

MIL-H-19089B

30 December 1971

SUPERSEDING

MIL-H-19089A(Wep)

22 March 1962

MILITARY SPECIFICATION

HARNESSES, INTEGRATED PARACHUTE

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

1. SCOPE

1.1 Scope - This specification covers the requirements for two types and twelve sizes of an integrated parachute harness,

1.2 Classification - The integrated parachute harnesses shall be furnished in the following types and sizes, as specified (see 6.2(b) and (c)):

1.2.1 Type - The integrated parachute harnesses shall be furnished in the following types, as specified (see 6.2 (b)):

MA-2 MA-2P

1.2.2 Size - The integrated parachute harnesses shall be furnished in the following sizes, as specified (see 6.2 (c)):

SIZE 1/

<u>SMALL</u>	<u>MEDIUM</u>	<u>LARGE</u>	<u>X-LARGE</u>
SHORT	SHORT	SHORT	SHORT
REGULAR	REGULAR	REGULAR	REGULAR
LONG	LONG	LONG	LONG

1/ Patterns are available (see applicable drawings for related patterns).

2. APPLICABLE DOCUMENTS

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

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SPECIFICATIONS

Federal

UU-P-268	Paper, Kraft, Untreated, Wrapping
PPP-B-636	Box, Fiberboard
PPP-T-45	Tape, Gummed, Paper, Reinforced and Plain, For Sealing and Securing

STANDARDS

Military

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

DRAWINGS

Naval Parachute Facility

61D587	Integrated Torso Harness Suit Assembly, MA-2
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Naval Aerospace Recovery Facility

57E232	Harness Assembly - Parachute, Step-in Type, Pressure Suit, MA-2P
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(When requesting any of the applicable documents, refer to both title and number. Copies of the applicable documents required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

3. REQUIREMENTS

3.1 Qualification - The Type MA-2 and MA-2P integrated parachute harnesses furnished under this specification shall be a product which is qualified for listing on the applicable qualified products list at the time set for opening of bids (see 4.3, 4.3.1, 4.3.1.1, and 6.3). The qualification, of the Type MA-2 harness, will also qualify a supplier for the Type MA-2P harness. In addition, the retention of the qualification for the Type MA-2 and MA-2P integrated parachute harnesses on the applicable qualified products list shall be dependent on periodic verification of continued compliance with the requirements of this specification (see 4.3 and 4.3.2).

3.2 First article - Unless otherwise specified, the Type MA-2 or MA-2P integrated parachute harnesses, as applicable, furnished under this specification shall be a product which has been inspected and has passed the first article inspection specified in 4.4 through 4.4.2.

3.3 Materials and components - The materials and components shall conform to the applicable specifications, standards, and drawings as listed or required herein. Unless otherwise specified, the materials and components, except for the metallic parts, used in the construction of the integrated parachute harnesses, shall have been manufactured not more than 24 months prior to the date of delivery of the harnesses (see 6.2 (i)).

3,4

3.4.1 Type MA-2 - The Type MA-2 integrated parachute harness shall consist of a webbing harness encased in a torso suit with shoulder quick release adapters, for attachment to the parachute riser assemblies, and lap belt adapters, at the abdomen, for attachment to the lap belt and survival kit, conforming in appearance to 6133587.

3.4.2 Type MA-2P - The Type MA-2P integrated parachute harness shall consist of a webbing harness with shedder quick release adapters, for attachment to the parachute riser assemblies and lap belt adapters, at the abdomen, for attachment to the lap belt and survival kit, conforming in appearance to 57E232.

3.5 Construction - The construction of the Type MA-2 and MA-2P integrated parachute harnesses shall conform to 57E232 and 61D587, as applicable.

3.5.1 Cutting - The integrated harness shall be cut in strict accordance with the patterns conforming to the applicable drawings, The working patterns shall be identical to the Government patterns. Neither the Government patterns nor the working patterns shall be altered in any manner. The component parts of the harness suits shall be cut from the same ply of the lay. All the webbings shall be exposed, as specified in the applicable drawings, prior to cutting.

3.5.2 Shade and size marking - The component parts, of the harnesses, shall be marked or ticketed, by any commercial method, to insure a uniform shade throughout the harness and for the proper assembly of the harness. 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 harness, and are not deleterious to the material marked. The markings, which are 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 3.5.2.1. The assembled harnesses shall not contain any shade or size marking tickets.

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3.5.2.1 Adhesive shade and size marking tickets - The adhesive shade and size marking tickets shall be fabricated from paper with a thermo-activated 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 thermo-activated adhesive tickets shall not stiffen, harden, scorch, or damage the cloth in any manner,

3.5.3 Seams and stitching - All the seams, stitch types, stitches per inch, and back stitching shall conform to the applicable drawing. 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 thread breaks, skips, and run-offs shall be overstitched not less than 1/2 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. All the seam edges shall be properly forced out and shall not contain any folds greater than 1/8 inch. No seam or component shall be twisted, puckered, or pleated and no part of the harness shall be caught in an unrelated operation or seam. All the thread ends shall be trimmed to a length of 1/4 inch or less.

3.6 Color - The color of the harness and components shall be as specified on the applicable drawings.

3.7 Performance inspections -

3.7.1 Static -

3.7.1.1 Parachute harness - When inspected as specified in 4.6.2.1, the harness shall not show any evidence of constructional or material failure. The hardware shall not break nor be deformed in any manner. This inspection shall be performed in sequence with the lap belt inspection. The parachute harness inspection shall be performed first and when completed, the harness shall be inspected for conformance to the requirements for lap belt, 3.7.1.2.

3.7.1.2 Lap belt - When inspected as specified in 4.6.2.2, the lap belt shall not show any evidence of constructional or material failure. The hardware shall not break nor be deformed in any manner.

3.7.2 Dynamic - When inspected as specified in 4.6.3 or 4.6.3.1, the harness shall not show any evidence of constructional or material failure. The hardware shall not break nor be deformed in any manner.

3.8 Markings and labels - The markings and labels shall conform to 57E232 and 61D587, as applicable.

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3.9 Workmanship -After completion of the final assembly, the harnesses shall be thoroughly cleaned and all loose thread, lint, and foreign matter shall be completely removed. The harness shall not contain any non-specified hole, tear, cut, burn, needle chew, spot, stain, or weakening defect. The metal components shall not be misaligned or distorted nor contain any corrosion, scale, pit, dent,, nick, burr, sliver, crack, or sharp edge. The snap fasteners, for the MA-2 harness, shall be securely clinched without distortion, cracking, splitting, or cutting of the cloth or webbing. The snap fastener stud and socket shall be properly aligned so that, when snapped together they shall not cause a noticeable bulge or twist to the harness. Because of the emergency and life support use of these harnesses, the importance of providing a product of uniformly excellent quality cannot be over-emphasized. The harnesses shall be uniform in quality and shall be free from irregularities or defects which could adversely affect performance, reliability, or durability. The harnesses 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 CONFORMANCE PROVISIONS

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

4.2 Classification of inspection - The examination and testing of the Type MA-2 or MA-2P, as applicable, integrated parachute harness shall be classified as follows:

- (a) Qualification inspection - Qualification inspection consists of examinations and tests performed on samples submitted for approval as qualified products (see 3.1, 4.3, 4.3.1, 4.3.1.1, and 6.3).
 - (1) Retention of qualification - Retention of qualification consists of periodic verification to determine compliance of the qualified product with the requirements of this specification (see 3.1, 4.3, and 4.3.2).
- (b) 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

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requirements of this specification (see 3.2 and 4.4 through 4.4. 2).

- (c) 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 4,5 through 4.5.1. 3),

4.3 Qualification -

4.3.1. Inspection - The qualification inspection of the MA-2 integrated parachute harness shall consist of examinations and tests for all of the requirements of this specification.

4.3. 1.1 Samples - The qualification inspection samples shall consist of two harnesses size large long. The qualification samples shall be forwarded to the Commanding Officer, Naval Aerospace Recovery Facility, El Centro, California 92243. The samples shall be plainly identified by securely attached durable tags marked with the following information:

Samples for qualification inspection
 HARNESS, INTEGRATED PARACHUTE, TYPE MA-2
 Manufacturer's Designation or Number
 Submitted by (name) (date) for qualification inspection in accordance with the requirements of MIL-H-19089B under authorization (reference authorizing letter) (see 6. 3),

4.3.2 Retention - The retention of qualification shall consist of periodic verification to determine compliance of the qualified Type MA-2 and MA-2P integrated parachute harness with the requirements of this specification. The time and method of periodic verification shall be specified by the activity responsible for the Qualified Products List and shall be included in the Notice of Qualification letter.

4.4 First article inspection - The first article inspection of the Type MA-2 or MA-2P, as applicable, integrated parachute harness shall consist of examinations and tests for all of the requirements of this specification.

4.4.1 First article samples - Unless otherwise specified, as soon as practicable after the award of the contract or order, the manufacturer shall submit two harnesses of any size, for each type, specified in the contract or order. 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 harnesses from contract to contract, submission of further first article inspection samples, on the new" contract, may be waived at the discretion of

the procuring activity (see 6. 2 (d)). 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 (e)).

4.4.2 Upon completion of the first article inspection, all the applicable inspection reports and when applicable, recommendations and comments pertinent for use in monitoring production will be forwarded to the cognizant Government activity. One of the approved first article inspection sample harnesses will be returned to the manufacturer for use in monitoring production. The remaining harness 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.

4.5 Quality conformance inspection - The sampling and inspection levels shall conform to MIL-STD- 105, The quality conformance inspection shall consist of the following:

Visual examination of the harnesses
 Dimensional check of the harnesses
 Examination and tests at a laboratory
 Examination in preparation for delivery

4.5.1 Sampling -

4.5. 1. 1 Inspection lot -

4.5.1.1.1 Harnesses - An -inspection lot size shall be expressed in units of one harness of one type made essentially under the same conditions and from the same materials and components. The unit or product shall be one harness of one type.

4.5. 1.1.2 Preparation for delivery - An inspection lot size shall be expressed in units of one fully prepared shipping container, containing harnesses of one type and size, fully prepared for delivery from essentially the same materials and components; The unit of product shall be one shipping container, containing harnesses of one type and size, fully prepared for delivery with the exception that it need not be sealed.

4.5. 1.2 Sampling for the examinations and tests of the harnesses and preparation for delivery - The sample size, acceptance criteria, examinations, and tests required, for the harnesses, or the preparation for delivery, as applicable, shall be as specified in Table I.

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TABLE I

SAMPLE SIZE, ACCEPTANCE CRITERIA, EXAMINATIONS, AND TESTS
OF THE HARNESES AND PREPARATION FOR DELIVERY

INSPECTION	PARAGRAPH		SAMPLE SIZE	ACCEPTANCE CRITERIA
	REQUIREMENT	METHOD		
Visual examination	3.4 through 3.6, 3.8, 3.9, and applicable drawings	4.6.1.1 and Table II	Every harness for major defects. Inspection Level II for minor defects	Reject all units with any major defect and an acceptable quality level of 4.0 defects per 100 units for minor defects
Dimensional check <u>1/</u>	Applicable drawings	4.6.1.1 and Table III	Inspection Level S-3	An acceptable quality level of 4.0 defects per 100 units
Preparation for delivery	Section 5	4.6.1.2 and Table IV	Inspection Level S-2	An acceptable quality level of 2.5 defects per 100 units

1/ This inspection is only applicable to the harness portion of the Type MA-2 and to the Type MA-2P harness.

4.5.1.3 Sampling for examinations and tests of the harnesses at a labora-

Upon completion of the examinations and tests, for the harnesses, specified in Table I a random sample shall be selected from each lot in accordance with MIL-STD-105, Inspection Level S-3. The sample size (quantity of harness samples to be selected) shall be governed by the acceptable quality level of 1.5 defects per hundred units. Each harness, selected as a sample unit, shall be forwarded to the Government laboratory specified in the contract or order (see 6.2 (f)) or to a laboratory selected by the cognizant Government activity (see 6.4) for the following examinations and tests:

EXAMINATIONS AND TESTS

Visual examination	3.4 through 3.6.3.8. 3.9, 4.6.1.1, Table II, and applicable drawings
Dimensional check (only applicable to the harness portion of the Type MA-2 and to the Type MA-2P harness)	4.6.1.1, Table III, and applicable drawings

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The examinations and tests shall be reconducted in the sequence listed. The acceptable quality level shall be 1.5 defects per hundred units for the major defects (visual examination) and the acceptable quality level for the minor defects (visual examination) and for the dimensional check shall each be 4.0 defects per hundred units. The lot, from which the harness samples were selected, shall not be shipped until the samples have been approved by the cognizant Government activity and the lot accepted by the cognizant Government quality assurance representative. The lot, from which the harness samples were selected, shall be rejected if any sample fails to comply with any requirement of this paragraph. A rejected lot shall not be resubmitted except with the approval of the contracting officer (see 6.4). The harness inspection samples shall be identified by their lot number. The number of the harnesses in the lot; represented by the inspection samples, shall be furnished to the laboratory. Upon completion of the examination and tests, the laboratory shall return the harness inspection samples to the manufacturer.

4.6 Inspection methods -

4.6.1 Visual examination -

4.6.1.1 Harnesses - Every harness shall be examined visually for major defects to determine conformance to this specification. Each of the harnesses of one type, selected as a unit of product from the lot, shall be thoroughly checked dimensionally and examined visually for minor defects to determine conformance to this specification. The classification and list of defects, Tables II and III, as applicable, shall be used to classify and enumerate the defects found.

TABLE II

CLASSIFICATION OF DEFECTS FOR THE VISUAL EXAMINATION OF THE HARNESSSES

DEFECT		
<u>MATERIAL DEFECTS AND WORKMANSHIP DAMAGES</u>		
<u>GENERAL</u>		
a.	Any non-specified hole, scissors or knife cut, tear, mend, burn, or weakening defect, such as smash, multiple float, loose slub, needle chew, or abraded area	X
b.	Any portion of the harness stiffened, hardened, or scorched by any process of manufacturing	X

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TABLE II (Continued)

DEFECT	MAJOR	MINOR
<u>METALLIC COMPONENTS</u>		
a. Any surface rough, misaligned, distorted or contains any corrosion, scale, pit, nick, sliver, burr, sharp edge, dent, or crack	X	
b. Any loose, detached, or otherwise not securely retained	<u>1/</u>	
c. Any metallic surface unclean or contains embedded foreign matter		X
d. Any malformed, fractured, broken, chipped, or bent	X	
e. Any snap fastener or slide fastener not black chemically finished, finish missing, or not uniformly finished		X
f. <u>Slide fastener 2/ 3/:</u>		
1. Any not specified type, size, pull, or style; movement of any slider interfered with; scoops of any chain do not mesh or interlock, or slider is not at the specified position when the slide fastener is closed	X	
2. Any portion of the harness or slide fastener tape puckered, twisted, or pleated at the slide fastener tape joining seam, when the slide fastener is open or closed		X
3. Any thong not securely knotted to the pull <u>4/</u>		X
g. <u>Snap fastener:</u>		
1. Any mismatched	X	
2. Any improperly clinched resulting in cutting of the cloth or webbing, as applicable	X	
3. <u>Off center:</u>		
(a) Any more than 1/8 inch but not more than 1/4 inch		X

TABLE II (Continued)

DEFECT	MAJOR	MINOR
<u>METALLIC COMPONENTS</u> (Continued)		
(b) Any more than 1/4 inch	X	
4. Any snap fastener stud not aligned with the socket causing a noticeable bulge or twist, when snapped together <u>5/</u>		X
<u>SHADED PARTS</u>		
a. Any part shaded or any shade bar		X
b. Color of any component not as specified or not uniform		X
<u>CLEANNES</u>		
a. Any unsightly slub, adhesive shade or size marking ticket adhesive mass, spot, or stain on the outside of the harness		X
b. Three or more thread ends not trimmed to a length of 1/4 inch or less or three or more loose thread scraps not removed		X
c. Any shade or size marking ticket, excluding the metal fastening device or sewn-on kind, not removed or any shade identification or size marking stamping visible on the outside of the harness		X
d. Any metal fastening device or sewn-on shade or size marking ticket attached to the harness	X	
e. Any portion of the outside of the harness discolored, where the adhesive shade or size marking ticket was attached		X
<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>1/</u>	

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TABLE II (Continued)

DEFECT	MAJOR	MINOR
<u>COMPONENTS AND ASSEMBLY</u> (Continued)		
b. Any component, component part, or required operation omitted, or any operation improperly performed, not herein classified	<u>1</u> /	
c. Any component part not cut in accordance with the patterns, not herein classified	<u>1</u> /	
d. Any harness not properly reeved through the Type MA-2 torso suit	X	
<u>SEAMS AND STITCHING</u>		
a. <u>Accuracy of seaming:</u>		
1. Any seam, hem, or attachment of any component twisted, puckered, or pleated; any part of the harness or component caught in an unrelated operation or stitching; any seam edge not properly forced out or contains any fold greater than 1/8 inch		X
2. <u>Ends of stitching that are not caught in other seams or stitching:</u>		
(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
3. <u>Thread breaks:</u>		
(a) Any not securely overstitched	X	
(b) Any secure but overstitched for a distance less than 1/2 inch		
b. <u>Gage of stitching 6/:</u>		
1. Any stitching irregular, unevenly gaged, or not uniform		X

TABLE II (Continued)

DEFECT	MAJOR	MINOR
<u>SEAMS AND STITCHING</u> (Continued)		
c. <u>Open seams</u> 7/:		
1. Any open seam	X	
d. <u>Raw edges</u> 8/:		
1. Any more than 1/4 inch but not more than one inch		X
2. Any more than one inch	X	
e. <u>Seam and stitch type</u> :		
1. Not specified seam or stitch	1/	
f. <u>Stitch tension</u> :		
1. Any tight stitching, resulting in breaking of the stitches, when normal pull is applied 9/	X	
2. Any loose stitching 10/	X	
g. <u>Stitches per inch</u> 11/:		
1. Stitches more or less than specified:		
(a) <u>Harness</u> (excluding label):		
(1) One or two		X
(2) More than two	X	
(b) <u>Label</u> :		
(1) One to three		X
(2) More than three	X	

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TABLE II (Continued)

DEFECT	MAJOR	MINOR
<u>LABEL OR MARKINGS</u>		
a. Size missing, incorrect, or illegible	X	
b. Other than the size information, incomplete, incorrect, or illegible		X
c. Stitching omitted on one or more edges of the label		X

- 1/ The defect shall be classified major, when it seriously affects the serviceability or appearance, otherwise it shall be classified as a minor defect.
- 2/ This defect is applicable only to the Type MA-2 harness.
- 3/ Each slide fastener shall be checked for proper function, by opening and closing each slide fastener, at least three times, along its full length.
- 4/ With the slide fastener fully open, one end of the thong shall be grasped by one hand and normal hand force shall be applied causing the slider to move, closing the slide fastener along its entire length.
- 5/ The snap fasteners shall be checked, for proper function and attachment, by snapping closed and unsnapping, each snap fastener, at least three times.
- 6/ The gage of stitching defect shall be classified only, when the condition exists for more than 2 inches on any row of stitching.
- 7/ 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 run-offs 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.
- 8/ 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.
- 9/ Puckering is evidence of tight tension or gathering of the material. When puckering is evident, and 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.

- 10/ A seam shall be classified as loose when the needle and bobbin threads are both visible on the same surface.
- 11/ The stitches per inch defect shall be classified only, when the condition exists for more than 3 inches on any row of stitching.

TABLE III

LIST OF DEFECTS FOR THE DIMENSIONS OF THE ASSEMBLED HARNESSSES

FINISHED MEASUREMENTS	DEFECT
Harness	Any measurement deviating from the measurements specified in the applicable drawings and applicable tolerance shall be enumerated as a dimensional defect.

4.6.1.2 Preparation for delivery - Each of the fully prepared shipping containers, containing harnesses of one type and size, selected as a unit of product from the lot, shall be visually examined to determine that the packaging, packing, and marking conform to this specification. The list of defects, Table IV, shall be used to enumerate the defects found.

TABLE IV

LIST OF DEFECTS FOR PREPARATION FOR DELIVERY

ITEM	DEFECT
Exterior and interior markings	Missing, incorrect, incomplete, illegible; of improper size, location sequence or method of application; size or type shown on the harness, exterior containers, or on the paper label not the same; information on the label in the polyethylene bag not readable through the film or no label in the polyethylene bag.
Materials	Any nonconforming component; any component or component part missing, damaged, or otherwise defective.
Workmanship	Inadequate application of the components such as incomplete closure of any container flap or loose strapping; bulging or distortion of any container or any shipping container contains any metal fastening or stitches; any polyethylene bag damaged, any vent hole missing, or any open or non-continuous heat sealed seam.

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ITEM	DEFECT
Exterior and interior weight or content	Gross or net weight exceeds the requirement; number per container more or less than specified; more than one type or size harnesses in the same container; any harness bent, deformed or distorted; any portion of the harness caught in any heat sealed seam, not individually packaged within the polyethylene bag; harness portion, of the Type MA-2, not encased in the torso garment, or packaged separately.

4.6.2.1 Parachute harness - The harness shall be secured on a bent form torso type dummy. The dummy shall be anchored by means of a flexible hold back attached to the crotch. A collective load of 4,000 pounds shall be applied, by a suitable inspection apparatus, at the rate of $4 \pm 1/2$ inches per minute, and maintained for five seconds. The load shall be applied, at the riser connectors, with a resultant direction of stress similar to that applied by a freely suspended dummy. After release of the load, the harness shall be visually examined for conformance to 3.7.1.1. Upon completion of the testing and examination, the harness shall be inspected for lap belt, 4.6.2.2.

4.6.2.2 Lap belt - Upon completion of the testing and examination specified in 4.6.2.1, the lap belt shall be inspected in accordance with either 4.6.2.2.1 or 4.6.2.2.2.

4.6.2.2.1 Lap belt test with seat - The dummy shall be placed in what approximates a normal seated position in a seat type structure and secured by hold backs attached, at the harness connector fittings, in the same manner the harness would be installed in an aircraft. A collective load of 8,000 pounds, at the lap belt connectors, shall be applied for five seconds. The forward direction of load, applied to the dummy, shall be the same as that normally applied to a pilot of a rapidly decelerating aircraft. After release of the load, the harness shall be visually examined for conformance to 3.7.1.2.

4.6.2.2.2 Lap belt test without seat - The lap belt shall be extended between and anchored to the jaws, of a suitable inspection apparatus by means of flexible hold backs, equipped with hardware to mate with the lap belt fittings. A collective load of 5,000 pounds shall be applied, at the rate of $4 \pm 1/2$ inches per minute, and maintained for five seconds. After release of the load, the harness shall be visually examined for conformance to 3.7.1.2.

4.6.3 Dynamic - The harness shall be secured on a bent form torso type dummy and dropped from a vertical drop tower. The weight of the dummy and height, from which dropped, shall be such as to produce a peak snatch force of 8,000 \pm 800 pounds, when snubbed by a steel cable. The foregoing shall be repeated, consecutively, for a total of 5 times, Upon completion of the fifth drop, the harness shall be visually examined for conformance to 3.7.2.

4.6.3.1 Dynamic (alternate) - As an alternate to 4.6.3, the harness shall be dynamically inspected, by airdrop. The harness shall be secured on a bent form torso type dummy and a high shock parachute canopy attached and then dropped from an aircraft. The speed and altitude of the aircraft shall be such as to produce a peak parachute opening force of 8,000 pounds, The harness shall be air dropped, consecutively, for a total of 5 times. Upon completion of the fifth drop, the harness shall be visually examined for conformance to .3.7 .2.

5. PREPARATION FOR DELIVERY

5.1 Packaging - Packaging shall be Level A or C, as specified (see 6.2).

5.1.1 Level .4- The slide fastener, of each Type MA-2 harness, shall be fully closed and the waist snap fasteners shall be properly engaged Each Type MA-2 and MA-2P harness, as applicable, shall be neatly folded, in accordance with the commercial practice. A paper label shall be inserted (free 5.3.1) and each folded harness shall be heat sealed within a clear polyethylene bag of 0.003 \pm 20 percent inch gage film. The heat seal seams shall be straight, continuous, and-parallel to each other and the edges of the polyethylene bag. The closing heat seal seam of the bag shall be as close as possible to the edge of the bag. No harness shall be deformed, distorted, or bent in the bagged condition nor shall the polyethylene bag be damaged, No part of any harness shall be caught in any heat sealed seam. One corner of each bag shall contain a hole, 1/4 inch in diameter, to allow the excess air to escape .As an alternate, the final closure of the bag may be accomplished by use of a tuck or reverse flaps.

5.1.2 Level C - The harnesses, of one type and size, shall be packaged to afford the minimum of protection necessary to prevent deterioration or damage during shipment under normal environmental conditions and commercial modes of transportation.

5.2 Packing-Packing shall be Level A, B, or C, as specified (see 6. 2). Each shipping container shall contain harnesses of only one type and size.

5.2.1 Level A - The harnesses, packaged as specified in 5. 1. 1, shall be packed as specified in 5.2.2, except that the fillerboard container shall be

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Weather Resistant Class, Variety SW, Grade V3C or V3S. In addition, each container shall be reinforced with flat steel strapping or tape banding in accordance with the appendix to PPP-B-636.

5.2.2 Level B - The harnesses, packaged as specified in 5.1.1, shall be packed within a snug fitting fiberboard container conforming to PPP-B-636, Style OSC, Type CF or SF, Domestic Class, Variety SW, Grade 275. The top and bottom of the contents of each shipping container shall be completely covered with a sheet of 30 pound minimum basis weight kraft paper conforming to UU-P-268, Grade B. 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, Class 2, Grade A, B, or C. 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 same size per container, mixed sizes may be packed within the same shipping container (see 5.3. 2).

5.2.3 Level C - The harnesses, packaged as specified in 5.1, 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 r-node of transportation selected.

5.3 Marking - In addition to any special marking required by the contract or order (see 6.2 (h)), the exterior containers shall be marked in accordance with MIL-STD-129 and shall include the type and size of the harnesses 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 it shall be capable of being read through the bag. The paper label shall contain the same information as specified in 5.3.

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 container, containing mixed sizes of the harnesses, The label shall contain the following information:

MIXED SIZES

Sizes and quantity of each size

NOTES

6.1 Intended use - The integrated harness assemblies covered by this specification are intended for use by personnel operating aircraft utilizing the integrated restraint system. The Type MA-2 is used for all regular applications and the Type MA-2P is used with high altitude full pressure suit assembly.

6.2 Ordering data - Procurement documents shall specify the following:

- (a) Title, number, and date of this specification,
- (b) Type. desired (see 1.2.1).
- (c) Size and quantity desired (see 1. 2.2).
- (d) Whether first article inspection is waived (see 4.4. 1).
- (e) Name and address of the first article inspection laboratory (see 4.4.1).
- (f) Name and address of the quality conformance inspection facility including the laboratory and Government activity responsible for conducting the inspection program (see 4.5.1.3 and 6.4).
- (g) Selection of applicable levels of packaging and packing (see 5.1 through 5.1.2 and 5,2 through 5.2.3).
- (h) Whether any special markings are required (see 5. 3),
- (i) Certificate of compliance for the age of the materials and components except for the metallic parts (see 3. 3).

6.3 Qualification - With respect to products requiring qualification, awards will be made only for products which are at the time set for opening of bids, qualified for inclusion in the applicable Qualified Products List whether or not such products have actually been so listed by that date. The attention of the suppliers is called to this requirement, and manufacturers are urged to arrange to have the products that they propose to offer to the Federal Government tested for qualification in order that they may be eligible to be awarded contracts or orders for the products covered by this specification. The activity responsible for the Qualified Products List is the Commander, Naval Air Systems Command, Department of the Navy, Washington, D.C. 20360; however, authorization for qualification of products shall be obtained from the Commanding Officer, Naval Aerospace Recovery Facility, El Centro, California 92243.

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6.4 Laboratory information - The successful bidder will be furnished with the name of the quality conformance inspection facility including the laboratory and Government activity responsible for conducting the inspection program (see 4.5.1. 3) at the time of the award. The cost of the tests and examination on samples initially submitted from a lot, as required by 4.5.1.3, shall be borne by the Government whether the tests and examinations are conducted by a Government laboratory or by a laboratory selected by the cognizant Government activity. Samples from a rejected lot shall not be resubmitted for tests and examinations, as required by 4.5.1.3, without the approval of the contracting officer. The cost of the tests and examinations on samples resubmitted from a reworked lot or from a new lot, which is necessitated by the rejection of a previous lot, shall be borne by the manufacturer whether the tests and examinations are conducted by a Government laboratory or by a laboratory selected by the cognizant Government activity.

6.5 Data - For the information of contractors and contracting officers, any of the data, specified in applicable documents, listed in Section 2 of this specification, or referenced lower-tier documents, need not be prepared for the Government and shall not be furnished to the Government, unless specified in the contract or order. The data, to be furnished, shall be listed on DD Form 1425 (Contractor Data Requirements List), which shall be attached to and made a part of the contract or order. NavWeps Form 4200/25 (Drawings, Lists, and Specifications Required) shall be attached where applicable.

Custodians:
 Navy - AS
 Air Force -11

Preparing activity:
 Navy - AS
 (Project No. 1670-0396)

Review activities:
 Navy - AS
 Air Force - 11 and 82

NOTICE - Review-/user information is current as of date of this document. For future coordination of changes to this document, draft circulation should be based on the information in the current Federal Supply Classification Listing of DOD Standardization Documents.

SPECIFICATION ANALYSIS SHEET		Form Approved Budget Bureau No. 22-R255
<p>INSTRUCTIONS: This sheet is to be filled out by personnel, either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity. Comments and suggestions submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or serve to amend contractual requirements.</p>		
<p>SPECIFICATION</p> <p style="text-align: center;">MIL-H-19089B HARNESESSES, INTEGRATED PARACHUTE</p>		
<p>ORGANIZATION</p>		
<p>CITY AND STATE</p>		<p>CONTRACT NUMBER</p>
<p>MATERIAL PROCURED UNDER A</p> <p><input type="checkbox"/> DIRECT GOVERNMENT CONTRACT <input type="checkbox"/> SUBCONTRACT</p>		
<p>1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE?</p> <p>A. GIVE PARAGRAPH NUMBER AND WORDING.</p>		
<p>B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES</p>		
<p>2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID</p>		
<p>3. IS THE SPECIFICATION RESTRICTIVE?</p> <p><input type="checkbox"/> YES <input type="checkbox"/> NO (If "yes", in what way?)</p>		
<p>4. REMARKS (Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)</p>		
<p>SUBMITTED BY (Printed or typed name and activity - Optional)</p>		<p>DATE</p>

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DEPARTMENT OF THE NAVY
Naval Air Engineering Center
Philadelphia, Pennsylvania 19112

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Philadelphia, Pennsylvania 19112

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