

MIL-B-63954 (AR)  
26 April 1988

## MILITARY SPECIFICATION

### BOLT ASSEMBLY, DOOR for WADS

#### 1. SCOPE

1.1 Scope. This military specification covers one type of pneumatically operated bolt, designated Door Bolt Assembly, which is used as a redundant locking system on storage bunker doors in the WADS program.

#### 2. APPLICABLE DOCUMENTS

##### 2.1 Government documents.

2.1.1 Standards. Unless otherwise specified, the following standards of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DoDISS), specified in the solicitation, form a part of this specification to the extent specified herein.

#### STANDARDS

##### MILITARY

MIL-STD-105 - Sampling Procedures and Tables  
for Inspection by Attributes.  
MIL-STD-1190 - Minimum Guidelines for Level C  
Preservation, Packing and Marking

2.1.2 Other Government documents, drawings, and publications. The following other Government documents, drawings, and publications form a part of this specification to the extent specified herein.

#### DRAWINGS

##### U.S. ARMY RESEARCH, DEVELOPMENT AND ENGINEERING CENTER

9349857 - Sleeve.  
9349859 - Bolt.  
9349860 - Shaft.

Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Commander, U.S. Army Armament, Munitions and Chemical Command, Attn. AMSMC-QA, Picatinny Arsenal, New Jersey 07806-5000 by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter

AMSC N/A

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

FSC 5340

## MIL-B-63954(AR)

9349861 - Plug.  
9349862 - Collar.  
9349870 - Lock Subassembly.  
9349871 - Bolt Assembly, Door.  
9352671 - Valve, Sensor, Pilot.

Copies of specifications, standards, drawings, and publications required by manufacturers in connection with specific acquisition functions, should be obtained from the contracting activity or as directed by the contracting officer.

2.2 Order of precedence. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.

### 3. REQUIREMENTS

3.1 Materials and components. Materials shall conform to applicable specifications and drawings. Each component shall conform to all dimensions and tests specified on the component drawing. The contractor shall have available verifiable proof (i.e., objective evidence (see 6.2)) that materials and components were fabricated, inspected, and tested under controllable conditions as set forth in the contractor's quality control or inspection procedures.

3.2 Assembly. The door bolt assembly shall comply with all requirements specified on drawings (dwg.) 9349871, with all requirements specified herein, and with the requirements of applicable specifications to the extent specified on the drawings and herein.

3.3 First article. When specified, sample door bolt assemblies shall be subjected to first article inspection (see 4.3 and 6.1.1).

3.4 Functioning. The door bolt assembly shall be functioned by extending and retracting the bolt for five cycles of operation. During this portion of the test, the door bolt assembly shall not fail to function (extend and retract), shall not fail to lock in the extended or retracted position, and there shall be no evidence of binding or sticking. In addition, the groove in the bolt shall not fail to align properly with the sensor hole in the sleeve. After functioning, the bolt shall not function (extend or retract) when the actuation pressure is a minimum of 8 pounds per square inch gauge (psig), or a minimum of 5 psig after life-cycle testing. The bolt shall function (extend and retract) when the actuation pressure is a maximum of 15 psig. Testing shall be as specified in 4.5.1.

## MIL-B-63954(AR)

3.5 Life cycle. The door bolt assembly shall be subjected to a life-cycle functioning test by extending and retracting the bolt for a 100,000-cycle operation. The bolt shall dwell in each position for a minimum period of 1 second. During this test, the door bolt assembly shall not fail to function, and there shall be no evidence of binding, sticking, or excessive wear. After this test, the door bolt assembly shall comply with the functioning test requirements of 3.4. Testing shall be as specified in 4.5.2.

3.6 High temperature. The door bolt assembly shall withstand a high temperature of  $130^{\circ} + 5^{\circ}\text{F}$ , for a minimum period of 4 hours, without evidence of deterioration or damage that may impair its intended operation. While at the high temperature (at the end of the high-temperature exposure period), the door bolt assembly shall comply with the functioning requirements of 3.4. Testing shall be specified in 4.5.3.

3.7 Low temperature. The door bolt assembly shall withstand a low temperature of  $-15^{\circ} + 3^{\circ}\text{F}$  for a minimum period of 4 hours, without evidence of deterioration or damage that may impair its intended operation. While at the low temperature (at the end of the low-temperature exposure period), the door bolt assembly shall comply with the functioning requirements of 3.4. Testing shall be as specified 4.5.4.

3.8 Humidity. The door bolt assembly shall withstand a relative humidity of  $95 + 5$  percent and a temperature of  $130^{\circ} + 5^{\circ}\text{F}$  without evidence of corrosion and without evidence of deterioration or damage that may impair its intended operation. After this test (at room temperature), the door bolt assembly shall comply with the functioning requirements of 3.4. Testing shall be as specified in 4.5.5.

3.9 Detent loading. The door bolt assembly shall withstand a load of 10,000 pounds, applied axially to the end of the extended bolt, for a minimum period of 30 seconds, without damage or evidence of detent failure. Testing shall be as specified in 4.5.6.

3.10 Workmanship. All parts and accessories shall be constructed, assembled, and finished in a thoroughly workmanlike manner. Particular attention shall be given to neatness, marking, cleaning, and freedom of the parts from burrs and sharp edges which may affect performance or result in injury during handling. All parts shall be free of chips, dirt, grease (unless specified on the drawing), rust, and other foreign material. The cleaning method shall not be injurious to any of the parts, nor shall the parts be contaminated by the cleaning agents.

## MIL-B-63954(AR)

## 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to ensure supplies and services conform to prescribed requirements.

4.2 Classification of inspections. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.3)
- b. Quality conformance inspection (see 4.4)

4.3 First article inspection.

4.3.1 Submission. When the contract requires first article inspection, the contractor shall submit three consecutively produced door bolt assemblies to the testing facility designated in the invitation for bids or request for proposal.

4.3.2 Inspection and testing to be performed. The first article inspection samples shall be inspected for the defects specified in 4.4.2.1, using inspection methods contained therein, and for all the requirements of Section 3. The test requirements of Section 3 are listed in Table I, and the door bolt assemblies shall be tested using the test methods specified in 4.5. Inspection and testing shall be performed with the acceptance inspection equipment specified in 4.4.4. The door bolt assemblies shall be tested in the order specified in Table I. If any door bolt assembly fails to comply with any of the applicable requirements, the first article samples shall be rejected. The Government reserves the right to terminate its inspections upon any failure of the first article samples to comply with the stated requirements. This series of tests is considered destructive, and samples so tested shall not be returned to the lot.

TABLE I. First article tests.

Test	Requirement Paragraph
a. Functioning	3.4
b. Life cycle	3.5
c. High temperature	3.6
d. Low temperature	3.7
e. Humidity	3.8
f. Detent loading	3.9

## MIL-B-63954(AR)

4.4 Quality conformance inspection.

4.4.1 Inspection lot. A lot or batch and its formation, size, and presentation is described in MIL-STD-105, Section 5. Accordingly, a lot shall mean an inspection lot, and a batch shall mean an inspection batch for the purposes of this specification. The manner in which each inspection lot or batch is to be presented and identified by the contractor shall be designated or approved by the Government representative.

4.4.2 Product inspection examination. A sample shall be selected at random from each inspection lot in accordance with the major defect or the minor defect table as applicable (see Table II). Any defect found in the sample, selected for the major or minor classification, shall reject the lot. Critical defects shall required 100 percent inspection of all items in the inspection lot. If any critical defect is found in an item, the item shall be removed from the lot. The sequence of inspections for the classification of defects need not be followed so long as all the defect inspections are performed.

TABLE II. Inspection lot sampling.

Major defect table		Minor defect table	
Lot size	Sample size	Lot size	Sample size
1-30	all	1-30	all
31-45	29	31-45	27
46-60	35	46-60	30
61-75	38	61-75	33
76-95	42	76-95	35
96-130	46	96-130	37
131-180	50	131-180	39
181-250	52	181-250	41
251-400	54	251-400	42
401 and over	56	401 and over	44

4.4.2.1 Classification of defects. Critical, major, and minor defects are defined in MIL-STD-105.

QUALITY CONFORMANCE INSPECTION  
**CLASSIFICATION OF DEFECTS & TESTS**

MIL-B-63954 (AR)

PARAGRAPH	TITLE	NO. OF SAMPLE UNITS	EXAMINATION OR TEST	AGL OR 100%	SHEET 1 OF 2	DRAWING NUMBER
4.4.2.1.1	Bolt					9349859
						NEXT HIGHER ASSEMBLY
CATEGORY					REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
Critical:	None defined.					
Major:						
101.	Length, max.			Table II	3.2	Gage
102.	Diameter, max.			Table II	3.2	Gage
103.	Depth of cavity, min.			Table II	3.2	Gage
104.	Diameter of cavity, max.			Table II	3.2	Gage
105.	Position of inside diameter with outside diameter			Table II	3.2	Gage
106.	Straightness of external surface			Table II	3.2	Gage
107.	Location of hole in cavity (6 holes)			Table II	3.2	Gage
108.	Diameter of hole in cavity, min. (6 holes)			Table II	3.2	Gage
109.	Surface finish of hole in cavity (6 holes)			Table II	3.2	Gage
110.	Depth of groove in right side, min.			Table II	3.2	Gage
111.	Length of groove in right side, min.			Table II	3.2	Gage
112.	Location of groove in right side			Table II	3.2	Gage
Minor:						
201.	Angle of chamfer in groove (in right side), min. (2 chamfers)			Table II	3.2	Visual
202.	Chamfer, at cavity end, missing or improper (2 places)			Table II	3.2	Visual

NOTES:

QUALITY CONFORMANCE INSPECTION  
**CLASSIFICATION OF DEFECTS & TESTS**

MIL-B-63954 (AR)

PARAGRAPH	TITLE	SHEET 2 OF 2		DRAWING NUMBER
				9349859
				NEXT HIGHEN ASSEMBLY
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH
				PARAGRAPH REFERENCE / INSPECTION METHOD
Minor:				
203.	Radius, at bottom of cavity, missing or improper		Table II	3.2 Visual
204.	Taper, at forward end of bolt, missing or improper		Table II	3.2 Visual
205.	Radius, at forward end of bolt, missing or improper (2 places)		Table II	3.2 Visual
206.	Protective finish inadequate or improper		Table II	3.2 Visual
207.	Evidence of poor workmanship		Table II	3.10 Visual

NOTES:



QUALITY CONFORMANCE INSPECTION  
**CLASSIFICATION OF DEFECTS & TESTS**

MIL-B-63954 (AR)

PARAGRAPH	TITLE	NO. OF SAMPLE UNITS	EXAMINATION OR TEST	SHEET 1 of 1		DRAWING NUMBER
				AQL OR 100%	REQUIREMENT PARAGRAPH	
4.4.2.1.2	Plug					9349861 NEXT HIGHER ASSEMBLY
CATEGORY						PARAGRAPH REFERENCE / INSPECTION METHOD
Critical:	None defined.					
Major:						
101.	Pitch diameter of external thread, min.			Table II	3.2	Gage
102.	Major diameter of external thread, min.			Table II	3.2	Gage
103.	Pitch diameter of internal thread, max.			Table II	3.2	Gage
104.	Minor diameter of internal thread, min.			Table II	3.2	Gage
105.	Length of internal thread, min.			Table II	3.2	Gage
Minor:						
201.	Diameter of hole in externally threaded end, min.			Table II	3.2	Gage
202.	Diameter of groove in external surface, max.			Table II	3.2	Gage
203.	Width of groove in external surface, min.			Table II	3.2	Gage
204.	Location of groove in external surface			Table II	3.2	Gage
205.	Diameter of flange, max.			Table II	3.2	Gage
206.	Width across flats in flange, max.			Table II	3.2	Gage
207.	Protective finish inadequate or improper			Table II	3.2	Gage
208.	Evidence of poor workmanship			Table II Table II	3.2 3.10	Visual Visual

NOTES



## QUALITY CONFORMANCE INSPECTION CLASSIFICATION OF DEFECTS & TESTS

**MIL-B-63954 (AR)**

PARAGRAPH	TITLE	NO. OF SAMPLE UNITS	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD	DRAWING NUMBER
4.4.2.1.3	Sleeve						9349857
							NEXT HIGHEN ASSEMBLY
CATEGORY			EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD	
Critical:	None defined						
Major:							
101.	Length, max.			Table II	3.2	Gage	
102.	Internal diameter			Table II	3.2	Gage	
103.	Pitch diameter of internal thread in right side, max.			Table II	3.2	Gage	
104.	Minor diameter of internal thread in right side, max.			Table II	3.2	Gage	
105.	Length of internal thread in right side, min.			Table II	3.2	Gage	
106.	Location of rounded groove inside sleeve (2 grooves)			Table II	3.2	Gage	
107.	Depth of rounded groove inside sleeve, min. (2 grooves)			Table II	3.2	Gage	
108.	Diameter of internal groove in left end of sleeve, min.			Table II	3.2	Gage	
109.	Width of internal groove in left end of sleeve, min.			Table II	3.2	Gage	
110.	Hardness, min.			Table II	3.2	Gage	
111.	Pitch diameter of thread at spot-faced hole, max.			Table II	3.2	Gage	

NOTE:

## QUALITY CONFORMANCE INSPECTION CLASSIFICATION OF DEFECTS & TESTS

**MIL-B-63954 (AR)**

PARAGRAPH	TITLE	NO. OF SAMPLE UNITS	EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	DRAWING NUMBER
4.4.2.1.3	Sleeve (Continued)				SHEET 2 OF 2	9349857
CATEGORY			EXAMINATION OR TEST	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
Minor:						
201.			External diameter, max.	Table II	3.2	Gage
202.			Location of internal groove in left end of sleeve	Table II	3.2	Gage
203.			Diameter of external groove in left end of sleeve, max.	Table II	3.2	Gage
204.			Width of external groove in left end of sleeve, min.	Table II	3.2	Gage
205.			Location of external groove in left end of sleeve	Table II	3.2	Gage
206.			Radius at edge of rounded groove, inside sleeve, missing or improper (4 places)	Table II	3.2	Visual
207.			Chamfer on left end missing or improper (2 places)	Table II	3.2	Visual
208.			Spotface on threaded hole missing or improper	Table II	3.2	Visual
209.			Through hole, near internal threaded end, missing or improper	Table II	3.2	Visual
210.			Protective finish inadequate or improper	Table II	3.2	Visual
211.			Evidence of poor workmanship	Table II	3.10	Visual

**NOTES**

QUALITY CONFORMANCE INSPECTION  
CLASSIFICATION OF DEFECTS & TESTS

CLASSIFICATION OF DEFECTS & TESTS					MIL-B-63954 (AR)	
PARAGRAPH	TITLE	SHEET 1 OF 1		DRAWING NUMBER		
4.4.2.1.4	Collar			9349862		
				NEXT HIGHEN ASSEMBLY		
				9349870		
CATEGORY	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE /INSPECTION METHOD	
Critical:	None defined					
Major:						
101.	Outside diameter, at large end of collar					
102.	Outside diameter at small end of collar, max.		Table II	3.2	Gage	
103.	Diameter of through hole, min		Table II	3.2	Gage	
104.	Surface finish of through hole		Table II	3.2	Gage	
105.	Angle of external curve, min.		Table II	3.2	Gage	
106.	Hardness, min.		Table II	3.2	Gage	
Minor:						
201.	Length, min.		Table II	3.2	Gage	
202.	Diameter of counterboard hole, min.		Table II	3.2	Gage	
203.	Depth of counterboard hole, min.		Table II	3.2	Gage	
204.	Any radius missing or improper		Table II	3.2	Visual	
205.	Protective finish inadequate or improper		Table II	3.2	Visual	
206.	Evidence of poor workmanship		Table II	3.2	Visual	
			Table II	3.10	Visual	
NOTE:						

## QUALITY CONFORMANCE INSPECTION CLASSIFICATION OF DEFECTS & TESTS

**MIL-B-63954 (AR)**

PARAGRAPH	TITLE	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	DRAWING NUMBER
4.4.2.1.5	Shaft				9349860
					NEXT HIGHEN ASSEMBLY 9349870
CATEGORY	EXAMINATION OR TEST				PARAGRAPH REFERENCE / INSPECTION METHOD
Critical:	None defined.				
Major:					
101.	Pitch diameter of internal thread, max.		Table II	3.2	Gage
102.	Minor diameter of internal thread, max.		Table II	3.2	Gage
103.	Depth of internal thread, min.		Table II	3.2	Gage
104.	Pitch diameter of external thread, min.		Table II	3.2	Gage
105.	Major diameter of external thread, min.		Table II	3.2	Gage
106.	Total length, max.		Table II	3.2	Gage
107.	Diameter of central portion of shaft, max.		Table II	3.2	Gage
108.	Length of central portion of shaft, max.		Table II	3.2	Gage
109.	Surface finish of central portion of shaft		Table II	3.2	Gage
110.	Pitch diameter of setscrew hole, max.		Table II	3.2	Gage
111.	Hardness, min.		Table II	3.2	Gage

**SECRET**

[illegible]

QUALITY CONFORMANCE INSPECTION  
**CLASSIFICATION OF DEFECTS & TESTS**

TITLE		SHEET 2 OF 2		DRAWING NUMBER	
PARAGRAPH	EXAMINATION OR TEST	NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	PARAGRAPH REFERENCE / INSPECTION METHOD
4.4.2.1.5	Shaft (Continued)				9349860 NEXT HIGHIER ASSEMBLY 9349870
CATEGORY					
Minor:					
201.	External diameter at large end, max.		Table II	3.2	Gage
202.	Location of setscrew hole		Table II	3.2	Gage
203.	Width across flats, max.		Table II	3.2	Gage
204.	Chamfer missing or improper (3 places)		Table II	3.2	Visual
205.	Undercut, near external thread, missing or improper		Table II	3.2	Visual
206.	Protective finish inadequate or improper		Table II	3.2	Visual
207.	Evidence of poor workmanship		Table II	3.10	Visual
NOTES					

MIL-B-63954 (AR)

**QUALITY CONFORMANCE INSPECTION**  
**CLASSIFICATION OF DEFECTS & TESTS**

MIL-B-63954 (AR)		DRAWING NUMBER 9349870		NEXT HIGHEN ASSEMBLY	
<b>PARAGRAPH</b>	<b>TITLE</b>	<b>SHEET 1 OF 1</b>		<b>NO. OF SAMPLE UNITS</b>	<b>PARAGRAPH REFERENCE / INSPECTION METHOD</b>
4.4.2.1.1.6	Lock Subassembly				
<b>CATEGORY</b>	<b>EXAMINATION OR TEST</b>	<b>AQL OR 100%</b>	<b>REQUIREMENT PARAGRAPH</b>		
Critical:	None defined:				
Major:	Any part missing, improper, or improperly assembled (including collar, spring, nut, and setscrew)	Table II	3.2	Visual	
101.					
Minor:	Evidence of poor workmanship	Table II	3.10	Visual	
201.					
<b>NOTES</b>					

QUALITY CONFORMANCE INSPECTION  
**CLASSIFICATION OF DEFECTS & TESTS**

MIL-B-63954 (AR)		DRAWING NUMBER 9349871		NEXT HIGHER ASSEMBLY		PARAGRAPH REFERENCE / INSPECTION METHOD	
PARAGRAPH	TITLE	SHEET 1 OF 1		NO. OF SAMPLE UNITS	AQL OR 100%	REQUIREMENT PARAGRAPH	
4.4.2.1.7	Door Bolt Assembly						
CATEGORY	EXAMINATION OR TEST						
<p><b>Critical:</b></p> <p><b>Major:</b></p> <p>101.</p> <p>102.</p> <p><b>Minor:</b></p> <p>201.</p> <p>202.</p> <p>203.</p>	<p>None defined.</p> <p>Torque on air cylinder/plug/sleeve improper (inspect during assembly)</p> <p>Any part missing, damaged, improper, or improperly assembled (including sleeve, bolt, ball, plug, rod wiper, lock subassembly, and air cylinder) (inspect during assembly)</p> <p>Protective finish, on sleeve, plug, or bolt, inadequate or improper (including scratches exposing base metal)</p> <p>Grease inadequate or improper (inspect during assembly)</p> <p>Evidence of poor workmanship</p>			<p>Table II</p> <p>Table II</p> <p>Table II</p> <p>Table II</p> <p>Table II</p>	<p>3.2</p> <p>3.2</p> <p>3.2</p> <p>3.2</p> <p>3.10</p>	<p>Gage</p> <p>Visual</p> <p>Visual</p> <p>Visual</p> <p>Visual</p>	
NOTE:							



## MIL-B-63954(AR)

4.4.3 Quality conformance inspection testing. The quality conformance test for the door bolt assembly shall consist of the functioning test (see 3.4). Each door bolt assembly shall be subjected to this test, and if any door bolt assembly fails to comply with the applicable requirements, it shall be classified defective and be removed from the lot. This is a major category test.

4.4.4 Acceptance inspection equipment.

4.4.4.1 Major defects and tests. Inspection and testing shall be performed with the acceptance inspection equipment, operating instructions, and calibration procedures designed or specified by the contractor (see 6.1.2). The contractor shall obtain approval of such equipment designs, operating instructions, and calibration procedures prior to use on the contract (see 6.3).

4.4.4.2 Minor defects. The acceptance inspection equipment, operating instructions, and calibration procedures used by the contractor for minor classification inspection shall be approved by the Government representative responsible for acceptance inspection.

4.5 Methods of inspection. The tolerances specified in this specification are absolute with no allowance for test equipment inaccuracy. The tolerances used by the manufacturer shall be equal to the absolute tolerances less the accuracy tolerances of the test equipment used. Unless otherwise specified, the tests shall be conducted at room temperature ( $77^{\circ} \pm 10^{\circ}\text{F}$ ). NOTE: (1) The actuating source for the door bolt assembly shall be a regulated supply of dry, filtered, compressed air/nitrogen. (2) Unless otherwise specified, the air supply, for actuating the door bolt assembly, shall be regulated to a pressure of 40 - 50 psig.

4.5.1 Functioning. During these tests, the door bolt assembly shall be secured to a test fixture/stand in the horizontal position, and a pilot sensor valve (dwg. 9352671) shall be attached to the sensor hole in the sleeve.

4.5.1.1 Actuation test. An air supply, at a pressure of 10 - 20 psig, shall be applied to the input port of the sensor. During testing, the air escaping from the exhaust port of the sensor shall be monitored by listening to the air flow. The actuating air supply, for the door bolt assembly, shall be connected to the input ports to alternately extend and retract the bolt for five cycles of operation. Each time the bolt is extended (the locked position), the air escaping from the sensor's exhaust port shall cease (this indicates that the groove in the bolt is in alignment with the sensor hole in the sleeve).

MIL-B-63954(AR)

While the bolt is in the extended position, the bolt shall be manipulated to ensure that the bolt is locked in position and that no air escapes from the sensor's exhaust port at the extremes of backlash. Each time the bolt is retracted (the unlocked position), air shall escape from the sensor's exhaust port (this indicates that the bolt is in the unlocked position). While the bolt is in the retracted position, the bolt shall be manipulated to ensure that the bolt is locked in position. The door bolt assembly shall comply with the requirements of 3.4 during this test.

4.5.1.2 Function-nonfunction test. With the bolt initially in the retracted position, the bolt shall be subjected to the following function-nonfunction test:

(a) The actuating air supply shall be adjusted to a pressure of 8 psig (5 psig after life-cycle testing), and it shall be applied to the bolt extension input port for a minimum period of 5 seconds. The bolt shall not function (extend).

(b) The actuating air supply shall be adjusted to a pressure of 15 psig, and it shall be applied to the bolt extension input port for a maximum period of 5 seconds. The bolt shall function (extend).

(c) The actuating air supply shall be adjusted to a pressure of 8 psig (5 psig after life-cycle testing), and it shall be applied to the bolt retraction input port for a minimum period of 5 seconds. The bolt shall not function (retract).

(d) The actuating air supply shall be adjusted to a pressure of 15 psig, and it shall be applied to the bolt retraction input port for a maximum period of 5 seconds. The bolt shall function (retract).

The door bolt assembly shall comply with the requirements of 3.4 during these tests.

4.5.2 Life cycle. The door bolt assembly shall be secured to a test fixture/stand in the verticle position (bolt down). A pneumatic test circuit shall be connected between the door bolt assembly and the regulated air supply. This test circuit shall be capable of alternating the regulated pressure between each of the two input ports, on the air cylinder, to meet the 1-second dwell requirements of 3.5. At the end of this test, the door bolt assembly shall be tested as specified in 4.5.1. The door bolt assembly shall comply with the requirements of 3.5 during this test.

4.5.3 High temperature. The door bolt assembly shall be placed into a test chamber, and the temperature of the chamber shall be raised to 130°F. The door bolt assembly shall remain at this temperature for a minimum period of 4 hours, and it shall then be tested as specified in 4.5.1 while at the high temperature. The door bolt assembly shall comply with the requirements of 3.6 during this test.

## MIL-B-63954(AR)

4.5.4 Low temperature. The door bolt assembly shall be placed into a test chamber, and the temperature of the chamber shall be lowered to  $-15^{\circ}\text{F}$ . The door bolt assembly shall remain at this temperature for a minimum period of 4 hours, and it shall then be tested as specified in 4.5.1 while at the low temperature. The door bolt assembly shall comply with the requirements of 3.7 during this test.

4.5.5 Humidity. The door bolt assembly shall be placed into a dry oven and conditioned at a temperature of  $130^{\circ}\text{F}$  for a minimum period of 24 hours. At the end of this conditioning period, the door bolt assembly shall be subjected to the following humidity cycle:

- (a) Condition the door bolt assembly at  $75^{\circ} + 5^{\circ}\text{F}$  and  $50 + 5$  percent relative humidity for 24 hours.
- (b) Gradually raise the internal chamber temperature to  $105^{\circ} + 5^{\circ}\text{F}$  and 90 percent relative humidity in 2 hours.
- (c) Maintain the internal chamber temperature at  $105^{\circ}\text{F}$  and 90 percent relative humidity for 16 hours.
- (d) Gradually decrease the internal chamber temperature to  $70^{\circ} + 5^{\circ}\text{F}$  and increase the relative humidity to a minimum of 95 percent in 2 hours.
- (e) Maintain the internal chamber temperature at  $70^{\circ}\text{F}$  and at 95 percent relative humidity for 4 hours.
- (f) Repeat steps (b), (c), (d), and (e) for a total of 20 cycles (480 hours).

After completion of the 20 humidity cycles, the door bolt assembly shall be removed from the test chamber and allowed to stabilize at room temperature for a minimum period of 4 hours. After this 4-hour period, the door bolt assembly shall be tested as specified in 4.5.1. The door bolt assembly shall comply with requirements of 3.8 during this test.

4.5.6 Detent loading. The door bolt assembly shall be mounted to a testing machine in any convenient position. The door bolt assembly shall be actuated to fully extend the bolt and to lock it in place with the internal bolt detent. The actuating pressure shall be removed, and the test load shall be gradually applied, axially, within a period of 10 seconds, to the end of the bolt. The test load shall be maintained for a minimum period of 30 seconds. The door bolt assembly shall comply with the requirements of 3.9 during this test.

## 5. PACKAGING

5.1 Preservation, packaging, packing, and marking. The door bolt assembly shall be preserved, packaged, packed, and marked in accordance with MIL-STD-1190 or as specified in the contract or purchase order.

## MIL-B-63954(AR)

## 6. NOTES

6.1 Ordering data.

6.1.1 Acquisition requirements. Acquisition documents should specify (a) the title, number and date of this specification; (b) applicable methods of packaging and packing; and (c) first article sample requirements.

6.1.2 Contract data requirements. Contractor engineering documentation shall be developed as specified by an approved Data Item Description (DID) (DD Form 1664) when specified on a Contract Data Requirements List (DD Form 1423) incorporated into the contract or purchase order. Deliverable data required by this specification is cited in the following paragraph:

<u>Paragraph No.</u>	<u>Data requirement</u>	<u>Applicable DID No.</u>
4.4.4.1	Quality Engineering Acceptance Inspection Equipment Descriptive Documentation.	DID-R-1714

Copies of data item descriptions, required by the contractor in connection with specific acquisition functions, should be obtained from the procuring activity or as directed by the contracting officer.

6.2 Objective evidence. Records of the contractor's quality control and inspections which can be verified.

6.3 Acceptance inspection equipment. The contractor shall obtain approval of equipment design, operating instructions, and calibration procedures from Commander, U.S. Army Armament Munitions and Chemical Command, ATTN: DRSMC-QAN-I(D), Picatinny Arsenal, NJ 07806-5000.

Custodian:  
Army-AR

Preparing Activity:  
Army-AR

Project No. 5340-A044

**INSTRUCTIONS:** In a continuing effort to make our standardization documents better, the DoD provides this form for use in submitting comments and suggestions for improvements. All users of military standardization documents are invited to provide suggestions. This form may be detached, folded along the lines indicated, taped along the loose edge (*DO NOT STAPLE*), and mailed. In block 5, be as specific as possible about particular problem areas such as wording which required interpretation, was too rigid, restrictive, loose, ambiguous, or was incompatible, and give proposed wording changes which would alleviate the problems. Enter in block 6 any remarks not related to a specific paragraph of the document. If block 7 is filled out, an acknowledgement will be mailed to you within 30 days to let you know that your comments were received and are being considered.

**NOTE:** This form may not be used to request copies of documents, nor to request waivers, deviations, or clarification of specification requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

(Fold along this line)

(Fold along this line)

DEPARTMENT OF THE ARMY



NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

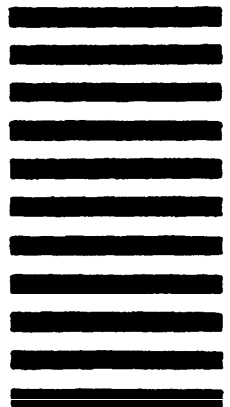
OFFICIAL BUSINESS  
PENALTY FOR PRIVATE USE \$300

**BUSINESS REPLY MAIL**

FIRST CLASS PERMIT NO 12062 WASHINGTON D C

POSTAGE WILL BE PAID BY THE DEPARTMENT OF THE ARMY

COMMANDER  
US ARMY ARDEC  
ATTN: AMSMC-QA  
PICATINNY ARSENAL, NJ 07806-5000



## STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER MTL-B-63954 (AR)		2. DOCUMENT TITLE BOLT ASSEMBLY, DOOR FOR WADS	
3a. NAME OF SUBMITTING ORGANIZATION		4. TYPE OF ORGANIZATION (Mark one)	
b. ADDRESS (Street, City, State, ZIP Code)		<input type="checkbox"/> VENDOR	
		<input type="checkbox"/> USER	
		<input type="checkbox"/> MANUFACTURER	
		<input type="checkbox"/> OTHER (Specify): _____	
5. PROBLEM AREAS			
a. Paragraph Number and Wording:			
b. Recommended Wording:			
c. Reason/Rationale for Recommendation:			
6. REMARKS			
7a. NAME OF SUBMITTER (Last, First, MI) - Optional		b. WORK TELEPHONE NUMBER (Include Area Code) - Optional	
c. MAILING ADDRESS (Street, City, State, ZIP Code) - Optional		8. DATE OF SUBMISSION (YYMMDD)	