

30 January 1990

TO: J.C. Hutton

Subject: Model 700 Drop Test

Muzzle drop tests, at one and three feet, were conducted using a vertical drop fixture and a Model 700 30.06 rifle. To determine the G acceleration, a PCB-305A04 accelerometer, serial# 8295 with a .000923 volts/g sensitivity, was mounted on the rifle. The drop mediums were as follows:

- 1) Large rock mounted in a base of sand.
- 2) Concrete floor.
- 3) Small rock mounted in a base of sand.
- 4) Two inch patio block mounted in a base of sand.
- 5) Wooden slab mounted in a base of sand.

In all cases the rifle was dropped with the safe in the off position.

The following pages contain a summary of the results of the drop test to date.

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<u>DIGITAL ANALYZER SETTINGS</u>	<u>MEDIUM</u>	<u>DROP NUMBER</u>	<u>PEAK VOLTAGE</u>	<u>G ACCELERATION</u>
Freq. Scan 0 - 100 kHz  Full scale Sensitivity 3.2V	Large Rock in sand	1	1.6	1730
		2	1.7	1840
		3	1.6	1730
		4	1.6	1730
		5	1.7	1840
		Avg.	1.64	1780
Freq. Scan 0 - 100 kHz  Full scale Sensitivity 3.2V	Large Rock in sand	1	2.1	2280
		2 *	2.4	2600
		3	2.9	3140
		4	3.1	3350
		5	3.1	3350
		Avg.	2.72	2950
Freq. Scan 0 - 100 kHz  Full scale Sensitivity 3.2V	Concrete Floor	1	.89	960
		2	.67	720
		3	.74	800
		4	.67	720
		5	.92	990
		Avg.	.778	840
Freq. Scan 0 - 100 kHz  Full scale Sensitivity 3.2V	Concrete Floor	1	1.9	2050
		2 *	2.4	2600
		3 *	1.9	2050
		4	2.1	2280
		5	2.0	2160
		Avg.	2.06	2230
Freq. Scan 0 - 100 kHz  Full scale Sensitivity 1.8V	Small Rock in sand	1	1.1	1190
		2	1.1	1190
		3	1.3	1400
		4	1.2	1300
		5	1.4	1510
		Avg.	1.22	1320
Freq. Scan 0 - 100 kHz  Full scale Sensitivity 3.2V	Small Rock in sand	1 *	1.6	1730
		2	2.1	2270
		3 *	2.4	2600
		4 *	2.4	2600
		5	2.1	2270
		Avg.	2.12	2300

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<u>DIGITAL ANALYZER SETTINGS</u>	<u>MEDIUM</u>	<u>DROP NUMBER</u>	<u>PEAK VOLTAGE</u>	<u>G ACCELERATION</u>
Freq. Scan 0 - 100 kHz  Full scale Sensitivity 1.8V	Patio Block in sand	1	.76	820
		2	.47	510
	1 foot drops	3	.71	770
		4	.82	890
		5	.85	920
		Avg.	.722	780
Freq. Scan 0 - 100 kHz  Full scale Sensitivity 2.0V	Patio Block in sand	1	1.6	1730
		2	.78	840
		3	1.1	1190
	3 foot drops	4	1.0	1080
		5	1.1	1190
		Avg.	1.116	1210
Freq. Scan 0 - 100 kHz  Full scale Sensitivity 0.32V	Wooden Slab in sand	1	.23	240
		2	.22	230
		3	.22	230
	1 foot drops	4	.23	240
		5	.22	230
		Avg.	.224	240
Freq. Scan 0 - 100 kHz  Full scale Sensitivity 0.5V	Wooden slab in sand	1	.31	330
		2	.24	260
		3	.27	290
	3 foot drops	4	.28	300
		5	.32	340
		Avg.	.284	310

key:

\* following the drop number indicates that the rifle fired on that drop. If there is no indication then the rifle did not fire.