METRIC

DOD-P-63981A (AR)
AMENDMENT 10
24 July 1996
SUPERSEDING
AMENDMENT 9
29 November 1994

MILITARY SPECIFICATION

PROJECTILE 30MM, HIGH EXPLOSIVE DUAL PURPOSE, M789, METAL PARTS

This amendment forms a part of Military Specification DOD-P-63981 (AR), dated 29 October 1982, and is approved for use by the US Army Armament Research, Development and Engineering Center, and is available for use by all Departments and Agencies of the Department of Defense.

PAGE 2

2.1.1, STANDARDS: Add "MIL-STD-1235 Single and Multilevel continuous Sampling Procedures and Tables for Inspection by Attributes".

2.1.2, Drawings: Delete "11825929" and substitute "11825955"

PAGE 3

3.4: Add the following after "... shall fill the band seat.":

"When sectioned along the longitudinal axis, one half of the sectioned projectile body shall be examined for rotating band fill in the undercut areas. Failure of either of the exposed sections to comply with 65% fill in the undercut areas shall be considered a defect."

3.5: Delete in its entirety and substitute the following:

"3.5 Soundness. The projectile bodies shall be examined for metal discontinuities by eddy current or ultrasonic inspection. A discontinuity in excess of .25mm deep by 6.35mm in length shall be classified as defect."

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3.6.1:

Add to end of second sentence: "except coating weight shall be 25mg/sq ft minimum:"

Add to end of third sentence: "except 3 panels are required at the beginning of each shift only."

* 3.6.3: Delete 24 hours and substitute 48 hours

"3.6.3 Corrosion resistance. The Bourrelet and ogive portion (exclude area aft of rotating band from the test) of the exterior painted surface of the projectile metal parts shall show no evidence of corrosion (red rust) after exposure to a 5% solution of atomized salt spray for 48 hours."

PAGE 4

3.7: Should read as follows:

"3.7 Metal Parts Security. The projectile metal parts when inert charged, fuzed and assembled into test cartridges meeting the ballistic requirements of Dwg. 11825954, shall not separate or break-up when tested for metal parts security."

PAGE 5

4.3.1 Delete Quantity "125" and substitute "64", Quantity "400" and substitute "560".

PAGE 6

Table I:

Delete all notes at the bottom of the page and all reference to them.

Band tightness: Delete "125" and substitute "32".

Projectile, Metal Parts, Examination for defects: Delete "32" and substitute "32*".

Projectile, Metal Parts, Soundness: Delete "125" and substitute "125*".

Notes: Add "* This inspection can be performed on the same sample."

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PAGE 7

4.4.1, Inspection Lot Formation, Add the following:

"In addition, when heat treatment of projectile bodies is performed per MIL-H-6875, the size of each heat treat batch shall not exceed 5,000 units."

4.4.2.a: Delete "unless otherwise specified" at the end of the paragraph and substitute "or MIL-STD-1235".

PAGE 8

4.4.2.1: Delete "minor 301, width, maximum .40%, 3.3.1 Gage".

PAGE 9

Major 101: Delete "Length, mouth to rear of rotating band seat" and substitute "Length, mouth to rear shoulder".

4.4.2.2, Major 105: Delete "base".

Add Major 114 as follows:

"114 Hardness at aft shoulder 8 1/ ACC-0 3.8 Hardness tester
REJ-1 (non-destructive)"

Add Note 1 as follows:

"1/ Sample shall be per heat treat batch (ref. 4.4.1) if heat treatment is per MIL-H-6875; or per shift if heat treatment is per MIL-S-12515."

PAGE 11

4.4.2.3:

Major 102: Delete "min" and substitute "max".

Major 104: Delete "runout" and substitute "true position".

Major 106:

Delete: "Major 106. Band tightness 20 Acc-0 3.4 4.5.1" and substitute:

"Major 106. Band tightness 20 Acc-0 3.4 4.5.1/Gage"
Rej-1

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Notes: Delete "CD 108 and 110" and substitute "Major 106, 113 and Minor 203".

Delete "(See Note)" from major 106.

Add "(See Note)" under title.

PAGE 13

4.4.2.4:

Minor 201, Paragraph Reference/Inspection Method column: Add "6.8."

Add "11825956" to the next higher assembly.

PAGE 14

4.4.3.1:

Delete "Sand fill" and substitute "Band fill".

Delete the last sentence and substitute "examination per 4.5.1".

4.4.3.2, second sentence: Delete "flow" and substitute "flaw".

PAGE 15

4.5.1: Delete in its entirety and substitute the following:

"4.5.4 Band tightness. After sectioning along the longitudinal axis, one half of the sectioned projectile body shall be examined for rotating band fill in the undercut areas using a .400mm No-go pin. Failure of either of the exposed sections to comply with the 65% fill requirement shall be considered a defect."

4.5.2.1: Delete in its entirety.

4.5.3, first sentence: Delete "at the start and completion of".

4.5.4: Delete second sentence and substitute "The prescribed panels shall be processed with the projectiles to be represented, per paragraph 3.6.1."

4.5.5: Delete "XM230" and substitute "M230".

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4.5.7: Delete in its entirety and substitute the following:

"4.5.7: Metal parts security. The method of test shall be as prescribed in AMCR-715-505, Volume 8, as applicable. The witness panel shall be 8 feet by 8 feet by 1 inch thick plywood with a 1/2 inch thick Celotex facing and located 5 meters ± 1 meter form the muzzle. A witness box shall be located at the muzzle and extend at least one meter forward from the muzzle. The witness box shall be open at each end and be lined with 1/2 inch thick Celotex. The test sample shall be assembled to comply with requirements of Dwg. 11825954, Cartridge, 30mm, for projectile metal parts tests. The test cartridges shall be fired at ambient temperature in 20 round minimum bursts. The gun barrel may be cooled at ambient temperature after each 100 rounds. The cyclic rate of each burst shall be the design cyclic rate."

PAGE 17

6.3: Delete "DRDAR-QAF-I" and substitute "AMSTA-AR-QAC-C".

6.4: Delete "ARRADCOM" and substitute "ARDEC".

Delete "DRDAR-QAF-S" and substitute "AMSTA-AR-QAC-C".

6.5: Delete "ARRADCOM" and substitute "ARDEC".

Delete "DRDAR-QAF-S" and substitute "AMSTA-AR-QAC-C".

6.8: Add "d" as follows:

"d. Missing paint on the rotating band is not a defect."

Add new paragraph 6.9 as follows:

"6.9 Intermediate point inspection. The classification of defects identifies the defect 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."

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