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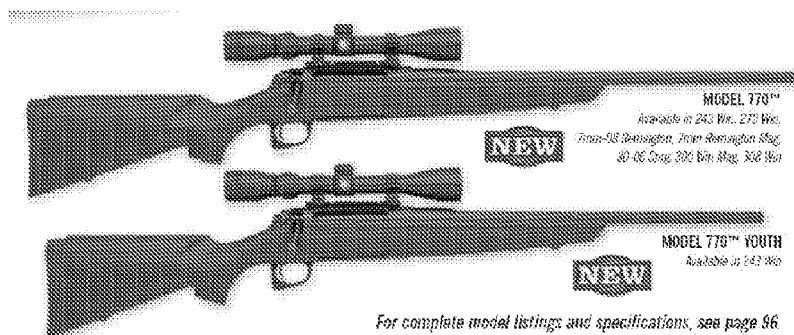
Remington Arms Company, Inc.

Trial & Pilot Test Report

M/770 Centerfire Rifle

&

M/770 Youth Centerfire Rifle



April 9, 2007

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Remington Arms Company, Inc.

Trial & Pilot Test Report

April 2007

M/770 & M/770 Youth Centerfire Rifles

ABSTRACT:

This Report covers the results of the Trial & Pilot Testing (T&P) procedures performed on the Remington M/770 and M/770 Youth Centerfire Rifle variants during December 2006 through March 2007 at the Remington Arms Company, Inc., Research & Development Technical Center located at Elizabethtown, KY.

This Testing Program was designed around the goal of determining if this new product met design specifications as specified by R&D and Marketing and produced using production methods and processes at the Remington Arms Mayfield KY plant.

The following grouping of test procedures were used to determine conformance to requirements and process capability

1. – Headspace and Proof Checks
2. – Firearms Measurements – Gun Weight
3. – Functional Testing
4. – Endurance Testing (300 Win Mag only for a "Worst Case" configuration)
5. – Accuracy
6. – Environmental Tests (Cold only for stock testing)
7. – SAAMI Jar-Off, Rotation & Drop Testing

After reviewing each of the individual tests and taking the entire series of T&P tests as a whole, the Research Test Lab and the Research Design Group have concluded that this product met the acceptance requirements for this product.

It should be noted that the Model 715, although transmitted with the Model 770, was not subjected to any aspect of this test protocol since there is no difference between this new model and the already qualified Model 710 which has been in production since early 2001. The only differences between the Model 715 and Model 710 is the color of the stock (Black vs. Grey) and the 715 only contains the scope rail mounted on the top of the receiver. A scope rail only version of the Model 710 was introduced after initial introduction of the M-710.

Report Prepared By:

S. R. Franz. _____ / April 2007.

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ELIZABETHTOWN, KY 42701**INTRODUCTION**

The Model 770 and Model 715 Centerfire Rifles are new product models for the Remington Arms Company. Marketing indicated a need to update the overall appearance of the existing Model 710 to stimulate sales. The preferred method was to design a new synthetic stock with different design features and styling. Remington hired the Zunda Design Group of South Norwalk Connecticut for styling input. Zunda personnel along with R&D design and CAD personnel under the guidance of Marketing arrived at a radically different stock configuration. After several prototypes and design revisions to refine the model for manufacturability a new modular injection mold tool was designed and built to produce the stock. A color change from grey to black was requested, however the same synthetic material used to make the Model 710 stock would be used in manufacture of the Model 770 stock. The inletting geometry where the stock mates to the barreled action remained essentially unchanged between the two stocks.

The mold was completed in December of 2006 and first shots followed. A combined DAT/T&P test was developed in anticipation of having samples available for test starting in late December. No separate DAT was deemed necessary since stocks to be tested would be made from production tooling. Since no changes were made to the barreled action the test protocol focused on only those areas that could be affected by the stock change. This included an assessment of accuracy, function & endurance, and then SAAMI Jar-Off, Rotation and Drop since the weights would be slightly different from that of the Model 710 and interaction between the stock and action could also be different. Headspace checks were included as standard practice to ensure all test guns were safe to shoot. An additional proof round was fired and a recheck of headspace, again a standard E-town practice. Since synthetic materials could become brittle at low temperatures a Cold Test was also added later in the test protocol.

Testing commenced in late December as planned on stocks made at PAR4 in Marion, KY. These early samples were produced without the final texture added to the mold so that an early assessment of stock acceptability could be made. Dimensional and processing issues were identified with the stock based on this early testing. A series of design and tooling changes followed to resolve these issues. Testing in E-town progressed from caliber to caliber as new stock samples were run to assess these changes. The final texture was added to the tool after most of the tooling updates were made, however some minor tool "tweaking" did occur after texture was added.

This report will summarize all T&P testing performed on Model 770 test rifles fitted with this new stock to qualify this new model. I should mention that the final evaluation of accuracy for all calibers was ultimately tested in Mayfield using standard production equipment and processes. Accuracy data from the first roughly 100 guns produced in each caliber was sent to E-town for statistical analysis, after which results were shared with Marketing. Marketing ultimately accepted accuracy results for all calibers.

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ELIZABETHTOWN, KY 42701**1.0 PURPOSE & SCOPE OF TEST PROGRAM****1.1 PURPOSE**

The first purpose of this series of tests was to determine if the Model 770 Centerfire Rifle would perform as designed and meet the established function and safety criteria as defined by the Research & Development Test Group with input from Design, Manufacturing, and Marketing. The second purpose of this series of tests was to assure that Mayfield production processes were capable of meeting the function, safety and design criteria established for this model.

1.2 SCOPE

This report covers Trial & Pilot testing of all Remington Model 770 Centerfire Rifle variants, including the Youth model. The model 715, which was introduced at the same time, was not tested since differences between it and Model 710 versions did not warrant additional testing. Only the color of the stock differentiates the Model 715 (Black Stock) from the Model 710 (Grey Stock). The 715 also does not come with an attached scope, but does contain a scope rail. A version of the 710 was also sold in this configuration.

2.0 EXECUTIVE SUMMARY

The Model 770 is a new model designation for Remington. It uses a standard M/710 barreled action without modification and is fitted with a new stock styled with input from Zunda Design of Norwalk Connecticut. A new injection mold tool was designed and built by PAR4 of Marion, KY to manufacture the stock. PAR4 is also the mold house selected to run production with this tool.

The tool was initially completed in December of 2006 and testing resumed immediately after samples became available. Early issues with the stock were identified that required correction or improvement. Initial problems with magazine box retention, Grip Cap fit and permanent adherence to the stock via gluing, and numerous dimensional deviations from design specification were identified. Tooling and design changes were made to resolve these issues either completely or to acceptable levels of performance. Numerous early problems with magazine box retention were corrected with tooling changes that better located and secured the magazine latch in the stock. Controllability of recoil lug and take down insert depth were corrected as well. Gluing of the Grip Cap to the stock was improved by the addition of fixtures to hold the caps in place during the glue curing process. Although this has been improved so that the frequency of caps that fall off during test are on par with Model 710 failure rates, this is still an area that may require additional work. PAR4 has indicated that this is not a desirable process and they are investigating other alternatives to secure the Grip Cap to the stock. A report summarizing investigative work done by Todd Cook under TLW 2174 title "Model 770 Grip Cap Adhesion Geometry and Glue Type Test" is available at the R&D Technical Center.

Another area yet resolved but deemed acceptable is the possibility of small cosmetic cracks that may develop in the stock as a result of shooting. The locations of these cracks are under the barreled action and are not visible unless the action is removed from the stock. Endurance testing with the worst case 300 Win. Mag. caliber has proven that these cracks pose no performance or safety

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concern and are cosmetic in nature. Although acceptable for early production, Mayfield and PAR4 are encouraged to investigate alternatives to completely eliminate these cracks in the future. I should mention that these cracks also occur to some extent in Model 710 stocks.

Accuracy for all seven calibers tested were on a par with Model 710 performance levels and was acceptable to Marketing. The two extreme weight variations (the heaviest being the M/770 in 7mm Rem. Mag. and the lightest the M/770 Youth in .243 Win.) subjected to SAAMI Jar-Off, Rotation and Drop testing passed with both trigger pull and engagement set to process minimum specifications. Given the current state of refinement and performance achieved during the Trial & Pilot test program all caliber variations, including the Youth version, were recommended for formal transmittal and shipment. The following e-mail was sent communicating this initial recommendation on Feb. 13th, 2007. Mayfield did follow up and send production generated accuracy data on all calibers to E-town for a statistical review. The analyses performed for each caliber defined the statistical level of accuracy attained and these results were accepted by Marketing, formally releasing all calibers for shipment.

We've completed our 40 rd./rifle function test on 10 M/770's (5-.308's and 5-.270's) and this completes all of our planned testing of this new product offering. No early grip cap failures and function was acceptable on both calibers. We did have 1 magazine latch break on one of the .308's. This was noticed after the testing so I'm not sure if this was broken prior to our test or if it broke during the test. The latch broke off on one side where the pin goes through the part. As far as we can tell this is not related to the M/770 stock.

Gerald, could you investigate to determine if this is unique to the M/770 from your end? This could have been a defective part possibility related to a short shot or an assembly issue.

Based on our testing and Mayfield's comparative data between 710 and recent 770 production on the grip cap issue the E-town Test Lab supports a position to ship product in the two calibers listed (7mm-08 and 7mm Rem Mag) with the following conditions:

- A formal design transmittal takes place where the transmitted design is reflective of T&P product.
- Mayfield should monitor grip cap failure rate and take corrective action with PAR4 if failures increase from current levels.
- Mayfield should supply E-town with initial accuracy data on the remaining calibers (.300 Win. Mag, .243 Win., .270 Win., .308 Win. and .30-06 Sprg). E-town will analyze this data and report findings relative to gallery specifications.
- Mayfield should publish their proposed accuracy sampling process for review.

As always, please give us a call if you have any questions or if additional review of this product is required.

Regards,

Scott R. Franz

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R&D Technology Center

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2.1 TEST SUMMARY TABLE

The following Table lists the individual test procedures that were completed by gun during the entire T&P series and the final status of each by individual category. A GREEN dot indicates a PASS with no issues identified, a Yellow dot indicates a minor issue was identified, and a RED dot would indicate a FAIL status due to a major issue. A detailed discussion of results for each section follows this summary chart.

Serial No.	Caliber	Stock	Barrel Length (in.)	Head-space	Proof	Head-space	Gun Wt.	Jack Function	500 rd. End.	1,000 rd. End.	Accuracy @ 100 yds.	Cold Test	SAAMI Jar-Off	SAAMI Rotation	SAAMI Drop	Comments
71341120	300 Win Mag	Standard	24	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				Small cracks in stock behind recoil lug after Jack Fcn
71342568	300 Win Mag	Standard	24	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				Small cracks in stock behind recoil lug after Jack Fcn, Marks on brass in chamber area noted during Accuracy
71342630	300 Win Mag	Standard	24	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				Small cracks in stock behind recoil lug after Jack Fcn
71342363	300 Win Mag	Standard	24	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				Small cracks in stock behind recoil lug after Jack Fcn
71342450	300 Win Mag	Standard	24	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				Small cracks in stock behind recoil lug after Jack Fcn, Magazine latch issues developed at end of Endurance
71342299	300 Win Mag	Standard	24	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				Small cracks in stock behind recoil lug after Jack Fcn & Cold Test, Magazine latch issues noted during Accuracy
71342511	300 Win Mag	Standard	24	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				Small cracks in stock behind recoil lug after Jack Fcn & Cold Test, Magazine latch issues noted during Jack Fcn
71342542	300 Win Mag	Standard	24	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				Small cracks in stock behind recoil lug after Jack Fcn
71342293	300 Win Mag	Standard	24	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				Small cracks in stock behind recoil lug after Jack Fcn and magazine latch issues
71342548	300 Win Mag	Standard	24	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				Small cracks in stock behind recoil lug after Jack Fcn and magazine latch issues
71340834	.243 Win	Youth	20	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				Grip cap fell off during Accuracy
71340473	.243 Win	Youth	20	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				Head-space below SAAMI Min. - Fires ammo OK, Bolt tight in receiver - Jack Fcn
71340831	.243 Win	Youth	20	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				Magazine latch issues during Jack Fcn
71340862	.243 Win	Youth	20	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				Magazine latch issues during Accuracy
71340864	.243 Win	Youth	20	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				Magazine latch issues during Accuracy
71347616	.243 Win	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71347832	.243 Win	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71347621	.243 Win	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71347622	.243 Win	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71347617	.243 Win	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71344614	7mm-08 Rem	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71344615	7mm-08 Rem	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				1st Proof rd. damaged Bolt Shroud, replaced Bolt and re-proofed - OK 2nd time, Magazine latch issues during Jack Fcn
71344601	7mm-08 Rem	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71344612	7mm-08 Rem	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71344599	7mm-08 Rem	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71343958	30-06 SPRG	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				Mag. box falls out, Grip cap fell off
71343953	30-06 SPRG	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71343954	30-06 SPRG	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				Mag. box falls out
71343942	30-06 SPRG	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71343940	30-06 SPRG	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				Grip cap fell off during shooting
71347529	7mm Rem Mag	Standard	24	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71350043	7mm Rem Mag	Standard	24	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71350044	7mm Rem Mag	Standard	24	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71350048	7mm Rem Mag	Standard	24	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71350052	7mm Rem Mag	Standard	24	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71350888	270 Win	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71350887	270 Win	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71350897	270 Win	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71350885	270 Win	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71350894	270 Win	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71351087	308 Win.	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71351089	308 Win.	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71351092	308 Win.	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71351101	308 Win.	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				
71351099	308 Win.	Standard	22	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗				Difficult to depress mag. box latch to remove box

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Calibers tested early in T&P contained stocks without texture and were early samples off a new tool. Expectations were that dimensional issues would be found with the stock that required correction. This was the case and was the reason why a staged T&P test sequence was planned. (I.e. We would test samples built with different caliber actions when changes were made to the tool or process.) The chart above shows the sequence of testing that was conducted over about a two month period. Early samples tested in 300 Win. Mag. had more identified issues. Calibers tested later in the process, namely the 7mm Rem. Mag., 270 Win. and 308 Win. clearly showed that issues found were ultimately resolved.

The following section titled T&P Summary – (Detailed) will describe each major category of testing conducted along with a brief summary and discussion of results. More complete tabular data for each section can be found in the Appendix section of this report if appropriate. Data in these tables were extracted from raw data sheets generated by the technicians running the actual tests. These raw hand written data sheets are not included in this report for brevity purposes. They will be filed in E-town's Record Retention Room.

3.0 T&P SUMMARY – (DETAILED)**3.1.1.1 Measure Headspace****3.1.1.2 Proof Test****3.1.1.3 Re-Measure Headspace after Proof ***

All guns received for testing had an initial headspace measurement taken per standard lab procedure. Then a standard proof round was fired of the appropriate caliber followed by a recheck of headspace. This is standard lab protocol on all guns received for testing. All guns were within acceptable headspace range except one, a .243 Win action which measured under SAAMI Minimum. Even after firing a proof round this gun still measured under specification. It must have been close to specification since it fired the proof round and standard ammunition just fine. One other gun, a 7mm-08 caliber sample had the head of the proof round expand into the shroud of the bolt head. The bolt was damaged trying to remove the case so a new bolt was fitted to the gun and the process repeated. No problems occurred during this reproof procedure. The proof round may have been on the high side of the specification for pressure. I should mention that the headspace range for all guns varied from the 1 gun just under min. headspace to only Min. + .005". The average headspace growth of approximately .0005" after proof was also exceptional. See Appendix A for a complete listing of headspace data by gun serial number and caliber.

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3.2 FUNCTION & ENDURANCE TESTING

3.2.1.1 Basic Jack Function Test (Varied from 40 Rounds to 100 Rounds per rifle)

All guns were subjected to an initial jack function test which varied from 40 to 100 rounds to get an early indication of functional reliability. Samples were tested in the order that they were received, with the .300 Win. Mag. and .243 Win. Youth versions as the first samples tested. The .300 Win. Mag. test was 100 rounds per rifle. This was scaled back to 50 rounds for the .243 Win. and subsequently to 40 rounds per rifle for the remaining calibers. Early calibers like the .300 Win. Mag. were tested with "first shot" stocks that were made off a new injection mold tool. This was done to get an early indication of where refinements needed to be made with the tool. These early stocks were also not cosmetically correct since they were not textured and the process was not yet optimized. Early problems with magazine box retention were identified, especially during the .300 Win. Mag. testing. This was due to magazine latches that were not located correctly in the stock. In addition latches would move during use, thereby changing position of the latch surface which affected the ability to correctly latch the box in the stock. In some cases the magazine box would not stay latched in the stock from the beginning. In these cases the guns were either not tested or the test was cut short. The latch retention issue was solved along with other identified dimensional deviations from design intent that existed in the stock. I should mention that for guns in which the magazine would latch up correctly the guns functioned flawlessly. A series of refinements were made to the stock tool and then the tool was textured. The last few calibers tested were assembled with stocks that were made after many changes were made to the tool. These stocks were cosmetically correct and assembled and functioned much better than earlier stocks. A summary data table for the Jack Function test can be found in Appendix B of this report.

3.2.1.2 Endurance Test

Endurance testing was isolated to .300 Win. Mag. caliber only since this was the worst case from a recoil abuse standpoint on the stock. Ten samples were received and after the initial Jack Function test all stocks were inspected. Virtually all the .300 Win. Mag. samples exhibited small cracks in the inletting area just behind the recoil bracket. Note that the barreled action must be removed from the stock to see these cracks. Based on order of testing Accuracy was also done prior to this inspection so the actual number of rounds on the stock included the single proof round, 20 rounds for accuracy, and the rounds fired during the Jack Function test. The following picture is representative of the location and extent of cracking found on virtually all .300 Win. Mag. sample stocks after the Jack Function test. Five rifles were chosen in which the magazine latches were working properly and these were fired an initial 500 rounds. Cracks were monitored and although slightly more prominent, they did not result in any appreciable action setback or result in any additional damage to other areas of the stock. One of the five guns started having magazine latch issues at about round level 437 due to latch movement.

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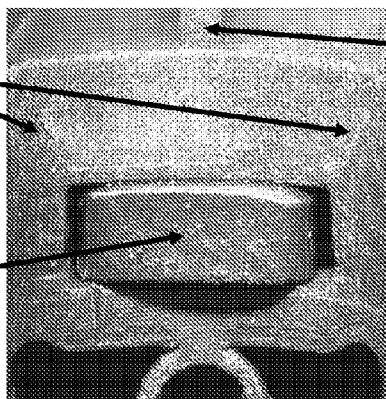
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cracks in stock

Recoil Bracket



Strengthening Rib

Two of the five guns were selected and fired an additional 500 rounds for a total of 1,000 endurance rounds. Cracks were inspected post firing and again, although slightly more visible, were not found to be detrimental to gun function or safety. Existing cracks did not propagate to other areas of the stock, confirming that they were cosmetic in nature and posed no real concern from a structural standpoint. This is probably helped by the strengthening rib that supports this area of the stock just behind the recoil lug area. Gun function during the .300 Win. Mag. endurance test was flawless, outside of the one gun that started having magazine box retention issues at about the 500 round level. A summary of the endurance testing is shown in the table below.

M/770 ENDURANCE TESTING

Gun #	Caliber	Rds. Fired	Ammo	Malfunctions by Type			Total Malif.	Malif. Rate (%)	Shooter(s)	Comments
				EJECTION	FEEDING	MISC.				
71341120	300 Win Mag	1000	Rem. R300W2	0	0	0	0	0%	JS, JW	
71342568	300 Win Mag	500	Rem. R300W2	0	0	0	0	0%	JS	
71342630	300 Win Mag	1000	Rem. R300W2	0	0	0	0	0%	JS, JW	
71342363	300 Win Mag	500	Rem. R300W2	0	0	0	0	0%	JS	
71342450	300 Win Mag	500	Rem. R300W2	0	0	16	16	3.2%	JS	Magazine latch problems started at 437 rds. and on will not latch.
TOTAL --->		3500		0	0	16	16	0.5%		

NOTE: Cracks in stock that developed during Jack Function did not grow significantly during this Endurance Testing.

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3.2.1.3 Clean Rifles and Inspect

Rifles were cleaned and inspected before Accuracy, after Jack Function and throughout Endurance testing. Stock inspections, especially in the crack area noted, were made at these intervals with no significant differences in crack propagation noted.

3.3 ACCURACY

3.3.1.1 Group Size -Test with Supplied Bushnell Scope

An initial assessment of accuracy was made in Elizabethtown on the early samples in .300 Win. Mag. and .243 Win. in Youth configuration. Both samples were found to shoot acceptable and with a level of accuracy consistent with M/710 performance. All ten .300 Win. Mag. rifles were tested along with the five .243 Win. Youth rifles. Each rifle was cleaned and then five warmers were fired, followed by three 5-Shot groups. Rifles were cooled between groups and then maximum group size was determined for each group. A summary of this initial Accuracy test for both calibers follows.

M/770 Accuracy (300 Win.Mag.)

Tech: J. Sims, J. Kratzwald

Date: 14.15Dec06

Test Description: Given 10 Model 770 rifles(.300 Win.Mag.), utilizing 3 X 9 Bushnell scopes provided, shoot from the bench and record accuracy at 100 yds. (3-5 Shot Grps.)

Ammo type:R300W2 Lot # Z211AI (180Gr. PSP Core-Lokt)

Note: Lead Sled was utilized to perform accuracy.

Serial #	Grp.1 (in.)	Grp.2 (in.)	Grp.3 (in.)	Avg. Grp. (in.)	Shooter
71342548	1.55	1.85	1.70	1.70	J. Sims
71342542	1.55	0.90	2.00	1.48	J. Sims
71342450	1.80	1.45	2.05	1.77	J. Sims
71342511	2.30	2.00	2.40	2.23	J. Sims
71342293	1.20	1.50	1.60	1.43	J. Sims
71342568	1.95	1.70	1.10	1.58	J. Kratz
71342299	0.90	1.70	1.95	1.52	J. Kratz
71342363	2.40	2.55	1.90	2.28	J. Kratz
71342630	2.50	1.70	1.40	1.87	J. Kratz
71341120	1.90	2.30	3.10	2.43	J. Kratz
	1.81	1.77	1.92	1.83	← Avg. Group
				0.50	OA Std. Dev.
				1.43	Best Gun Avg.
				2.43	Worst Gun Avg.
				0.90	Best Single Group
				3.10	Worst Single Group

Grip Cap fell off during accuracy

Defect in chamber marks brass
Magazine falls out

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ELIZABETHTOWN, KY 42701**M/770 Accuracy (.243Win.)****Tech:** J. Sims**Date:** 18Dec06**Test Description:** Given 5 Model 770 rifles(.243Win.), utilizing 3 X 9 Bushnell scopes provided, shoot from the bench and record accuracy at 100 yds. (3-5 Shot Grps.)**Ammo type:** R243W3 Lot # A29GAI, Lot # B27MCI, Lot # B13PAI**Note:** Lead Sled was not utilized during accuracy.

Serial #	Lot #	Grp.1 (in.)	Grp.2 (in.)	Grp.3 (in.)	Avg. Grp. (in.)	Shooter
71340862	A29GAI	2.15	1.05	0.75	1.32	J. Sims
71340834	A29GAI	0.95	1.95	1.20	1.37	J. Sims
71340831	A29GAI	2.05	1.35	1.60	1.67	J. Sims
71340864	B27MCI	2.50	1.55	1.05	1.70	J. Sims
71340473	B13PAI	2.35	2.80	1.15	2.10	J. Sims
		2.00	1.74	1.15	1.63	<- Avg. Group
					0.63	OA Std. Dev
					1.32	Best Gun Avg.
					2.10	Worst Gun Avg.
					0.75	Best Single Group
					2.80	Worst Single Group

Grip Cap fell off during accuracy

Magazine falls out and apart

Bolt binding while opening

This initial accuracy test indicated that the new stock would shoot on par with the Model 710. Since this test was done with early manufactured stocks, after which the tool was modified several times, it was decided to re-evaluate accuracy after all the changes were made to the injection mold tool. The most efficient way to evaluate was for Mayfield to conduct this testing on production equipment and to use standard operating procedures established for accuracy testing. Once initial production started Mayfield agreed to shoot accuracy on the first 100 rifles of each caliber and then to supply the group size data to E-town where a statistical evaluation would be conducted. In this way all the rifles were tested with the same vintage stocks, on the same equipment, with the same procedure. A summary of this data follows.

MAYFIELD ACCURACY by CALIBER

	243 Win	300 Win Mag	308 Win	30-06 SPRG	270 Win	7mm-08 Rem	7mm Rem Mag
NUMBER RIFLES TESTED - N	112	100	115	108	108	100	92
AVG. 3-SHOT GRP (in.)	1.57	1.76	1.64	1.22	1.38	1.30	1.57
STD. DEV.	0.36	0.38	0.45	0.28	0.33	0.34	0.36
LARGEST 3-SHOT GRP (in.)	2.50	2.50	2.75	1.63	2.25	1.75	2.50
SMALLEST 3-SHOT GRP (in.)	0.75	0.94	0.75	0.50	0.25	0.50	0.75
Repeat of Avg. 3-Shot grp for graph.	1.57	1.76	1.64	1.22	1.38	1.30	1.57

NOTE: This is summary data only. Original data by caliber and S/N can be found in file TLW2143-M770 Mayfield Accuracy-First100.xls

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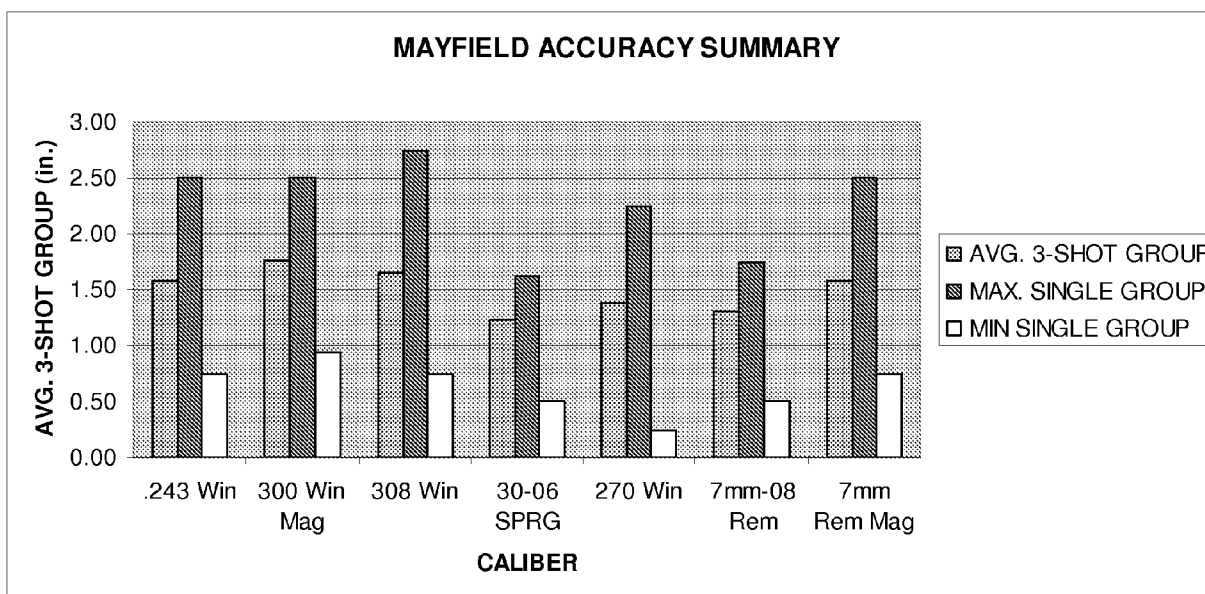
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The summary table lists the number of guns tested for each caliber (N), the Avg. 3-Shot group for the sample, the calculated standard deviation (STD. Dev.) and the largest and smallest group recorded for that caliber. It should be noted that the E-town generated data was for 5 shot groups while the Mayfield data was generated using 3 shot groups. Production has specification limits for 3, 4 and 5 shot groups but typically tries to qualify a rifle with as few shots as possible to limit the amount of ammunition and time required per gun. Three shot limits are typically tighter than 4 or 5 shot groups. These numbers were statistically evaluated and compared to process record limits. Data was reviewed with Marketing and they accepted the accuracy results for all calibers. A graphical representation of the Mayfield generated data follows.



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*Remington Arms Company Inc.*RESEARCH & DEVELOPMENT TECHNICAL CENTER
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ELIZABETHTOWN, KY 42701**3.4 ENVIRONMENTAL TESTING****3.4.1.1 Cold Function Test**

This test was added after the initial test plan was put together. Its primary purpose was to evaluate the structural integrity of the stock at extremely cold temperatures (-20 deg. F). Since small cracks did develop in stocks tested with the .300 Win. Mag. caliber as reported above during ambient conditions and knowing that synthetic materials may become brittle at these low temperatures it was decided to add this test as a worst case test scenario. Two sample .300 Win. Mag. rifles were fitted with new stocks prior to the test. Each rifle was put in the freezer overnight, which was set at -20 deg. F. Guns were removed at 8:00 AM and test fired with 20 rounds of standard ammo. Guns were put back in cold storage for 2 hours after which they were again removed and test fired with 20 rounds of standard .300 Win. Mag. ammunition. This procedure was repeated until 100 rounds were fired through each of the two test rifles. The actions were removed from the stocks and the stocks were inspected and then compared to the 1,000 round endurance stocks. Cracks occurred in exactly the same locations as noted after Jack Function at ambient temperature and were similar in size and degree. The conclusion reached was that even during severe cold the cracks that developed were no worse than what occurred during normal conditions, further strengthening the conclusion that these cracks were only cosmetic in nature. A summary of this test follows.

M/770 COLD TEST - (Handled under TLW2159)

Gun #	Caliber	Rds. Fired	Ammo	Malfunctions by Type			Total Malf.	Malf. Rate (%)	Shooter(s)	Comments
				EJECTION	FEEDING	MISC.				
71342299	300 Win Mag	100	Rem. R300W2	0	0	0	0	0%	JS	Small cracks in stock in corners just behind recoil bracket
71342511	300 Win Mag	100	Rem. R300W2	0	0	0	0	0%	JS	Small cracks in stock in corners just behind recoil bracket

PROCEDURE:

Guns had new stocks fitted to actions for this test. Then they were put in -20 F storage over night. Guns were removed from storage and 20 rounds fired at 0800 hours the next day. After firing 20 rounds the guns were put back in storage for 2 hours. This process was repeated until all 100 rounds were fired.

RESULTS:

No significant difference in the location or extent of crack as compared to the 1,000 round level endurance guns.

3.5 SAAMI JAR-OFF, ROTATION & DROP TESTING

This testing is only required when qualifying a totally new firearm design or if changes made to an existing model are significant enough to possibly alter the ability of a firearm to resist unintentional firing due to a bump or shock from falling and impacting a hard surface. As stated above the only difference between the Model 710 (a previously qualified design) and the Model 715 was the color of the stock. Since this was the case no formal testing was required or done on Model 715's. In the case of the Model 770 the only difference was the change over to a new stock design. Although the external styling is different the internal inletting geometry between stocks is essentially the same. None-the-less it was decided that this testing should be repeated on the Model 770 since the stock characteristics and interaction with the action may have

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been altered with the introduction of a new stock along with the fact that there is a weight difference between the two stock designs. I should re-emphasize that the barreled actions are identical between the Model 710 and the Model 770. To test the Model 770 only two models were used since they represented the extremes of weight in this new model offering. These were the Model 770 Magnum in 7mm Rem. Mag. and the Youth version in .243 Win. caliber. Five samples of each were subjected to SAAMI JAR-OFF, ROTATION, and DROP following standard procedures.

3.5.1.1 SAAMI JAR-OFF (SAFE "OFF", 1 ft. drop onto SAAMI mat in 6 orientations)

SAAMI requires that prior to testing that trigger pulls should be set to process minimums. Remington also adjusts engagement to process minimums when the design lends itself to adjustment, as it does in the case of the Model 710/715/770. In order to do this the anti-tamper proof material and locktite which seals both adjustment screws must be removed. The Model 770 Youth in .243 Win. was the first to be tested. On two of the first three guns firing occurred after impact with the mat in the horizontal orientation with the stock down, the sixth and last orientation tested. After this occurred it was discovered that:

- The adjustment screw that adjusts engagement had most likely moved since post test inspections showed that engagement was now under the initial set point. This was probably aggravated by the fact that the anti-tamper proof material and locktite set at the factory had to be removed in order to reset both the engagement and trigger pull. This was not reapplied after adjustment.
- The technician that set the trigger pull and engagement prior to test start set both characteristics to an incorrect specification. In both cases the set points were under those established for this model. In the case of the trigger pull the setting was 0.5 lbs. low and in the case of engagement it was 0.005" low.

After resetting both engagement and trigger pull on all five rifles to the correct minimum specifications all five samples of the Model 770 in .243 Win. caliber (the lightest Model 770 configuration) passed all orientations without issues. This test was repeated on five rifles in 7mm Rem. Mag. caliber (the heaviest Model 770 configuration) with the same results, a pass on all five guns in all six orientations.

3.5.1.2 SAAMI ROTATION (SAFE "ON", Rotate & fall onto mat on left and right sides)

This test was run after the JAR-OFF Test. Trigger pull and engagement were rechecked after the JAR-OFF test and readjusted to process minimums before conducting this test. All 10 rifles (5 - .243 Win Youth and 5 - 7mm Rem. Mag.) passed this test without issues.

3.5.1.3 SAAMI DROP (SAFE "ON", 4 ft. drop onto SAAMI mat in 6 orientations)

This test was run after the Rotation Test. Trigger pull and engagement were rechecked and readjusted to process minimums before starting. All 10 rifles (5 - .243 Win Youth and 5 - 7mm Rem. Mag.) passed this test without issues.

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Broken fire control inserts were found at the post test inspection in the tang area. This does not constitute a failure as long as an unintentional discharge does not take place and the firearm can be unloaded. SAAMI allows a new gun to be dropped in each new orientation, but this is typically not done to limit the number of samples required for testing. The accumulated abuse of six drops from a four foot distance on each sample rifle increased the likelihood of breaking inserts, cracking stocks, and loosing grip caps.

Summary tables showing trigger pull and engagement settings before and after each test along with test outcome can be found in Appendices C, D & E of this report.

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*Remington Arms Company Inc.*RESEARCH & DEVELOPMENT TECHNICAL CENTER
315 WEST RING ROAD
ELIZABETHTOWN, KY 42701**Appendix A – Headspace Before and After Proof**

Serial Number	Caliber	Initial Headspace- Min.+ (in.)	Proof (Pass/Fail)	2nd Headspace- Min.+ (in.)	Δ (in.)	Comments
71341120	300 Win Mag	0.004	Pass	0.004	0.000	
71342568	300 Win Mag	0.003	Pass	0.004	0.001	
71342630	300 Win Mag	0.003	Pass	0.004	0.001	
71342363	300 Win Mag	0.004	Pass	0.004	0.000	
71342450	300 Win Mag	0.004	Pass	0.004	0.000	
71342299	300 Win Mag	0.004	Pass	0.004	0.000	
71342511	300 Win Mag	0.004	Pass	0.004	0.000	
71342542	300 Win Mag	0.007	Pass	0.007	0.000	
71342293	300 Win Mag	0.004	Pass	0.004	0.000	
71342548	300 Win Mag	0.004	Pass	0.005	0.001	
71340834	.243 Win	0.001	Pass	0.002	0.001	
71340473	.243 Win	< Min.	Pass	< Min.	unknown	NOTE: Below Min. headspace, functions w/ std. ammo
71340831	.243 Win	0.001	Pass	0.002	0.001	
71340862	.243 Win	0.002	Pass	0.003	0.001	
71340864	.243 Win	0.001	Pass	0.002	0.001	
71347616	.243 Win	0.003	Pass	0.003	0.000	
71347832	.243 Win	0.003	Pass	0.004	0.001	
71347621	.243 Win	0.005	Pass	0.006	0.001	
71347622	.243 Win	0.004	Pass	0.004	0.000	
71347617	.243 Win	0.003	Pass	0.004	0.001	
71344614	7mm-08 Rem	0.003	Pass	0.004	0.001	
71344615	7mm-08 Rem	0.002	Pass	0.003	0.001	1st Proof damaged bolt shroud, New bolt installed & reproofed, OK on 2nd Proof
71344601	7mm-08 Rem	0.003	Pass	0.003	0.000	
71344612	7mm-08 Rem	0.003	Pass	0.003	0.000	
71344599	7mm-08 Rem	0.003	Pass	0.004	0.001	
71343958	30-06 SPRG	0.004	Pass	0.004	0.000	
71343953	30-06 SPRG	0.004	Pass	0.005	0.001	
71343954	30-06 SPRG	0.004	Pass	0.004	0.000	
71343942	30-06 SPRG	0.002	Pass	0.002	0.000	
71343940	30-06 SPRG	0.003	Pass	0.004	0.001	
71347529	7mm Rem Mag	0.005	Pass	0.005	0.000	
71350043	7mm Rem Mag	0.005	Pass	0.005	0.000	
71350044	7mm Rem Mag	0.003	Pass	0.003	0.000	
71350048	7mm Rem Mag	0.003	Pass	0.003	0.000	
71350052	7mm Rem Mag	0.004	Pass	0.004	0.000	
71350888	270 Win	0.004	Pass	0.004	0.000	
71350887	270 Win	0.005	Pass	0.005	0.000	
71350897	270 Win	0.004	Pass	0.004	0.000	
71350885	270 Win	0.004	Pass	0.004	0.000	
71350894	270 Win	0.003	Pass	0.004	0.001	
71351087	308 Win.	0.002	Pass	0.002	0.000	
71351089	308 Win.	0.003	Pass	0.003	0.000	
71351092	308 Win.	0.003	Pass	0.004	0.001	
71351101	308 Win.	0.003	Pass	0.003	0.000	
71351099	308 Win.	0.004	Pass	0.005	0.001	
Avg.		0.00347		0.00383	0.0004	
Std. Dev.		0.0009		0.0009	0.0005	
Max.		0.005		0.006	0.001	
Min.		< Min.		< Min.	0	

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Appendix B – Basic Jack Function

Gun #	Caliber	Rds. Fired	Ammo	Malfunctions by Type			Total Malif.	Malif. Rate (%)	Shooter(s)	Comments
				EJECTION	FEEDING	MISC.				
71341120	300 Win Mag	100	Rem. R300W2	1	0	0	1	1%	BL	
71342568	300 Win Mag	100	Rem. R300W2	0	0	0	0	0%	JS	
71342530	300 Win Mag	100	Rem. R300W2	0	0	0	0	0%	BL	
71342363	300 Win Mag	100	Rem. R300W2	0	0	0	0	0%	JS, BL	
71342450	300 Win Mag	100	Rem. R300W2	0	0	0	0	0%	BL	
71342299	300 Win Mag	50	Rem. R300W2	0	0	*	0	0%	JS	Magazine box latch not working - box falls out each shot
71342511	300 Win Mag	50	Rem. R300W2	0	0	*	0	0%	BL	Magazine box latch not working - box falls out
71342542	300 Win Mag	100	Rem. R300W2	0	0	0	0	0%	BL	
71342293	300 Win Mag	100	Rem. R300W2	0	0	*	0	0%	JS	Magazine latch problems started at round # 91 and on
71342548	300 Win Mag	100	Rem. R300W2	2	0	*	2	2%	JS, BL	Magazine latch problems started at round # 95 and on
71340834	.243 Win	50	Rem. R243W3	0	0	0	0	0%	BL	
71340473	.243 Win	50	Rem. R243W3	0	0	0	0	0%	BL	Bolt tight in receiver
71340831	.243 Win	20	Rem. R243W3	0	0	*	0	0%	BL	Magazine will not stay in gun - stopped at 20 rounds
71340882	.243 Win	50	Rem. R243W3	0	0	0	0	0%	BL	
71340884	.243 Win	0	n/a	-	-	-	-	-	-	Not tested - Magazine retention issues during accuracy
71347616	.243 Win	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71347832	.243 Win	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71347621	.243 Win	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71347622	.243 Win	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71347617	.243 Win	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71344614	7mm-08 Rem	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71344615	7mm-08 Rem	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71344601	7mm-08 Rem	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71344612	7mm-08 Rem	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71344599	7mm-08 Rem	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71343958	30-06 SPRG	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71343953	30-06 SPRG	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71343954	30-06 SPRG	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71343942	30-06 SPRG	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71343940	30-06 SPRG	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71347529	7mm Rem Mag	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71350043	7mm Rem Mag	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71350044	7mm Rem Mag	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71350048	7mm Rem Mag	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71350052	7mm Rem Mag	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71350088	270 Win	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71350887	270 Win	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71350897	270 Win	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71350885	270 Win	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71350894	270 Win	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71351087	308 Win.	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71351089	308 Win.	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71351092	308 Win.	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71351101	308 Win.	40	Rem. assorted	0	0	0	0	0%	JS, JW	
71351099	308 Win.	40	Rem. assorted	0	0	0	0	0%	JS, JW	Magazine latch difficult to operate
2270				3	0	0	3	0.1%		

April '07 – Trial & Pilot Test – Remington M/770 Centerfire Rifle;
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Appendix C – SAAMI JAR-OFF

Jar-Off Test													Comments
Gun	Caliber	Initial Trigger Pull (lbs.)	Init. Engagement (in.)	Vertical, Muzzle Up	Vertical, Muzzle Down	Horizontal, Left Side Up	Horizontal, Right Side Up	Horizontal, Bottom Up	Horizontal, Bottom Down	Final Trigger Pull (lbs.)	Final Engagement (in.)		
71340834	.243 Win (Youth)	4.607	0.0256	PASS	PASS	PASS	PASS	PASS	PASS	4.790	0.0260		
71340473	.243 Win (Youth)	4.531	0.0255	PASS	PASS	PASS	PASS	PASS	PASS	4.547	0.0275		
71340831	.243 Win (Youth)	4.562	0.0253	PASS	PASS	PASS	PASS	PASS	PASS	4.602	0.0252	Grip cap came off	
71340862	.243 Win (Youth)	4.514	0.0252	PASS	PASS	PASS	PASS	PASS	PASS	4.046	0.0255		
71340864	.243 Win (Youth)	4.548	0.0260	PASS	PASS	PASS	PASS	PASS	PASS	-	-	Trigger pull/engagement not measured after test	
	Avg.	4.552	0.0255	<-----BEFORE-----Vs-----AFTER----->							4.496	0.0261	
71347529	7mm Rem Mag	4.528	0.0250	PASS	PASS	PASS	PASS	PASS	PASS	4.293	0.0230		
71350043	7mm Rem Mag	4.541	0.0257	PASS	PASS	PASS	PASS	PASS	PASS	4.210	0.0225		
71350044	7mm Rem Mag	4.580	0.0251	PASS	PASS	PASS	PASS	PASS	PASS	4.189	0.0217		
71350048	7mm Rem Mag	4.633	0.0257	PASS	PASS	PASS	PASS	PASS	PASS	4.569	0.0253		
71350052	7mm Rem Mag	4.571	0.0254	PASS	PASS	PASS	PASS	PASS	PASS	3.908	0.0234		
	Avg.	4.571	0.0254	<-----BEFORE-----Vs-----AFTER----->							4.234	0.0232	

NOTE: During Jar-Off testing with the .243 Win. rifles the trigger pull and engagement were initially set to an incorrect (lower)specification. 2 Of 3 guns dropped failed Jar-Off in the last drop orientation. After resetting to correct specification and retesting no failures occurred. Data shown is with correct specification settings only.

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Appendix D – SAAMI ROTATION

Rotation Test								
Gun	Caliber	Initial Trigger Pull (lbs.)	Init. Engagement (in.)	Vertical, Left Side UP	Vertical, Right Side UP	Final Trigger Pull (lbs.)	Final Engagement (in.)	Comments
71340834	.243 Win (Youth)	4.509	0.0260	PASS	PASS	3.946	0.0256	
71340473	.243 Win (Youth)	4.586	0.0259	PASS	PASS	4.589	0.0256	
71340831	.243 Win (Youth)	4.577	0.0252	PASS	PASS	4.461	0.0252	
71340862	.243 Win (Youth)	4.542	0.0255	PASS	PASS	4.456	0.0253	
71340864	.243 Win (Youth)	4.548	0.0253	PASS	PASS	4.324	0.0253	
	Avg.	4.552	0.0256	<-BEFORE Vs AFTER->		4.355	0.0254	
71347529	7mm Rem Mag	4.530	0.0255	PASS	PASS	4.530	0.0256	
71350043	7mm Rem Mag	4.514	0.0255	PASS	PASS	4.263	0.0255	
71350044	7mm Rem Mag	4.504	0.0252	PASS	PASS	4.559	0.0251	
71350048	7mm Rem Mag	4.569	0.0253	PASS	PASS	4.526	0.0252	
71350052	7mm Rem Mag	4.548	0.0254	PASS	PASS	4.568	0.0257	
	Avg.	4.533	0.0254	<-BEFORE Vs AFTER->		4.489	0.0254	

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Appendix E – SAAMI DROP

Drop Test												
Gun	Caliber	Initial Trigger Pull (lbs.)	Init. Engagement (in.)	Vertical, Muzzle Up	Vertical, Muzzle Down	Horizontal, Left Side Up	Horizontal, Right Side Up	Horizontal, Bottom Up	Horizontal, Bottom Down	Final Trigger Pull (lbs.)	Final Engagement (in.)	Comments
71340834	.243 Win (Youth)	4.569	0.0256	PASS	PASS	PASS	PASS	PASS	PASS	5.847	0.0274	Magazine plate came off. Noticed insert tang broken at post test inspection.
71340473	.243 Win (Youth)	4.589	0.0256	PASS	PASS	PASS	PASS	PASS	PASS	4.420	0.0263	Bolt opened once. Noticed insert tang broken at post test inspection.
71340831	.243 Win (Youth)	4.510	0.0252	PASS	PASS	PASS	PASS	PASS	PASS	5.249	0.0276	Magazine box latch not working. Noticed insert tang broken at post test inspection.
71340862	.243 Win (Youth)	4.511	0.0253	PASS	PASS	PASS	PASS	PASS	PASS	4.416	0.0271	Noticed insert tang broken at post test inspection.
71340864	.243 Win (Youth)	4.563	0.0253	PASS	PASS	PASS	PASS	PASS	PASS	4.699	0.0262	Magazine plate & grip cap fell off, magazine fell out and will not latch.
	Avg.	4.548	0.0254	<-----BEFORE-----Vs-----AFTER----->						4.926	0.0269	
71347529	7mm Rem Mag	4.530	0.0256	PASS	PASS	PASS	PASS	PASS	PASS	4.608	0.0266	Insert & stock broken
71350043	7mm Rem Mag	4.519	0.0255	PASS	PASS	PASS	PASS	PASS	PASS	4.830	0.0273	Insert cracked on drop
71350044	7mm Rem Mag	4.559	0.0251	PASS	PASS	PASS	PASS	PASS	PASS	4.706	0.0248	
71350048	7mm Rem Mag	4.526	0.0252	PASS	PASS	PASS	PASS	PASS	PASS	4.400	0.0265	Insert cracked on 5th drop
71350052	7mm Rem Mag	4.568	0.0257	PASS	PASS	PASS	PASS	PASS	PASS	4.926	0.0254	Insert cracked on 5th drop
	Avg.	4.540	0.0254	<-----BEFORE-----Vs-----AFTER----->						4.694	0.0261	

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