

**REMINGTON ARMS COMPANY INC.
ILION, NY PLANT SITE**

**TECHNICAL DIVISION
TEST & MEASUREMENTS LAB**

TEST REPORT

Model Seven XMP Trigger Assembly T&P

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ABSTRACT:

Remington has redesigned its bolt action trigger assembly incorporating a number of new features. The new design, called the "X-Mark Pro™" was first released in the M/700 and is now being offered in the Model Seven. Figure 1 illustrates the M/700 version of the XMP trigger assembly. The Test Lab received a request to evaluate the first production run of Model Seven XMP trigger assemblies.

The samples of XMP trigger assemblies submitted individually, as trigger assemblies, and assembled to finished host rifles both passed testing successfully. Full test data from the host rifles is being furnished with this report as a convenience to Production and Manufacturing Engineering to assist them with any needed *rifle* follow-up activity.

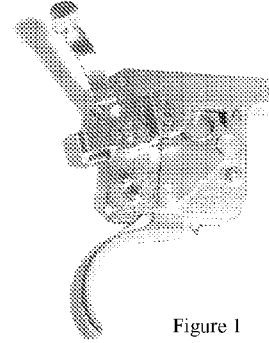


Figure 1

SCOPE:

Ten individual trigger assemblies and nine completely finished Model Seven 308 CDL rifles containing the XMP trigger assembly were received for testing.

Individual trigger assemblies were each subjected to dry-cycle testing to 10,000 cycles. Before the dry-cycling began, all trigger assemblies were checked for proper assembly and trigger-pull force and sear-lift was measured.

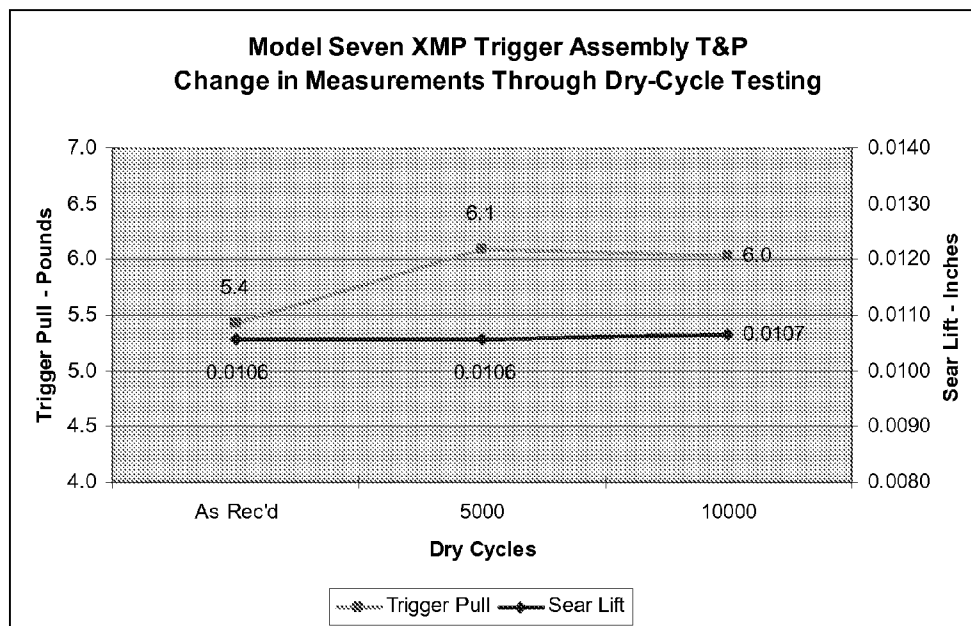
The finished rifles received a standard series of measurements including trigger-pull, sear-lift and safety operation force. Following the measurement phase each rifle was subjected to 200 rounds of jack-testing, 20 rounds of off-hand shooting from the shoulder and targeting. The safety was operated between each string of 5 rounds. The object of the extra shooting (off-hand and bench-rest targeting) was to assure that the trigger and safety were comfortable to operate and functioned properly.

RESULTS:**Dry-Cycle Summary:**

Each of the ten trigger assemblies were mounted in automated, computer-controlled fixtures that operate the bolt, the safety and the trigger in the same manner that a shooter would.

A complete bolt assembly and receiver are included in the setup. The bolt is fully cocked to load the sear, the safety is operated and then the trigger pulled to complete the cycle. The trigger assemblies received only lubrication attention. Trigger-pull and sear-lift measurements were taken after 5,000 cycles, half-way through the test.

All ten trigger assemblies endured the entire 10,000 dry-cycles without damage or parts working loose. The following graph shows a ½ pound increase in trigger-pull force even though the adjustment screws held tightly. Sear-lift is shown to have held steady throughout the test at just under .011 with a specification of .008 to .018.



Measurement Summary:

Measurements taken on all of the nine rifles received for testing were found to be within specifications as received. Initial measurement data is shown in the chart below:

Initial Measurements								
Serial #	Trigger Pull (lbs)	Safety Force (lbs)		Firing Pin Indent (in.)	Sear Lift (in.)	Bolt Lift Force (lbs)		Headspace Min + (in.)
		To On	To Off			Cocked	Fired	
7816136	3.8	2.7	1.4	0.0208	0.011	4.8	7.0	0.001
7821488Z	4.8	2.6	1.3	0.0207	0.012	5.0	6.6	0.003
7821557	4.5	5.8	3.0	0.0203	0.010	4.9	6.5	0.005
7821852	3.6	6.1	3.1	0.0203	0.012	4.2	6.2	0.001
7815077	3.8	5.9	2.7	0.0190	0.012	4.1	6.3	0.000
7820940	4.4	5.9	2.6	0.0185	0.012	4.4	6.1	0.000
7821396	3.8	2.7	1.4	0.0208	0.011	4.8	7.0	0.001
7821838	5.1	3.2	1.5	0.0205	0.010	4.3	7.2	0.004
7821023	4.5	5.6	4.6	0.0197	0.010	5.2	6.4	0.003
Average	4.3	4.5	2.4	0.0204	0.011	4.6	6.6	0.002

Visual examination of the rifles during the measurement phase revealed some notable items. Some of the rifles had sights; some had plain barrels or sight holes with no sights assembled. This condition was known however and was allowed to facilitate the expedition of sample rifles to host the XMP trigger assembly Trial & Pilot.

Another visual item noted was the tendency for the safety button to contact the right side of the bolt plug. The contact did not interfere with operation of the safety. The visual observations are summarized in the following chart and the safety button rub is depicted in the images at figures 2 and 3.

Serial #	Comments	
	Sights	Safety Arm
7815136	OK	Rubs bolt plug
7821468Z	No Sights (drilled & tapped)	Rubs bolt plug
7821557	No Sights (drilled & tapped)	Rubs bolt plug
7821852	No Sights (NOT drilled & tapped)	Rubs bolt plug
7815077	OK	OK
7820940	OK	Rubs bolt plug
7821396	OK	Rubs bolt plug
7821838	No Sights (NOT drilled & tapped)	OK
7821023	No Sights (drilled & tapped)	Rubs bolt plug

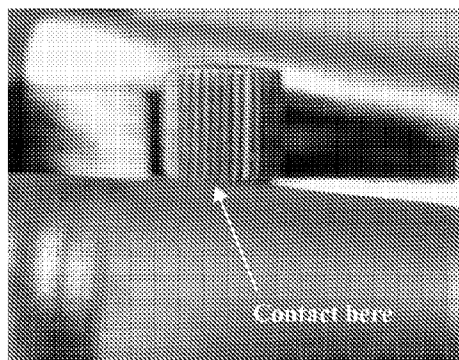


Figure 2

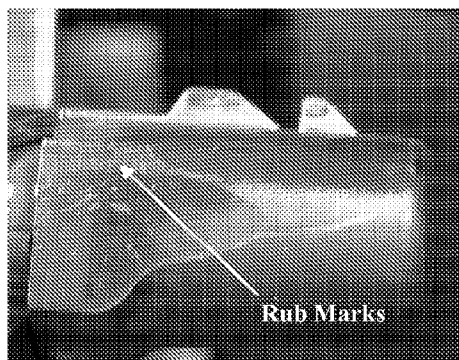


Figure 3

Jack-Test Summary:

Jack testing was completed with an overall malfunction rate of 2.8%. There were no malfunctions chargeable to the trigger assembly and all were related to feeding.

MALFUNCTIONS SORTED BY SERIAL NUMBER									
Serial #	# of Malf	# of Rds. Fired	Malf. Rate	BOR	SI	SLC	SOR	SRC	SC
7815136	13	200	6.5%	1			12		
7821468Z	2	200	1.0%			1	1		
7821557	5	200	2.5%				5		
7821852	3	200	1.5%		3				
7815077	3	200	1.5%				3		
7820940	2	200	1.0%				2		
7821396	8	200	4.0%		1		7		
7821838	14	200	7.0%	2			4	1	7
7821023	0	200	0.0%						
TOTALS	50	1800	2.8%	3	4	1	34	1	7

Ammunition		Description
Remington	R308W1	150 gr Core-Lokt PSP

BOR	Bolt Over Ride
SI	Stems Incline
SLC	Stems Left Chamber
SOR	Stem Override
SRC	Stems Right Chamber
SC	Stems Chamber

Two of the nine rifles experienced a larger number of malfunctions than the rest. The SC malfunctions encountered in rifle 7821838 were related the magazine follower binding against the left wall of the magazine while attempting to feed the last round.

Shoulder-Test Summary:

The shoulder test was performed to simulate field shooting in standing "off-hand" position. The XMP trigger assembly performed well with smooth operation of both the safety and the trigger. The rifle malfunction rate overall was similar from the shoulder to the results obtained from the test jack.

MALFUNCTIONS SORTED BY SERIAL NUMBER						
Serial #	# of Malf	# of Rds. Fired	Malf. Rate	SLC	SOR	SRC
7815136	1	20	5.0%		1	
7821468Z	3	20	15.0%	2		1
7821557	0	20	0.0%			
7821852	0	20	0.0%			
7815077	1	20	5.0%			1
7820940	0	20	0.0%			
7821396	1	20	5.0%		1	
7821838	0	20	0.0%			
7821023	0	20	0.0%			
TOTALS	6	180	3.3%	2	2	2

MALFUNCTIONS SORTED BY AMMO						
Ammo	# of Malf	# of Rds. Fired	Malf. Rate	SLC	SOR	SRC
R308W1	3	90	3.3%	1	1	1
R308W2	3	90	3.3%	1	1	1
TOTALS	6	180	3.3%	2	2	2

Ammunition		Description
Remington	R308W1	150 gr Core-Lokt PSP
Remington	R308W2	180 gr Core-Lokt SP

SLC	Stems Left Chamber
SOR	Stem Override
SRC	Stems Right Chamber

Accuracy-Test Summary:

The accuracy test was performed from a bench rest with the rifle shouldered creating another opportunity to sense the operation of the trigger and the safety in “real-world” conditions. Again, the XMP trigger assembly performed extremely well with good, crisp release of the trigger and good safety operation.

The Model Seven is normally tested for accuracy using 3-shot groups due to the small profile of the barrel and rapid heating. The 3-shot group size specification for 308 Win is 2.0 inches. The overall 9-gun average was 2.52 inches.

