Description (DD Form 1664) and delivered in accordance with the approved CDRL incorporated into the contract. When the provisions of DAR 7-104.9 (n) (2) are invoked and the DD Form 1423 is not used, the data specified below shall be delivered by the contractor in accordance with the contract or purchase order requirements. Deliverable data required by this specification is cited in the following paragraph:

MIL-H-81735A(AS)

<u>Paragraph</u>	<u>Data requirement</u>	<u>Applicable DID</u>
4.3.2	First article Inspection Reports	DI-T-5329 Test Reports

6.3 Patterns. Patterns for the cloth helmets and the front and back unicellular plastic foam pads will be furnished by the contracting officer to the contractor for use in cutting working patterns. The working patterns shall be identical to the Government patterns. Neither the Government patterns nor the working patterns shall be altered in any manner.

6.4 Changes from previous issue. Asterisks are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

Preparing activity:
Navy - AS
(Project No. 8415-N376)

INSTRUCTIONS: In a continuing effort to make our standardization documents better, the DoD provides this form for use in submitting comments and suggestions for improvements. All users of military standardization documents are invited to provide suggestions. This form may be detached, folded along the lines indicated, taped along the loose edge (*DO NOT STAPLE*), and mailed. In block 5, be as specific as possible about particular problem areas such as wording which required interpretation, was too rigid, restrictive, loose, ambiguous, or was incompatible, and give proposed wording changes which would alleviate the problems. Enter in block 6 any remarks not related to a specific paragraph of the document. If block 7 is filled out, an acknowledgement will be mailed to you within 30 days to let you know that your comments were received and are being considered.

NOTE: This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

(Fold along this line)

(Fold along this line)

DEPARTMENT OF THE NAVY
Commanding Officer
Naval Air Engineering Center
Engineering Specifications and Standards Department
(ESSD), Code 93
Lakehurst, NJ 08733



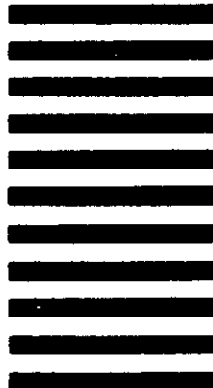
NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300

BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 12503 WASHINGTON D C

POSTAGE WILL BE PAID BY THE DEPARTMENT OF THE NAVY

Commanding Officer
Naval Air Engineering Center
Engineering Specifications and Standards Dept.
(ESSD), Code 93
Lakehurst, NJ 08733



STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER MIL-H-81735A(AS)	2. DOCUMENT TITLE Helmets, Flight Deck Crewman's, Impact Resistant
3a. NAME OF SUBMITTING ORGANIZATION	4. TYPE OF ORGANIZATION (Mark one) <input type="checkbox"/> VENDOR <input type="checkbox"/> USER <input type="checkbox"/> MANUFACTURER <input type="checkbox"/> OTHER (Specify): _____
b. ADDRESS (Street, City, State, ZIP Code)	
5. PROBLEM AREAS a. Paragraph Number and Wording: b. Recommended Wording: c. Reason/Rationale for Recommendation:	
6. REMARKS	
7a. NAME OF SUBMITTER (Last, First, MI) - Optional	b. WORK TELEPHONE NUMBER (Include Area Code) - Optional
c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional	8. DATE OF SUBMISSION (YYMMDD)