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PROGRESS REPORT

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M/721 PILOT LINE TEST - 300 H&H MAGNUM CAL.

Period: October 6 to October 8, 1948
Project: FD-721-1 W.O. #71565
Previous Progress Reports: None
Prepared by: W. E. Leak

INTRODUCTION

This report covers the testing of 8 M/721 Pilot Line Rifles selected at random from the first production lot of 50.

OBJECTIVE

To obtain (a) inherent accuracy and (b) functional performance of the M/721 300 H&H Magnum rifles.

CONCLUSIONS

That the inherent accuracy and functional performance of the M/721 production rifles in the 300 H&H Magnum caliber is as follows:

- a. Average Extreme Spread* - 100 yards
8 guns - 2.6", Max. 2.81", Min. 2.1".
 - b. That the overall functional performance of the guns was very poor.
See Experimental Details.
- *Ten power scope, 100 yards, accuracy device, ammunition - std. 2.3".

WORK PROGRAM

A functional test of 335 rounds including 15 rounds of accuracy firing per gun was used.

RECOMMENDATIONS

It is recommended:

1. That a design change in the 300 H&H Mag. be made to increase the barrel weight 1 lb.
2. That an inspection be made of all 300 Mag. receivers to insure sufficient clearance in the rear section of the magazine well to accommodate the Magnum shell.
3. That the under side of the lips of the magazine well be rounded and made smooth to prevent difficult feeding of the shell.
4. That the inside section of the top edge of the magazine box adjacent to the ramp in the receiver be beveled and smoothed to facilitate feeding of the shells from the magazine.
5. That the hard locking of the Bolt caused by the chamber be investigated and if possible, eliminated.

DISCUSSION OF RECOMMENDATIONS

Because of excessive recoil, it is the writer's opinion that a 300 H&H Sporter type rifle without accessories should weigh not less than 8-1/2 lbs. and should be provided with a rubber recoil pad. An increase of approximately 1 lb. in barrel weight as recommended would accomplish this purpose and in addition, improve the inherent accuracy of the rifle.

SUMMARY OF EXPERIMENTAL DETAILS

<u>Gun No.</u>	<u>Malfunction Rate</u>	<u>AVG. Extreme Spread</u>	<u>Remarks</u>
47391	0%	2.1"	-
47186	25%	2.8	First round from magazine. Stens Magazine Box.
47553	4.38%	2.6	"
47339	1.31%	3.3	Failed to feed from Magazine. Stens chamber. Bolt lock hard on all makes of ammunition.
47530	14.1%	2.6	Failed from Magazine. Stens chamber.
47396	3.42%	2.8	Fails to feed from Magazine. Slow functioning.
47172	3.12%	2.3	First round from Magazine. Bolt locks hard.
47340	16.25%	2.3	First round from Magazine. Bolt overrides. Slow feeding. Bolt locks hard.

EXPERIMENTAL DETAILS

ACCURACY

<u>Gun No.</u>	<u>Avg. Extreme Spread</u>	<u>Max.</u>	<u>Min.</u>
47391	2.1"	3.3"	2.2"
47196	2.8	3.3	2.5
47553	2.6	2.8	2.4
47339	3.3	4.3	2.5
47530	2.6	3.0	2.4
47396	2.8	4.1	1.3
47172	2.3	2.4	1.6
47340	2.3	2.9	1.9
Total Average	2.6"	2.81"	2.1"

MEASUREMENTS

<u>Gun No.</u>	<u>Head Space</u>	<u>Firing Pin Protrusion Av.</u>	<u>Firing Pin Indentation Av.</u>	<u>Trigger Pull Average</u>	<u>Bolt Cocking Opening</u>	<u>Jar Off</u>	<u>Safe</u>
47391	Under Max.	Within Limits	.024"	7# 8 oz.	13#	Does not jar off	O.K.
47196	"	"	.023 1/2	8# 5 oz.	11#	"	"
47553	"	"	.024	7# 14 oz.	13# 7 oz.	"	"
47339	"	"	.020	7# 11 oz.	12# 7 oz.	"	"
47530	"	"	.023	6# 4 oz.	11# 6 oz.	"	"
47396	"	"	.023	8# 8 oz.	9# 4 oz.	"	"
47172	"	"	.021	6# 9 oz.	10#	"	"
47340	"	"	.023	7# 3 oz.	16# 3 oz.	"	"

AMMUNITION SCHEDULE

<u>Routing Ticket No.</u>	<u>Manufacture</u>	<u>Bullet Weight</u>
1	Remington	220
2	Peters	225
3	Winchester	220
4	"	180
5	Western	220
6	Remington Mushroom	220
7	Peters Belt	225
8	Remington	220
9	Peters	225
10	Remington	220
11	Peters Belt	225
12	Winchester Express,	
	Silver Tip	220
13	Winchester	180
14	Western Express	220
15	Remington	220
16	Peters	225

FIRING RECORD

<u>Gun</u> <u>No.</u>	<u>R.T.</u> <u>No.</u>	<u>Rounds</u> <u>Fired</u>	<u>Malfunctions</u> <u>Fails to Feed</u>	<u>Gun</u> <u>Failure</u>	<u>Malfunction</u> <u>Rate</u>	<u>Adjust-</u> <u>ments</u>	<u>Remarks</u>
47530	1-16	0-320	45		14.1%		Failed from Magazine. Stems chamber.
47396	"	"	11		3.42%		Fails to feed from Magazine. Slow functioning.
47172	"	"	10		3.12%		First round from Magazine. Bolt locks hard.
47186	"	"	80		25%		First round from Magazine. Stems magazine box.
47553	"	"	14		4.38%		Fails from magazine. Stems ramp of magazine box.
				1			Trigger Pin fails to retain Bolt Stop. Firing Pin follow down.
47339	"	"	1		1.31%		Failed to feed from Magazine. Stems chamber. Bolt locks hard on all types of ammunition.
47391	"	"	0		0%		
47340	"	"	52		16.25%		First round from Magazine. Bolt overrides. Slow feeding. Bolt locks hard.
				1			More than 4 malfunctions in 20 consecutive rounds.

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REL:MP