INCH-POUND

MIL-P-70524 (AR)
AMENDMENT 7
30 May 1997
SUPERSEDING
AMENDMENT 6
16 May 1996

MILITARY SPECIFICATION

PROJECTILE, 105MM, HE, RA, XM913/XM927 WARHEAD INSULATION ASSEMBLY FOR

This amendment forms a part of Military Specification MIL-P-70524 (AR), dated 29 October 1990, and is approved for use by the U.S. Army Armaments, Research, Development and Engineering Center and is available for use by all Departments and Agencies of the Department of Defense.

PAGE 1

Title: change “XM913” to “M913” (and wherever it appears).

PAGE 3

3.5 Delete in its entirely and substitute the following:

“3.5 Proving ground. There shall be no warhead related premature explosive function, warhead breakup or separation of metal parts in the gun bore or in flight, when tested as specified in 4.5.8.”

PAGE 4

* 3.7.1 Line 2, Delete “100 pounds” and substitute “5000 pounds”.

* 3.7.2 Delete in its entirety without substitution. (Note, 3.7.2 was added in amendment 6 and deleted in amendment 7)

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4.3.1.2 Delete in its entirety.

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PAGE 8

TABLE 1, Warhead insulation and assy. Delete “9341144” and substitute “9381144”.

Warhead (prior to knurling and threading) Delete “4.4.2” and substitute “4.4.2.2”.

Insulation, Bonding Assembly Pull Test:

Delete “25” and substitute “5”.
Delete “4.5” and substitute “4.5.7”.

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4.4.2.2 Special 1: Delete “3.9” and substitute“3.11”.

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4.4.2.3 Major defect 118, Delete “Effective” and substitute “Thru”.

Major defect 123, change “Surface finish of base thread” to “Surface finish of base thread undercut”.

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4.4.2.4 Special defect 1 Delete “3.5” and substitute “3.6”.
Special defect 2 Delete “3.7” and substitute “3.9”.
Major defect 103 Delete “3.7” and substitute “3.9”.

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* 4.4.2.7 Major defect 101, change “Insulation of adhesive above minimum recess: to “Insulation or adhesive above drawing requirement”.

Major defect 102, delete “Ultraviolet light”.
Add Major defect 103, as follows:
“103, Bonding assembly pull test, 4.4.6, 3.7.1, 4.5.7”.

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* 4.4.3.5 Delete in its entirety without substitution. (Note, 4.4.3.5 was added in amendment 6 and deleted in amendment 7)

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Add New paragraphs 4.4.6, 4.4.6.1 and 4.4.6.2.

"4.4.6 Bonding assembly pull test. Sampling for the adhesive bond test of the Warhead insulator assembly consists of a process qualification and a normal sampling test. Testing shall be performed as specified in 4.5.7. The process qualification test shall be performed when any of the following conditions exists:

a. The start of production.
b. A failure has occurred during normal sampling.
c. The lot of adhesive resin or hardener changes.
d. The bonding process (which includes surface preparation, mixing of adhesive, application of adhesive, fixturing and curing conditions) changes.
e. A lapse in production has exceeded one month.
f. As part of first article inspection.

4.4.6.1 Process qualification sampling. A random sample of five warhead bonding assemblies shall be taken from the initial day's production for testing. If any test sample fails to comply with the requirements of 3.7.1, the production quantity represented by that sample shall be rejected, the process corrected and an additional sample selected.

4.4.6.2 Normal sampling. Once qualified per 4.4.6.1, from each days bonding production, the contractor shall have one each assembly selected at random for testing. If any test sample fails to comply with the requirements of 3.7.1, the production quantity represented by that sample shall be rejected and the inspection sampling will revert back to 4.4.6.1 once corrective action has been taken on the process."

4.5.2 Delete "3.5.3" and substitute "3.6.3".

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4.5.6.2 Line 12, Delete "3.13" and substitute "3.8".

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* 4.5.7 Delete in its entirety and substitute the following:

"4.5.7 Bonding assembly pull test. Samples selected for this test shall be held until completion of the production

adhesive cure cycle. Each sample shall have a pull test fixture bonded directly onto the exterior surface of the insulator (see 6.12). The sample assemblies shall be temperature conditioned at +140 degree F min. for 16 hours minimum prior to testing. Each test sample shall be pull (tension) tested within 15 minutes after removal from the conditioning chamber. The test fixture is to be designed in accordance with 4.4.4. Observation shall be made for compliance with requirements of 3.7.1. If the bond breaks at the fixture, it will be counted as a successful test providing the tension force is above the requirement of 3.7.1. If the bond breaks at the fixture with a lower tension value, it will be considered as a no test and another test sample must be selected. All test samples must have a new insulator bonded onto its base before returning it to the lot."

4.5.8 Delete in its entirety and substitute the following:

"4.5.8 Proving ground. These tests shall be performed at a Government proving ground in accordance with the applicable acceptance test procedure. The sample warheads selected in accordance with 4.4.5 shall be TNT loaded, assembled with live rocket motors and delay assemblies, and conditioned to 145-5 degrees F for 16 hours minimum prior to firing rocket on in a M119 series howitzer using a PXR200 propelling charge conditioned to 70+/-2.5 degrees F. The warheads shall be fuzed with M577 series MTSQ fuzes set to 40 seconds minimum. Photographic and radar coverage shall be provided to assure compliance with 3.5. Range and deflection shall be recorded for informational purposes only."

* 4.5.9 Delete in its entirety without substitution.
(Note 4.5.9 was added in amendment 6 and deleted in amendment 7)

5.1 Delete in its entirety and substitute the following:

"5.1 Packaging, packing and marking. Packaging, packing and marking shall be in accordance with MIL-STD-1169, Level C. Appropriate cushioning or partitions shall be provided to protect the items from contacting each other during shipment. Sufficient fillers must be used to insure a tight pack. Adequate corrosion protection shall be provided if required."

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6.6 Line 3, Delete “4.4.3.3” and substitute “4.4.5”.

Line 5, Delete “3.6.” and substitute “3.5”.

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Add new paragraph 6.12

“6.12 Bonding assembly pull test - recommended fixture. Since there is not a convenient physical way to grasp the insulator, an adapter must be bonded to the insulator for the pull test. This requires that the insulator top surface be roughened in order to bond the adapter. The adapter must have its base slightly smaller than the insulator diameter. The adapter base must also be grooved and roughened to obtain a good bond. The top of the adapter must be threaded at its exact center to accept the pull test equipment fixturing. The insulator must be pulled squarely due to the peeling affects of the adhesive otherwise a lower pull value may be obtained. The epoxy that has been successfully used to bond the adapter is “DEVCON five minute epoxy”. The assembly is allowed to cure from 1 to 3 hours before the warhead/ insulator assembly is temperature conditioned. The above assembly is held in a Tinius Olsen (Tension tester) by a fixture that threads into the forward end of the warhead and the upper end is threaded into the fixture adapter. The tester is set at a cross head rate of 1”/min. with a full scale (12000 pounds) to perform test.

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