INCH-POUND

MIL-DTL-55353A
30 March 1999
SUPERSEDING
MIL-H-55353
27July 1973

DETAIL SPECIFICATION

HEADSET, ELECTRICAL, H-216 A/U

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

1. SCOPE

1.1 Scope. This specification covers the H-216 A/U headset. It has a nominal impedance of 600 ohms and an extended range of 100 to 7,000 hertz (Hz).

2. APPLICABLE DOCUMENTS

* 2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

* 2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation (see 6.2).

SPECIFICATION

DEPARTMENT OF DEFENSE

MIL-I-631	-	Insulation, Electrical, Synthetic Resin Composition, Nonrigid.
MIL-P-642	-	Plugs, Telephone, and Accessory Screws, General Specification for.
MIL-M-13231	-	Marking of Electronic Items.
MIL-F-14072	-	Finishes For Ground Based Electronic Equipment.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to:
by using the Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

AMSC N/A FSC 5965

STANDARDS

DEPARTMENT OF DEFENSE

MIL-STD-130	-	Identification Marking of U.S. Military Property.
MIL-STD-202	-	Test Methods Standards Electronic and Electrical Component Parts.
MS75105	-	HB-7 Headband Assembly).
MS75127	-	Earphone Assembly.

(Unless otherwise indicated, copies of the above specifications, standards, and handbooks are available from the Defense Automated Printing Service, Building 4D (DPM-DODSSP), 700 Robbins Avenue, Philadelphia, PA 19111-5094.)

* 2.3 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of the documents which are DoD adopted are those listed in the issue of the DoDISS cited in the solicitation. Unless otherwise specified, the issues of documents not listed in the DoDISS are the issues of the documents cited in the solicitation.

INTERNATIONAL ORGANIZATION FOR STANDARDS (ISO)

ISO-10012-1	-	Quality Assurance Requirements for Measuring Equipment. Metrological Confirmation System for Measuring Equipment

(Application for copies should be addressed to American National Standards Institute (ANSI), 11 West 42nd Street, New York, NY 10036)

NATIONAL CONFERENCE OF STANDARDS LABORATORIES (NCSL)

Z540-1	-	Calibration Laboratories and Measuring and Test Equipment - General Requirements.

(DoD activities may obtain copies of this standard from the Defense Printing Service Detachment Office, Building 4D, Customer Service, 700 Robbins Avenue, Philadelphia, PA 19111-5094. Private sector and other Government Agencies may purchase copies from ANSI.)

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Materials. Materials shall be as specified herein. However, when a definite material is not specified, a material shall be used which will enable the headsets to meet the performance requirements of this specification. Acceptance or approval of any constituent material shall not be construed as a guaranty of the acceptance of the finished product.

3.1.1 Metals. The metals used shall be of proper alloy and hardness necessary to provide the required strength and rigidity with the maximum strength to weight ratio. Metals shall be of a corrosion-resistant type and shall be treated in accordance with MIL-F-14072, type II (sheltered).

3.1.2 Insulation. Insulation shall be in accordance with MIL-I-631.

3.2 Interface and dimensions. The headset shall be in accordance with figure 1.

3.2.1 Wiring. The earphones shall be wired in series.

3.3 Performance characteristics.

3.3.1 Acoustic quality. When the headset is tested as specified in 4.5.2, there shall be no buzzing, rattling, or other spurious sounds in the acoustic output of the earphone.

3.3.2 Slide adjustment. When the headset is tested as specified in 4.5.3, the assembly shall have a smooth, snug, push fit on the rod. A force of 25 ounces to 75 ounces shall be required to move the rod in the subassembly.

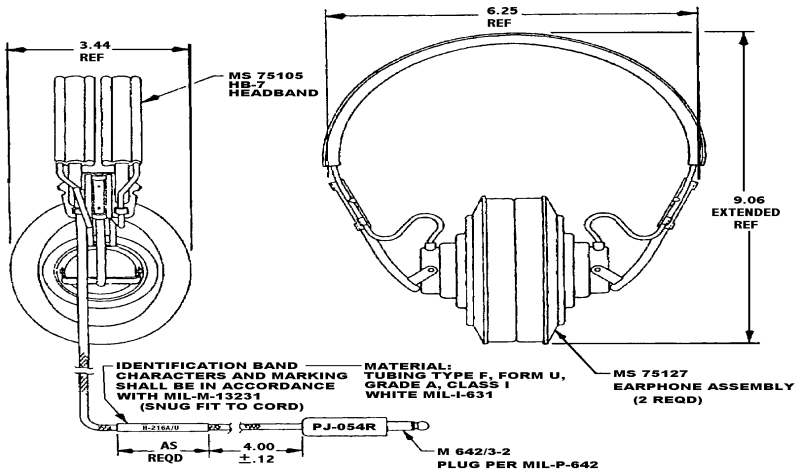
3.3.3 Strain relief. When the headset is tested as specified in 4.5.4, there shall be no slippage of the cord or cable assembly out of the plug.

3.3.4 Random drop. When tested as specified in 4.5.5, the acoustic quality shall be as specified in 3.3.1, and there shall be no loosening or deformation of parts or other damage to the headset.

3.3.5 Salt spray (corrosion). When tested as specified in 4.5.6, the acoustic quality shall be as specified in 3.3.1, and there shall be no loosening or deformation of parts or other damage to the headset.

3.4 Marking. Headset shall be marked in accordance with MIL-STD-130, with the military type number and the manufacturer's name or code identification.

3.5 Workmanship. Headsets shall be processed in such a manner as to be uniform in quality and shall be free from loose or deposited foreign materials, and other defects that will affect life, serviceability, or appearance.



Inches	mm
.12	3.05
3.44	87.38
4.00	101.60
6.25	158.75
9.06	230.12

NOTES:
1. Dimensions are in inches.
2. Metric equivalents (to the nearest .01 mm) are given for information only.

FIGURE 1. Headset H-216 A/U.

4. VERIFICATION

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.

* 4.1.1 Test equipment and inspection facilities. Test and measuring equipment and inspection facilities of sufficient accuracy, quality, and quantity to permit performance of the required inspection shall be established and maintained by the supplier. The establishment and maintenance of a calibration system to control the accuracy of the measuring and test equipment shall be in accordance with ISO-10012-1 and NCSL Z540-1 or equivalents as approved by the procuring activity.

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

(a) Components inspection (see 4.3).

(b) Conformance inspection (see 4.4).

4.2.1 Inspection conditions. Unless otherwise specified herein, all inspections shall be performed in accordance with the test conditions specified in the “GENERAL REQUIREMENTS” of MIL-STD-202.

4.3 Components inspection. Components inspection shall consist of certification supported by verifying data that the components shown in figure 1, used in the headsets, are in accordance with the applicable referenced specifications and standards.

4.4 Conformance inspection.

4.4.1 Inspection of product for delivery. Inspection of product for delivery shall consist of group A and group B inspections. Except as specified in 4.4.1.4.4, delivery of products which have passed group A and group B inspections shall not be delayed pending the results of group C inspection.

4.4.1.1 Inspection lot. An inspection lot shall consist of all headsets produced under essentially the same conditions and offered for inspection at one time.

4.4.1.2 Group A inspection. Group A inspection shall consist of the inspection and test specified in table I, in the order shown.

* 4.4.1.2.1 Sampling plan. A sample of parts shall be randomly selected in accordance with table II. If one or more defects are found, the lot shall be rescreened and defects removed.

4.4.1.2.2 Rejected lots. If an inspection lot is rejected, the supplier may rework it to correct the defects, or screen out the defective units, and resubmit for reinspection. If one or more defects are found in the second sample, the lot shall be rejected and shall not be supplied to this specification.

* TABLE I. Group A and Group B inspection.

Inspection and test	Requirement paragraph	Test method paragraph
Group A inspections		
Visual and mechanical inspection	3.1, 3.2, 3.4, and 3.5	4.5.1
Acoustic quality	3.3.1	4.5.2
Group B inspections		
Slide adjustments	3.3.2	4.5.3
Strain relief	3.3.3	4.5.4

4.4.1.3 Group B inspection. Group B inspection shall consist of the tests specified in table I, and shall be made on sample units which have been subjected to and have passed the group A inspection.

4.4.1.3.1 Sampling plan. A sample of parts shall be randomly selected in accordance with table II. If one or more defects are found, the lot shall be rescreened and defects removed.

4.4.1.3.2 Rejected lots. If an inspection lot is rejected, the supplier may rework it to correct the defects, or screen out the defective units, and resubmit for reinspection. If one or more defects are found in the second sample, the lot shall be rejected and shall not be supplied to this specification.

* TABLE II. Group A and Group B sampling plans.

Lot Size			Sample size	
			Group A	Group B
2	to	8	Entire lot	3
9	to	15	13	3
16	to	25	13	3
26	to	50	13	3
51	to	90	13	3
91	to	150	13	13
151	to	280	20	13
281	to	500	29	13
501	to	1,200	34	20
1,201	to	3,200	42	32
3,201	to	10,000	50	32
10,001	to	35,000	60	50
35,001	to	150,000	74	80
150,001	to	500,000	90	80
500,001	and	over	102	125

4.4.1.3.3 Disposition of sample units. Sample units which have passed the group B inspection may be delivered on the contract or order if the lot is accepted and the sample units are still within specified electrical tolerances.

4.4.1.4 Group C inspection. Group C inspection shall consist of the tests specified in table III, in the order shown. Group C inspection shall be made on sample units selected from inspection lots, which have passed group A and group B inspections.

4.4.1.4.1Sampling plan. Group C inspection shall be performed once each month on six sample units selected without regard to their quality from units produced during that period or each 1,000 units, whichever occurs first. The sample shall be divided equally into two groups and subjected to the tests of subgroup 1 and subgroup 2 of table III.

TABLE III. Group C inspection.

Test	Requirement paragraph	Method paragraph
Subgroup 1 (3 sample units)		
Random drop	3.3.4	4.5.5
Subgroup 2 (3 sample units)		
Salt spray (corrosion)	3.3.5	4.5.6

4.4.1.4.2 Failures. If one or more sample units fail to pass group C inspection, the sample shall be considered to have failed.

4.4.1.4.3 Disposition of sample units. Sample units which have been subjected to group C inspection shall not be delivered on the contract or order.

4.4.1.4.4 Noncompliance. If a sample fails to pass group C inspection, the supplier shall take corrective action on the materials or processes, or both, as warranted, and on all units of product which can be corrected and which were manufactured under essentially the same conditions, with essentially the same materials, processes, etc., and which are considered subject to the same failure. Acceptance of the product shall be discontinued until corrective action, acceptable to the Government, has been taken. After the corrective action has been taken, group C inspection shall be repeated on additional sample units (all inspection, or the inspection which the original sample failed, at the option of the Government). Group A and group B inspections may be reinstituted; however, final acceptance shall be withheld until the group C reinspection has shown that the corrective action was successful. In the event of failure after reinspection, information concerning the failure and corrective action taken shall be furnished to the cognizant inspection activity and the qualifying activity.

4.5 Method of inspection and test.

4.5.1 Visual and mechanical inspection. Headsets shall be inspected to verify that the materials, design, construction, physical dimensions, marking, and workmanship are in accordance with the applicable requirements (see 3.1, 3.2, 3.4, and 3.5). Defects shall be classified as specified in table IV.

4.5.2 Acoustic quality (see 3.3.1). A voltage of 1.1 volts ±0.1 volt rms shall be applied continuously to the terminals of the earphone. The frequency shall be varied continuously from 100 Hz to 7,000 Hz and back to 100 Hz. The acoustic output shall be checked for buzzing, rattling, and other spurious sounds.

TABLE IV. Classification of defects for visual and mechanical inspection.

Defect type	Classification	
	Major	Minor
Dimensions	Dimensions not as specified.	
Materials and finish	Materials not as specified. Wrong or incomplete finish. Large amount of flaking, peeling, or chipping of finish.	Scratches, cuts, abrasions, etc., causing exposure of base metal, or relatively small amounts of flaking, peeling, or chipping.
Parts	Missing parts. Inoperative, improperly assembled, or defective parts which could cause the headset to fail in service. Wrong parts.	Defective parts which would reduce efficiency of use, but not cause failure in service. Cracks or chipped surfaces having no effect on the functioning, assembly, maintenance, or life of the headset.
Marking	Marking missing, illegible, or incorrect.	Marking dirty or smudged, but legible.
Foreign objects	Any metallic foreign object, not firmly attached 1/, which could cause acoustical malfunctioning of the headset or a short circuit. Any nonmetallic foreign object such as insulation, dirt, or phenolic chips which could cause acoustical malfunctioning of the headset.	Any metallic or nonmetallic foreign object which affects appearance but which would not cause acoustical malfunctioning of the headset.
Wiring	Wiring not in accordance with 3.2.1. Broken strands: More than 20 percent; except in a seven-strand conductor, more than two broken strands. Insulation burned, abraded, pinched, or deteriorated between two or more conductors, resulting in a potential short circuit. Taut wire: Wire exhibits no slack and subsequent breakage may occur due to stress on terminal or part. Insulation frayed to the extent that a potential short circuit exists.	Broken strands: 20 percent or less. In a seven-strand conductor, one or two broken strands. Insulation burned, abraded, pinches or deteriorated, with exposure of bare wire, but short circuit not possible. Taut wire: Slight stress on conductor, but no possibility of subsequent breakage.

1/ Foreign objects that cannot be dislodged by the moderate application of pressure with a pick shall be considered to be firmly attached.

4.5.3 Slide adjustment (see 3.3.2). The headset shall be clamped in a secure position and in such a manner to allow the rods of the receiver holder to move freely. The rods shall be placed in the compressed position, and the force required to move the rod to the extended position shall be measured. The force required to return the rod to the compressed position shall be measured. A spring scale with a hook or any other suitable method that is agreeable with the contracting officer may be used to measure the force.

4.5.4 Strain relief (see 3.3.3). The cord conductors shall be detached from the plug. The jacket of the cord or cable assembly shall be suitably marked adjacent to the end of the plug or clamp and its position relative to the end of the plug noted. The plug shall be securely held or clamped, and a force shall be applied to the cord in a direction tending to withdraw the cord from the plug. The force shall be increased gradually to 12 pounds and held at that value for at least 10 seconds. A change in position of the jacket marking relative to the end of the plug shall be considered as evidence of slippage of the cord or cable assembly out of the plug.

4.5.5 Random drop (see 3.3.4). The entire headset shall be dropped a distance of at least 6 feet onto a concrete floor. At the discretion of the supplier, the floor may be covered with one layer of floor tile. The headset shall be dropped one time in each of three planes for a total of three times. The acoustic quality shall be measured as specified in 4.5.2.

4.5.6 Salt spray (corrosion) (see 3.3.5). Headsets shall be tested in accordance with method 101 of MIL-STD-202. The following details and exceptions shall apply:

a. Applicable salt solution: 5 percent.

b. Test condition letter: B.

c. Additional conditioning: Headsets shall be dried for 48 hours at room ambient temperature and conditions.

d. Measurement after drying period: As specified in 4.5.2.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

* 6.1 Intended use. The headset specified herein is for military unique communication equipment applications requiring proper performance under extreme operating conditions, which include mechanical shock and wet environment.

6.2 Acquisition requirements. Acquisition documents must specify the following:

a. Title, number, and date of the specification.

b. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2._).

c. Packaging requirements (see 5.1).

6.3 Replacement. This headset replaces the H-3/AAR-3 headset in accordance with SC-C-10150. Earphone cushion MS75128 replaces type II cushion of MIL-R-7153.

6.4 Data list. A data list for headset assembly H-216 A/U, as shown in figure 1, is contained in table V.

6.5 Subject term (key word) listing.

Acoustic quality
Communication equipment
Slide adjustment

TABLE V. Data list for headset assembly H-216 A/U.

MS, or Part number	Item name or description
MS75105	HB-7 headband assembly
MS75106	Subassembly guide plate and barrel
MS75107	Guide plate
MS75108	Guide barrel
MS75109	Friction spring
MS75110	V-clip
MS75111	U-clip
MS75112	Rivet
MS75113	Cupwasher
MS75114	Subassembly of receiver holder
MS75116	Yoke
MS75117	Bale rod
MS75118	Yoke stud
MS75119	Roll pin
MS75120	Band
MS75121	Headband cover
MS75122	CO-162 cable
MS75123	Cord CO169
MS75124	Ring terminal
MS75125	TM-51 terminals
MS75127	Earphone assembly
MS75128	Cushion, earphone
MS75129	Earphone retainer
MS75130	Cup, earphone
M642/3-2	Plug in accordance with MIL-P-642

6.5 Changes from previous issue. The margins of this specification are marked with asterisks to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

Custodians:
Army - CR
Navy – EC
Air Force – 85
DLA – CC

Review activities:
Air Force - 11, 13, 99
Navy - AS, MC, SH

Preparing activity:
DLA – CC

(Project 5965-0274)

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.

2. The submitter of this form must complete block1s 4, 5, 6, and 7, and send to preparing activity.

3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of 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.

I RECOMMEND A CHANGE:	**1. DOCUMENT NUMBER** MIL-DTL-55353A	**2. DOCUMENT DATE** (YYMMDD) 990330

3. DOCUMENT TITLE
HEADSET, ELECTRICAL, H-216 A/U

4. NATURE OF CHANGE (Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)

5. REASON FOR RECOMMENDATION

6. SUBMITTER

a. NAME (Last, First, Middle initial)	b. ORGANIZATION	
c. ADDRESS (Include Zip Code)	d. TELEPHONE (Incl Area Code) (1) Commercial (2) DSN (If applicable)	7. DATE SUBMITTED (YYYYMMDD)

8. PREPARING ACTIVITY

a. NAME Defense Supply Center, Columbus ATTN: VAI (Howard Jenkins)	b. TELEPHONE (Include Area Code) (1) Commercial (614) 692-0560 (2) DSN 850-0560
c. ADDRESS (Include Zip Code) 3990 East Broad Street Columbus, OH 43213-1199	**IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT:** Defense Standardization Program Office (DLSC-LM) 8725 John J. Kingman Road, Suite 2533 Fort Belvoir, Virginia 22060-6221 Telephone (703) 767-6888 DSN 427-6888