xc: J. P. Linde
P. G. Johnson – B. Orf
K. C. Rowlands
J. W. Brooks – D. E. Bullis
Lab File

REMINGTON ARMS COMPANY, INC.

INTER-DEPARTMENTAL CORRESPONDENCE

Remington (DUPONT) PETERS (DUPONT)

"CONFINE YOUR LETTER TO ONE SUBJECT ONLY"

Ilion, New York
June 22, 1979

TO: C. B. WORKMAN

FROM: A. A. HUGICK

DATE: JUNE 19, 1979

SUBJECT: M/700 – 7mm MAUSER (7 x 57) PRE–PILOT TEST

INTRODUCTION:

Two (2) major features being considered for the limited – edition M/700 – 7mm Mauser caliber rifle production run are Rivetless Extractors With Anti–rotation Projection and Pressed Long ADL Stocks modified for BDL floor plate assemblies. Listed below are various items received for this pre–pilot test evaluation work:

- Eight (8) pressed stocks – M/700 25/06 Rem. Rifles
- Eight (8) sanded stocks – M/700 25/06 Rem. Rifles
- Eight rivetless extractors having no anti–rotation projection – M/700 7mm Mauser actions.
- Thirteen (13) pressed stocks – stocks supplied for M/700 – 7mm mauser actions.
- Two rivetless extractors with anti–rotation projection long M/700 bolts.

TEST OBJECTIVE:

1) Evaluate pressed long stock.

2) Evaluate rivetless extractor.

3) Evaluate M/700 – 7mm Mauser Performance.

TEST CONCLUSIONS:

1) The functional performance of accuracy and point of impact with pressed stock samples is equal to sanded stock sample.

2) Twenty–four (24) hours immersion in water produced varied damage (blisters) to the pressed stock and little if any damage to the ~~stamped~~ SANDED stock samples.

A.A.H.

TEST CONCLUSION: (Cont'd)

3) Approximately 75% of the pressed stocks have internal cracks in the stock.

4) The two rivetless extractors with anti–rotation projection had normal extraction & ejection.

5) Rivetless extractors became in–operative (Don't extract) when gross amounts of simulated crud was introduced on the bolt face during shooting. Current production extractors are not as sensitive to this crud build–up.

6) M/700 – 7mm mauser functional performance is normal. Stem chamber bottom malfunctions do occur when the single round loading is performed by laying the live round on the magazine follower.

TEST RESULTS:

I. M/700 25/06 Rem Caliber Rifles:

A. Visual inspection of pressed stocks indicated:

1. Seven out of eight pressed stocks as having visual (interior) crack indications.

2. Three out of eight pressed stocks indicated bolt handle–to–stock contact.

These are in addition to 5/7/79 M/700 press formed stock letter from J. R. S. Notations.

B. Visual inspection of sanded stock indicates:

1. Three out of eight sanded stocks required a washer (spacer) for proper BDL floor plate depth.

2. Two out of eight sanded stocks had slight nicks in the stock adjacent to the BDL Floor plate assembly.

C. Fifty yard (50 yd.) group size and P.O.I. was fired with three pressed stock and three sanded stock M/700 – 25/06 Rem. caliber rifles.

TEST RESULTS: (Cont'd)

C. (Cont'd)

STOCK TYPE	RIFLE SERIAL No.	50 YARD DATA			CAL. FOR 100 YARD		
		Group Size	VPOI	HPOI	Group Size	VPOI	HPOI
Pressed	A6759269	1.0	2.9L	2.9R	2.0	5.8L	5.8R
	A6763954	2.0	0.7H	1.1L	3.9	1.4H	2.2L
	A6759297	0.9	0.4L	0.1R	1.8	0.8L	0.2R
	3 Gun Average	1.3	0.9L	0.6R	2.6	1.7L	1.3R
Sanded	A6760420	1.4	1.6L	1.0L	2.8	3.2L	2.0L
	A6760141	1.7	1.1L	0.4R	3.4	2.2L	0.8R
	A6760076	1.3	1.3H	2.2R	2.6	2.6H	4.4R
	3 Gun Average	1.5	0.5L	0.5R	2.9	1.0L	1.0R
	Misc. Group Per Rifle	Scope Two	Iron Sights One				

D. These same rifle stocks were wet with water and wrapped with wet paper towel for a 48 hour duration and reshot with the following results.

TEST RESULTS: (Cont'd)

D. (Cont'd)

STOCK TYPE	RIFLE SERIAL No.	50 YARD DATA			CAL. for 100 YARD		
		Group Size	VPOI	HPOI	Group Size	VPOI	HPOI
Pressed	A6759269	1.1	3.7L	2.4R	2.2	7.4L	4.8R
	A6763954	0.8	0.6H	0.8L	1.6	1.2H	1.6L
	A6759297	0.7	0.6H	0.2L	1.4	1.2H	0.4L
	3 Gun Average	0.9	0.9L	0.5R	1.8	1.8L	1.0R
Sanded	A6760420	1.7	1.5L	1.9L	3.4	3.0L	3.8L
	A6760141	1.1	0.6L	0.3R	2.2	1.2L	0.6R
	A6760076	1.3	1.9H	2.0R	2.6	3.8H	4.0R
	3 Gun Average	1.4	0.1L	0.1R	2.8	0.2L	0.2R
	Misc. Group Per Rifle	Scope Two	Ironsights One				

Test data indicating pressed stock P. O. I. stability equal to or better than sanded stock P.O.I. stability.

Test data indicating pressed stock group size equal to or better than sanded stock group size performance.

The changed in both P.O.I. and group size for the pressed and sanded stock not being a major change.

TEST RESULTS: (Cont'd)

E. One sanded stock rifle and one pressed stock rifle had the barrel free–floated in design and tested with stock wet/soak conditions as in "D". Except the scope was mounted and remained on rifle during 48 Hr. stock soak test.

STOCK TYPE	RIFLE SERIAL NO.	50 YARD DATA			CAL. for 100 YARD		
		Group Size	VPOI	HPOI	Group Size	VPOI	HPOI
Pressed	A6759278	1.4	0.6H	1.4R	2.8	1.2H	2.8R
Sanded	A6760723	1.2	0.8L	0.4R	2.4	1.6L	0.8R
	A6759278	1.1	0.7H	1.6R	2.2	1.4H	3.2R
	A6760723	1.0	0.0L	.6R	2.0	0.1L	1.2R
	Misc. Group Per Rifle	Scope Two	Scope Two				

No major change noted in group size or P.O. I. in this controlled stock moisture exposure X shooting test.

TEST RESULTS: (Cont'd)

F. Two pressed (No. 2, No. 8) and one sanded long stocks received with the M/700 – 25/06 Rem. caliber rifles were submerged in water for a 25 hour time duration. Various localize bulging was noted with pressed stock which when allowed to dry did not return to original condition. This 24 Hours water soak test resulted in damage to the pressed stock and little if any damage to the sanded stock with open cut checkering.

G. Stocks removed from the free–floated barrel rifle (A6759278 & A6760723) were submerged in water for a 24 hour period. Little if any visual damage was noted with the sanded stock. Pressed stock (No. 7) exhibited various localize damage such as coloring and blistering. However, gross damage was noted around the butt plate – black colorization and expanded wood margin of approximately 1/16 of an inch.

H. Pressed stocks (No. 4 and No. 6) and one sanded stock were brushed with Red Dye, allowed short time to soak into crack indications, and wiped dry prior to the stock being band sawed into 1/2 inch long sections. The Red dye thus soaked into cracks or openings in the stock finish / sealing surface. This red dye technique revealed the following:

a. The sanded stock and pressed stock showed difference when subjected to Red Dye. Less coloring noted with the sanded stock. More coloring and great erratic coloring was noted with the pressed samples. Perhaps pressing does crushing type of interal structure damage to the wood making it more subceptable to moisture attack and flow.

b. Pressed stock No. 4 crack depths on side of barrel channel indicated .050 wood section NOT cracked, while inside it looks like a surface crack. Cracks located in the barrel chamber bottom are nearly 60 – 70% thru stock and oriented with wood grain.

c. Pressed stock No. 6 was sectioned in press checker panel an indicated Red Dye soak depth of 0 to .050 inch.

I. Sanded stock rifle A6760141 and pressed stock rifle A6763954 were dried out in stress coat oven for 7 days, reshot, and re-soak for 48 hours without significant group size or P.O.I. change.

II. M/700 – 7mm Mauser Actions and Thirteen Pressed Stock Sample.

A. Five out of six stocks assembled to rifles had stock cracks in the bridge at the reinforcement screw.

B. Rifles A6761827 and A6770020 are below Min. headspace dimensions.

II. M/700 – 7mm Mauser Actions and Thirteen Pressed Stock Sample – (Cont'd)

C. Accuracy (R – P 175) and Min. / Max. sight adjustment were acceptable. Average group size is 2.1 (6 rifles x 3 five shot groups per rifle) .

D. The 175 Grain weight factory ammo stems bottom of chamber when round is laid on magazine follower, otherwise function is okay.

E. Endurance of 1,000 rounds of 30/06 – 180 SPCL produced no defects or damage to a pressed stock. (A6784647)

F. Preliminary shooting (accuracy plus Jack Function) indicated cracks originaly in stock opened up. Finish seal may be broken during shooting.

G. Two stocks were submerged in water for a 72 hour period after accuracy and function test. Localized blisters appeared after 24 hours plus crack feathering and discoloration was noted. Both stocks after 72 hours were off–white in color.

H. Four stocks received with M/700 – 7mm mauser actions were treated with Red Dyel and sectioned for crack and sealing review.

a. No. 2 stock – this showed deep cracks on stock barrel inlet cut plus a crack indication forward of recoil lug cut.

b. No. 6 stock Red Dye was applied to checkering ONLY' Which showed slight dye soaking at the end and edges of checkering patterns.

c. No. A stock (No shooting sample) Red Dye showed cracking in bottom of barrel channel thru the front trigger plate assembly screw hole.

d. No. I stock was sectioned and then treated with Red Dye – This Technique did not work.

III. Two Rivetless Extractors with Anti–Rotation Projection Long M/700 Bolts.

A. Rusted chamber M/700 – 30/06 shooting of five (5) proof rounds per rivetless extractor with anti-rotation projection resulted in normal extraction and ejection, (Heavy bolt lift).

B. Rusted chamber M/700 – 30-06 shooting of five (5) proof rounds with a control production riveted extractor bolt assembly resulted in normal extraction and ejection. (Heavy bolt lift).

III. Two Rivetless Extractors with Anti–Rotation Projection Long M/700 Bolts. – (Cont'd)

C. Simulated Crud was mixed up for application to bolt face prior to closing on chambered round. The mix consists of 2 teaspoons of fine sawdust, 2 teaspoons of course sawdust, 2 teaspoons of flour, combined with 1/2 can of Hopped Oil.

D. Simulated crud testing with rivetless extractor anti–rotation bolt assemblies produced don't extract in 3 rounds and 11 rounds. Control bolts with riveted extractors resulted 2/100 don't extract, and don't extract after 43 fired rounds.

E. 2,000 rounds of 30/06 was fired on one rivetless extractor with anti–rotation projection after above rust and crud testing. No malfunctions were encountered and final inspection indicated little–to–no visual change.

AAHugick:bd
Measurement/Test Lab
Ilion Research Division

Attached