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MIL-P-85723(AS)  
AMENDMENT 1  
31 January 1991

## MILITARY SPECIFICATION

### PROJECTILE, 20 MILLIMETER, SEMI-ARMOR PIERCING, HIGH EXPLOSIVE INCENDIARY, PGU-28/B

This amendment forms a part of MIL-P-85723(AS), dated 12 August 1986, and 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.

#### PAGE 2

2.1.1, last line, after "solicitation," add "(see 6.2.1)."

2.1.1, under "MIL-STD-1235" add

"(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.)"

#### PAGE 3

2.1.2, under "1575AS109" add

"(Copies of Naval Air Systems Command drawings are available from the Naval Air Technical Services Facility (NATSF) (Code 312), 700 Robbins Avenue, Philadelphia, PA 19111-5097.)"

2.1.2, under "Department of the Army," delete "DI1075203" and substitute "DI1075203." and add

"DI1075245

Production Check Standards

(Copies are available from the Department of the Army, U.S. Army Information System Command (ASQNC-APP OPP-P), Picatinny Arsenal, NJ 07806-5000.)"

2.1.2, under "US Army Material Command," below "AMCR 715-505," delete

"(Copies of specifications, standards, drawings, publications, and other Government documents required by contractors in connection with specific acquisition functions should be obtained from the contracting activity or as directed by the contracting activity.)" and substitute

"(Copies are available from the Commander, USAISC-Letter Kenny, Attn: ASQ-NC-DL-OIP, Chambersburg, PA 17201-4186.)"

AMSC N/A

1 of 8

FSC 1305

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MIL-P-85723(AS)  
AMENDMENT 1

PAGE 4

Delete existing paragraph 2.2 in its entirety and substitute

"2.2 Non-Government publications. The following document(s) 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 (see 6.2.1)."

2.2, under "AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)" delete "ASTM B117-64" and "ASTM E18-67" and substitute "ASTM B117" and "ASTM E18" respectively. Below "ASTM E18," add "ASTM F519 Testing for Hydrogen Embrittlement Relief."

2.2, below "(Application for copies should be addressed to the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.)" add

"(Non-Government standards and other publications are normally available from the organizations that prepare or distribute the documents. These documents also may be available in or through libraries or other informational services.)"

PAGE 5

3.3.2.2, third line, delete "serrated."

3.3.2.4.1, second line, delete "1575AS101" and substitute "1575AS105."

Delete existing paragraph 3.3.2.4.2 in its entirety and substitute

"3.3.2.4.2 Paint coating. The paint coating shall be in accordance with the applicable requirements of Drawing 1575AS105. Exterior paint adhesion shall be in accordance with applicable requirements of TT-C-490. Unsatisfactory adhesion shall be indicated by the exposure of base metal or underlying phosphate in any of the following conditions.

- a. Any area exceeding 0.090 square inch
- b. More than one area exceeding 0.045 square inch
- c. More than five areas of 0.021 square inch"

3.3.2.4.3, third line, after "salt fog," add "for not less than 24 hours."

Add new paragraph 3.3.2.4.4 as follows.

"3.3.2.4.4 Hydrogen embrittlement. All projectiles shall be processed for relief of hydrogen embrittlement in accordance with the applicable requirements of TT-C-490. Validation of process shall be in accordance with 4.5.6.1.1."

4.1, third line, after "requirements" add "(examinations and tests)."

4.1, last line, delete "assure" and substitute "ensure."

PAGE 6

4.1.1, first line, delete "must" and substitute "shall."

MIL-P-85/231A5/  
AMENDMENT 1

4.1.1, seventh and eighth lines, delete "Sampling in quality conformance" and substitute "Sampling inspection, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements, however, this \_ \_ \_."

PAGE 9

Delete existing Table II in its entirety and substitute

"TABLE II. Body projectile (see Drawing 1575AS107).

Categories and defects	Method of inspection
<u>CRITICAL:</u> None defined	
<u>MAJOR:</u>	
101. Diameter bourrelet minimum	Gage
102. Length, mouth to rear of rotating band seat, maximum	Gage
103. Overall length, maximum	Gage
104. Runout, large HE cavity <u>2</u> /	Gage
105. Position small I.D. <u>2</u> /	Gage
106. Large HE cavity inside diameter <u>2</u> /	Gage
107. Small I.D. <u>2</u> /	Gage
108. Depth rotating band seat, knurling, minimum	Visual/Gage <u>1</u> /
109. Runout, boat tail	Gage
<u>MINOR:</u>	
201. Length to rear edge of rotating band seat, minimum	Gage
202. Width rotating band seat, minimum	Gage <u>1</u> /
203. Foreign matter	Visual
204. Diameter rotating band seat knurled	Gage

PAGE 10

Delete existing Table III in its entirety and substitute

MIL-P-85723(AS)  
AMENDMENT 1

"TABLE III. Projectile body assembly (see Drawing 1575AS106).

Categories and defects	Method of inspection
<u>CRITICAL:</u> 1. Ferrous metal discontinuity	Soundness Test (see 4.5.5)
<u>MAJOR:</u> 101. Length mouth to rear edge of rotating band 102. Diameter, body rear of rotating band, minimum 103. Diameter of rotating band 104. Position rotating band diameter 105. Width rotating band, overall 106. Location crimp groove 107. Profile crimp groove 108. Radius, rear edge of crimp groove, maximum 109. Void at band/body interface 110. Runout, body rear of rotating band	Gage Gage Gage Gage Gage Gage Gage Gage Visual Gage
<u>MINOR:</u> 201. Finish	Visual

In Table IV, under "MAJOR" below "101," add

"102. Diameter, body rear of rotating band, maximum

Gage"

PAGE 11

Delete existing Table VI in its entirety and substitute

"TABLE VI. Disc, closure nozzle (see Drawing 1575AS104).

Categories and defects	Method of inspection
<u>CRITICAL:</u> None defined	
<u>MAJOR:</u> 101. Through diameter .118 <u>1</u> / 102. Position .118 diameter to datum <u>1</u> / 103. Diameter .516 <u>1</u> / 104. Position .516 diameter <u>1</u> / 105. Diameter .422 <u>1</u> /  <u>MINOR:</u> 201. Finish 202. Foreign matter 203. Position counterbore diameter to datum	Gage Gage Gage Gage Gage  Visual Visual Gage

MIL-P-85723(AS)  
AMENDMENT 1

PAGE 12

Delete existing Table VII in its entirety and substitute  
"TABLE VII. Nose cap (see Drawing 1575AS108).

Categories and defects	Method of inspection
<b>CRITICAL:</b> None defined	
<b>MAJOR:</b> 101. Nose tip thickness 102. Length .420 103. Length, 1.243 inches 104. Contour 105. Spherical radius .075 <u>1/</u> 106. Location wall thickness .328 <u>1/</u> 107. Wall thickness .028 <u>1/</u> 108. Inside diameter .375 <u>1/</u> 109. Diameter .528 <u>1/</u> 110. Diameter .412 <u>1/</u> 111. Diameter .513 <u>1/</u> 112. Hardness	Gage Gage Gage Gage Gage Gage Gage Gage Gage Gage Gage
<b>MINOR:</b> 201. Surface finish inside and outside 202. Foreign material	Visual Visual

PAGE 14

Delete existing Table X in its entirety and substitute  
"TABLE X. Lot acceptance test.

Test	Sample size	Item	Requirement paragraph
Metal parts security <u>1/</u>	250	Projectile	3.2.1.1
Hardness			
Body <u>2/</u>	13	Body	3.3.2.1
Nose <u>2/</u>	80	Nose	3.3.2.1
Band tightness <u>3/</u>	315	Painted projectile body.	3.3.2.2
Soundness verification <u>4/</u>	315	Body	3.3.2.3
Automatic inspection <u>5/</u>		PCS No. 1	--
Paint adhesion <u>6/</u>	13	Painted projectile body	3.3.2.4.2
Corrosion Resistance <u>7/</u>	32	Painted projectile body	3.3.2.4.3

MIL-P-85723(AS)  
AMENDMENT 1

PAGE 15

2/, first line, delete "nose."

4/, first and second lines, delete "0.005 inch in width (excluding knurl surfaces)" and substitute "Production Check Standard (PCS) No. 1 of Drawing D11075245."

5/, first line, delete "Production Clerk Standard" and substitute "production check standard."

Delete existing 6/ in its entirety

PAGE 16

Delete "7/" and "8/" and renumber "6/" and "7/" respectively.

4.5.3, second line, delete "E18-67" and substitute "E18."

4.5.5, second line, delete "D11075203" and substitute "D11075203."

4.5.5.1, second line, delete "B7259545" and substitute "D11075245 for PCS No. 1."

PAGE 17

4.5.5.2, second line, delete "D11075203" and substitute "D11075203."

4.5.6.1, second line, delete "1575AS101" and substitute "157AS105."

4.5.6.1, fifth line, after "recorded" add a new sentence "Failure of the phosphate coating on the standard panels to comply with the applicable requirements shall be cause for rejection of all assemblies phosphated since the preceding test."

Add a new paragraph as follows

"4.5.6.1.1 Hydrogen embrittlement. Validation of the hydrogen embrittlement relief process shall be performed on not less than one specimen, prepared, tested, and reported in accordance with ASTM F519, Figures 1 or 2 and paragraphs 6.1.2, 6.2.1, 6.3, 7.1.1, 7.1.2, 7.3 and section 9.0 except:

a. The coated specimen shall be subjected for not less than 200 hours to a sustained load equal to  $75 \pm 1$  percent of the notched average tensile strength of the material, as determined by not less than three notched specimens not subjected to cleaning, coating, or relief treatment. The three untreated specimens shall be tested in accordance with ASTM E8 to determine the average notched tensile strength for the material.

b. The coated specimens shall be examined for cracks under 10X magnification with an approximate illumination of 100 LUX. A cracked specimen shall be cause for rejection of units produced since the last acceptable specimen."

4.5.6.2, last line, delete "recorded as a defect" and substitute "evaluated in accordance with 4.5.6.3."

MIL-P-85723(AS)  
AMENDMENT 1

PAGE 18

4.5.6.4, second line, delete "ASTM B117-64" and substitute "ASTM B117."

5.1 and 5.2, after "bodies," delete ", closure discs, and noses."

Below "6. NOTES" add

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

PAGE 19

6.2.1, add "e. Issue of DODISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1.1 and 2.2)."

Delete existing 6.2.2 in its entirety and substitute

"6.2.2 Consideration of data requirements. The following data requirements should be considered when this specification is applied on a contract. The applicable Data Item Descriptions (DID's) should be reviewed in conjunction with the specific acquisition to ensure that only essential data are requested/provided and that the DID's are tailored to reflect the requirements of the specific acquisition. To ensure correct contractual application of the data requirements, a Contract Data Requirements, List (DD Form 1423) must be prepared to obtain the data, except where DOD FAR Supplement 27.475-1 exempts the requirement for a DD Form 1423.

<u>Reference Paragraph</u>	<u>DID Number</u>	<u>DID Title</u>	<u>Suggested Tailoring</u>
3.5	DI-SAFT-80102	Safety assessment report	---
4.3, 4.4.4	DI-NDTI-80566	Test plan	---
4.3, 4.4.4	DI-T-2072	Reports, test	---
5.4	DI-MISC-80043	Ammunition data card	---

The above DID's were those cleared as of the date of this specification. The current issue of DOD 5010.12-L, Acquisition Management Systems and Data Requirements Control List (AMSDL), must be researched to ensure that only current, cleared DID's are cited on the DD Form 1423."

PAGE 20

Add paragraphs 6.7 and 6.8 as follows

"6.7 Intermediate point inspection. The classification of defects identifies the characteristics (among other things) for acceptance inspection. It may be necessary to modify the sequence of inspection stations to best suit the manufacturing process. Inspection for defect characteristics which will be hidden or altered by subsequent processing operations (including unrelated operations), should be scheduled to prevent premature acceptance which could be detrimental to the attainment of optimum product quality in the end item."

MIL-P-85/23(AS)  
AMENDMENT 1

"6.8 Safety precautions. The loading, assembly, and handling of the explosive subassemblies, and the finished items covered by this specification, involve hazardous operations and therefore require suitable explosive safety precautions. Standard safety precautions for explosive-loaded items are contained in DOD 4145.26M."

Delete existing "6.7" and renumber as "6.9."

6.9, delete "Armor piercing ammunition, Explosives, Incendiary ammunition, PGU-28/B, Projectiles" and "20 millimeter."

Preparing Activity:  
Navy - AS  
(Project 1305-ND73)