INCH-POUND

MIL-B-70511B (AR)
AMENDMENT 3
22 April 2003
SUPERSEDING
AMENDMENT 2
21 December 1993

MILITARY SPECIFICATION

BOLT, AUTOMATIC WEAPON: (PRACTICE) M2

MIL-B-70511B was inactivated after 1 September 1998 for new design.

This amendment forms a part of MIL-B-70511B (AR), dated 4 January 1993, and is approved for use by the U.S. Army Armament, Research, Development and Engineering Center, and is available for use by all Departments and Agencies of the Department of Defense.

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3.4.3: Delete in its entirety and substitute the following:

"3.4.3 Cyclic rate of fire. The cyclic rate of fire for 3 rounds of burst firing using a 30 round magazine shall be within 600 to 950 rounds per minute. The cyclic rate of fire measurement shall be taken on a three round burst, occurring on the 6th or 7th trigger pull. Testing shall be as specified on 4.5.3."

3.4.4: Delete in its entirety and substitute the following:

"3.4.4 Endurance. The M2 bolt shall be capable of withstanding the firing of 10,000 rounds of M862 ammunition with not more than 127 malfunctions attributable to the M2 bolt."

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Table I, Under performance tests:

Delete "Function 10 3.4.2 4.3.3.1/4.5.2.1" and substitute "Function 6 3.4.2 4.3.3.3.1/4.5.2"

* Add: "Top plate cap screw removal torque (Dwg 11833491, Note 4) 3 3.3 Gage"

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4.3.1.1, Second line: Delete “shall be 800” and substitute “shall be 1000”

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4.3.3.2, Under performance tests:

Delete “Function 90 3.4.2 4.5.2” and substitute “Function 60 3.4.2 4.3.3.3.2/4.5.2”

* Add: “Top plate cap screw removal torque (Dwg 11833491, Note 4) 3 3.3 Gage”

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4.3.3.3.1, Line 2: Delete “If 4 or more” and substitute “If 3 or more”

4.3.3.3.2, Line 4: Delete “A total of 21 or more” and substitute “A total of 14 or more”

* Add new paragraph 4.3.3.6 as follows:

“4.3.3.6 Top plate cap screw removal torque. A random sample of three (3) M2 Bolts from each inspection lot shall be checked for removal torque of the cap screws. Failure of any screw to meet the removal torque requirement (Dwg 11833492, Note 4) shall cause rejection of the lot.”

4.5.2, Line 2: Delete “Government approved M16, M16A1 and M16A2 Rifles” and substitute “Government approved M16A1 and M16A2 Rifles.”

4.5.2.1: Delete in its entirety and substitute the following:

“4.5.2.1 Function (first article). Six M2 bolts shall be function tested during first article by firing 30 rounds with each bolt. Six magazines, fully loaded with 5.56MM, M862 Short Range Training ammunition shall be used for this test. Three M2 Bolts shall be tested in the M16A1 Rifle and three in the M16A2 Rifle. For the M16A1 each thirty round firing shall consist of two bursts of approximately three rounds with the firings shall be three round bursts.”

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4.5.2.2, Under Function (Lot Acceptance): Delete “15 M16 Semi 30
15 M16 Auto 30”

4.5.3: Delete in its entirety and substitute the following:

4.5.3 Cyclic rate. Thirty (30) rounds shall be fired in 3 round burst firing from a 30 round magazine with the M16A2 rifle. The cyclic rate of fire measurement shall be taken on a three round burst, occurring on the 6th or 7th trigger pull. All malfunctions shall be recorded."

4.5.4: Delete in its entirety and substitute the following:

4.5.4 Endurance. A minimum of two rifles shall be used for this test. At least one half of the test rifles shall be M16A2 rifles and the remainder of the rifles shall be M16A1 rifles. Testing shall be performed from a Government approved test fixture. A total of 10,000 rounds shall be fired on each M2 Bolt. Testing shall be conducted in cycles consisting of firing four 30-round magazines for a total of 120 rounds. Start the endurance test with a M2 bolt in a M16A2 rifle. After each firing cycle, the M2 bolt shall be sequentially rotated through the total number of test rifles, alternating between M16A2 and M16A1 rifles. Firing sequence for both the M16A1 and M16A2 rifles for a test cycle is as follows:

| Rifle | 1st Magazine | 2nd Magazine | 3rd Magazine | 4th Magazine |
|---|---|---|---|---|
| M16A1 | Semi | Auto | Semi | Auto |
| M16A2 | Semi | Burst | Semi | Burst |

After each cycle, the barrel shall be cooled to the point that it is capable of being held by the bare hand. Supplemental cooling is permissible. Lubricant conforming to MIL-L-63460 shall be used. After every five cycles, the M2 Bolt shall be lubricated, and cleaned and lubricated after every 10 cycles. At the completion of 4,800 rounds fired and again at the end of the 10,000 round endurance test, each bolt carrier (P/N 11833494) and each bolt (P/N 11833495) shall be inspected using magnetic particle inspection. Any cracked or broken bolt carrier or bolt shall result in failure of the endurance test. If there are any other broken, cracked or unserviceable parts, they shall be replaced. Both the M16A1 and M16A2 rifles shall be cleaned and lubricated as stated in 4.5.4.1. Cyclic rate of fire measurements shall be performed during the first testing cycle, and during the first testing cycle using an M16A2 rifle after the M2 bolt has been lubricated, as stated above. Cyclic rate of fire measurements shall be performed on the second magazine of a cycle using a M16A2 rifle. The cyclic rate of fire shall be measured in accordance with 4.5.3. All malfunctions shall be recorded. If more than the number of malfunctions specified in 3.4.4 occur, that are attributable to an individual M2 bolt, the sample shall have failed the endurance test."

4.5.4.1: Delete "Rifles shall be lubricated as specified below at the beginning of the test and after the third cycle in every 5 cycle increment. Rifles shall be cleaned and lubricated at the end of every 5 cycles." And substitute "Each rifle shall be lubricated as specified below at the beginning of the test and at the end of each 5 cycle increment fired on that rifle. Each rifle shall be cleaned and lubricated at the end of every 10 cycle increment fired on that rifle."

4.5.4.2, Line 1: Delete “Twenty-one 30 round magazines shall be numbered and used in rotation with each M16A2 rifle” and substitute “Forty 30 round magazines shall be numbered and used in rotation with each rifle.”

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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