

INCH-POUND

MIL-P-60547F (AR)
 AMENDMENT 2
12 September 1994
 SUPERSEDING
 AMENDMENT 1
 28 February 1990

MILITARY SPECIFICATION

PROJECTILE, 105MM, HE, M1 AND M760
 METAL PARTS ASSEMBLY

This amendment forms a part of Military Specification MIL-P-60547F (AR), dated 25 August 1986, and is approved for use by the U.S. Army Armament Munitions and Chemical Command, and is available for use by all Departments and Agencies of the Department of Defense.

PAGE 1

2.1.1 SPECIFICATIONS, MILITARY - Add the following:

"MIL-H-6875 - Heat Treatment of Steel, Process For".

PAGE 2

- * 2.1.2 DRAWINGS. Delete "8593417 - Band Seating Testing Machine" in its entirety and substitute the following "9280429 - Rotating Band Seat Tester".

PAGE 3

3.1.2 Add the following sentence to the end of the paragraph.

"Furnace equipment requirements and furnace calibration and test procedures shall be in accordance with the requirements of MIL-H-6875."

PAGE 4

3.1.4 Delete in its entirety and substitute the following:

"3.1.4 Cold shaping and hot cup-cold draw methods. Cold working and subsequent stress relief shall be accomplished as to produce in the projectile body the mechanical properties specified by the applicable drawing. Stress relief shall be accomplished at a temperature of 900 F minimum following the final forming operation which results in plastic flow. The minimum time the projectile body shall be at the minimum stress relief temperature shall be one hour."

AMSC N/A

DISTRIBUTION STATEMENT A.

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FSC 1315

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Add the following paragraph:

"3.1.4.1 Process control of stress relief operation. A process control document covering the stress relief operation shall be submitted to the technical agency through the contracting officer for review and approval prior to the initiation of production. This document shall include descriptions of procedures, equipment, process parameters, monitoring practices and calibration procedures and frequencies to be used for the stress relief operation. Data shall be included showing, based on temperature measurements of both the nose and base area of the projectile, that the projectile bodies are at minimum temperature for the minimum time in accordance with paragraph 3.1.4 when using the process parameters outlined in the process control document. The process control document shall be a part of the contractor's quality program plan. Revisions shall be submitted to the technical agency through the contracting officer for review and approval."

PAGE 5

3.4 Line 3, Delete "excess and service pressure" and substitute "excess pressure".

PAGE 9

Table I:

Excess Pressure: change "30" samples to "50" samples.

Delete "Service Pressure", "20", "(a)", "3.4" and "4.5.8" in its entirety.

PAGE 18

4.4.3.6 Under Examination or Test: Change "Ballistic Test" to "Ballistic Test (excess pressure)".

Under Category Critical 1; Change sample size "20" to "20/10".

Under Notes: Delete Note "(a)" in its entirety and substitute the following:

"a. After the First Article sample has met the ballistic criteria, twenty (20) sample projectiles shall be randomly selected from each of the first three initial production lots. Failure of any projectile to comply with 3.4 shall be cause for rejection of the initial production lot.

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After three (3) consecutive initial production lots have been tested and found to be acceptable, ten (10) projectile shall be randomly selected from each production lot for excess pressure test."

PAGE 19

4.4.4.2.1.1 Delete in its entirety and substitute the following:

"4.4.4.2.1.1 Heat treatment lots. In order to determine uniformity of heat treatment, each body in the heat treatment lot (as defined by 4.4.1.1) after heat treatment, but prior to final machining shall be subjected to a hardness test with a Brinell Hardness Tester or any other method approved by the procuring activity. Hardness impressions shall be made on the outside surfaces at the band seat location or at any other area on the body deemed necessary for process control and used as the basis for selecting the tension test samples of 4.4.4.2.2.1."

PAGE 20

4.4.4.2.2.3 Delete the 4th and 5th sentence and substitute the following:

"The furnace temperature may vary within 25 F but not below the minimum temperature of 900 F for the minimum one hour soak time."

PAGE 22

4.5.3 a, Line 2: Delete "grinding to a sufficient depth" and substitute "grinding a flat to a sufficient depth".

PAGE 23

4.5.3 d, Line 6: Delete "300kg" and substitute "3000kg".

4.5.5.1, Line 2: Delete "Dwg 8593417" and substitute "Dwg 9280429".

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4.5.8.1.1, 4.5.8.1.2 and 4.5.8.2 Delete in their entirety and substitute the following:

"4.5.8.1.1 M1 Projectile (excess pressure). The M1 Projectile shall be fired from an M137A1 cannon using a propelling charge which will produce an average piezo equivalent pressure between 40,000 psi and 42,000 psi pressure."

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The rounds shall be fired in an acceptable gun, based upon current gun tube condemnation criteria. The excess pressure test values can, at the option of the proving ground, be obtained by either the addition of propellant or by heating the cartridge to obtain the pressures required."

"4.5.8.1.2 M760 Projectile (excess pressure). The M760 projectile shall be fired from an M119 Howitzer using a PXR200-1 Propelling charge producing (54,500 - 57,000 psi) for excess pressure. The rounds shall be fired in an acceptable gun, based upon current gun tube condemnation criteria. The excess pressure test rounds (charge and projectile) shall be uniformly temperature conditioned at 70 F \pm 2.5 for a minimum of 24 hours prior to testing. The as fired fused projectile weight shall be 33 \pm 0.2 pounds."

PAGE 26

- * 6.3 Line 4: Delete "AMSMC-QAR-I (D), Dover, NJ 07801-5001" and substitute: "SMCAR-QAR-I, Picatinny Arsenal, New Jersey 07806-5000".
- * 6.6 Line 6 and 7: Delete "AMSMC-QAR-Q (D), Dover, NJ 07801-5001" and substitute: "SMCAR-QAR-R, Picatinny Arsenal, New Jersey 07806-5000".

PAGE 27

- * 6.9 b, Line 5: Delete "standard ANSI grade" and substitute "standard AISI grade".

Add the following:

"6.11 Data requirements. When this specification is used in an acquisition and data are required to be delivered, 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 Contract Data Requirements List (CDRL) incorporated into the contract. When the provisions of DOD FAR Supplement Part 27, Sub-Part 27.410-6 (DD Form 1423) 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 are cited in the following paragraphs:

<u>Paragraph</u>	<u>Data Requirements Title</u>	<u>Applicable DID</u>
3.1.4.1	Process Control Document	DI-R-5297A"

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The margins of this amendment are marked with an asterisk or vertical line to indicate where changes (additions, modifications, corrections, deletions) from the previous amendment 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 amendment.

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