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Static Sand & Dust
test #1

ET06768

Test Lab Work Request Form

Date Submitted: 10 March, 2000	Tracking #: TLW 0010AM
Project #: 241095	Engineer: J.R.SNEDEKER

Test Objective:

TLW0010AM – Static Sand & Dust Test: GUN # B-22 SERIAL # 71001278

This test is the second of two that evaluates the effect of sand and dust on firearm performance, where the test firing is conducted after the firearm has sand and dust directly placed in the action. Thus, an exposure box is not required. For Sand & Dust composition see Table No. 1.

TABLE No. 1. COMPOSITION OF SAND AND DUST MIXTURE

(by percent particles, by weight, retained in sieves)

<u>Sieve Size (US gage sieve no.)</u>	<u>Percent of weight retained</u>	<u>Particle Size (microns)</u>
20	3	842 to 1000
30	5	595 to 841
45	17	355 to 595
60	14	251 to 354
100	10	150 to 250
pass 100	less than 1	----
140-mesh silica flour		
140	1	105 to 149
200	4	74 to 105
325	7.5	44 to 74
pass 325	37.5	less than 44

Test Description:Method:

- Clean and lubricate one test gun to the procedure supplied by the design team.
- Remove the bolt. Set the safety in the SAFE position and verify that the firearm is unloaded.
- Record the weight of one level tablespoon of debris mixture. **0.025 lbs.**
- Expose the firearm as follows:
- Place the firearm in a shooting jack, bottom of rifle up, and apply a tablespoon of sand in

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the firecontrol mechanism from the bottom. Tap the firearm three times, in the middle of the receiver, to jar the rifle and to assist getting sand into the mechanism.

- Turn the firearm to its normal upright horizontal position and apply a tablespoon of sand and dust to the top of the firecontrol mechanism from the top. Tap the firearm three times, in the middle of the receiver, to jar the rifle and aid sand getting into the mechanism.
- Replace the bolt. Wipe away any sand that prevents the bolt from closing.
- Load the magazine. Fire a full magazine from the firearm. If there are repeated malfunctions, attempt to fire with another magazine. If firing is still unsatisfactory, attempt to fire with a clean magazine, container, etc., loaded with clean ammunition. If repeated malfunctions make it impractical to fire the remaining ammunition, stop the test.
- At every 5 round interval verify the firearm is not loaded.
- Close the firearm as if to fire it and put the safety to the SAFE position.
- Pull the trigger firmly (10 lb. maximum) - firearm must not fire.
- With the finger off the trigger, move the safety to the FIRE position - firearm must not fire.
- Carefully disassemble the firearm over large sheet of white paper and weigh the amount of debris that finds its way into the main mechanism area.

Data Required:

- Record malfunctions. See Note's
- Record number of rounds fired. 0
- Record weight of debris found in the gun. 0.005 lbs.
- Record any firing of the firearm without the trigger being pulled. 0
- Record any hang fires. 0

Resource Usage:

Manpower Requirements -

Facility Requirements -

Test Results Required:

Formal Report: Data Only: X
REQUESTED Completion Date:

Required Materials/Parts/Equipment (include quantities):

Test Parts Availability Date:

Start Date: 9/29/00

Completion Date: 9/29/00

Report Date:

Test Assigned To: STEVE WADE AND
JEFF WADE

ET06770

GUN # 13-22
 DATE - 9/29/00
 SHOOTER - JEFF WADE

M700 ETRONX GEN 1
 HUNTING RIFLE FUNCTION
 AND ENDURANCE TEST

TRACKING # TLW 0180U
 PROJECT # 241197

TLW 0010 AM
 ROUNDS BEFORE

Static Sand & Dust Test

AMMO	REMINGTON EL3006B ETRONX	LOT# - C035C1326
1	Pulled trigger (Did not move)	51 Trigger Pull in stock 4.58
2	Pulled trigger (slight movement in trigger)	52 Trigger Pull out stock 4.46
3	" " (Did Not Fire)	53 Engagement .0252
4	" " (More movement in trigger)	54 Over travel .0132
5	" "	55
6	" "	56
7	" "	57
8	" "	58
9	" "	59
10		60
11		61
12		62
13		63
14		64
15		65
16		66
17		67
18		68
19		69
20		70
21		71
22	Round #1 Pulled Trigger	72
23	did not move.	73
24		74
25	Round #2 Pulled Trigger	75
26	slight movement in trigger	76
27	Did Not Fire	77
28		78
29	Round #3 Pulled Trigger	79
30	slight movement in trigger	80
31	Did Not Fire	81
32		82
33	Round #4 Pulled Trigger	83
34	More movement in trigger	84
35	Did Not Fire	85
36		86
37	Round #5 Pulled Trigger	87
38	More movement in trigger	88
39	Did Not Fire	89
40		90
41	Tried To Fire - Rounds	91
42		92
43		93
44	0.005 lbs left in gun	94
45		95
46		96
47		97
48		98
49		99
50		100

0.485

0.005

ROUNDS AFTER _____

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Research & Development Technical Center
315 West Ring Road
Elizabethtown, KY 42701

TLW0010AM – Static Sand & Dust Test:

This test is the second of two that evaluates the effect of sand and dust on firearm performance, where the test firing is conducted after the firearm has sand and dust directly placed in the action. Thus, an exposure box is not required. For Sand & Dust composition see Table No. 1.

Method:

- Clean and lubricate one test gun to the procedure supplied by the design team.
- Remove the bolt. Set the safety in the SAFE position and verify that the firearm is unloaded.
- Record the weight of one level tablespoon of debris mixture. 0.035 lbs
- Expose the firearm as follows:
 - Place the firearm in a shooting jack, bottom of rifle up, and apply a tablespoon of sand in the firecontrol mechanism from the bottom. Tap the firearm three times, in the middle of the receiver, to jar the rifle and to assist getting sand into the mechanism.
 - Turn the firearm to its normal upright horizontal position and apply a tablespoon of sand and dust to the top of the firecontrol mechanism from the top. Tap the firearm three times, in the middle of the receiver, to jar the rifle and aid sand getting into the mechanism.
- Replace the bolt. Wipe away any sand that prevents the bolt from closing.
- Load the magazine. Fire a full magazine from the firearm. If there are repeated malfunctions, attempt to fire with another magazine. If firing is still unsatisfactory, attempt to fire with a clean magazine, container, etc., loaded with clean ammunition. If repeated malfunctions make it impractical to fire the remaining ammunition (from a box of 20 cartridges), stop the test.
- At every 5 round interval verify the firearm is not loaded.
- Close the firearm as if to fire it and put the safety to the SAFE position.
- Pull the trigger firmly (10 lb. maximum) - firearm must not fire.
- With the finger off the trigger, move the safety to the FIRE position - firearm must not fire.
- Carefully disassemble the firearm over large sheet of white paper and weigh the amount of debris that finds its way into the main mechanism area.

J.R.Snedeker

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Revision #2

ET06772

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 Research & Development Technical Center
 315 West Ring Road
 Elizabethtown, KY 42701

TABLE No. 1. COMPOSITION OF SAND AND DUST MIXTURE
 (by percent particles, by weight, retained in sieves)

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pass 100	less than 1	-----
140-mesh silica flour		
140	1	105 to 149
200	4	74 to 105
325	7.5	44 to 74
pass 325	37.5	less than 44

Data Required:

- Record malfunctions.
- Record number of rounds fired.
- Record weight of debris found in the gun.
- Record any firing of the firearm without the trigger being pulled.
- Record any hang fires.

J.R.Snedeker

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