

April, 2000

Date Submitted: 0

Project #: 241314

Test Objective: T
Std. SAAMI Jar-off

Steven Wade

ring

Test Description: Test 6 new M/710 Magnum rifle for SAAMI Jar-off.

1. Measure breakaway torque of scope ring mounting screws when loosening.
2. Measure breakaway torque of all take down screws when removing stocks.
3. Measure Trigger/Sear engagement as set by the factory.
4. Measure Trigger Pull as set by the factory.
5. Reset Engagement as needed to .025"
6. Reset Trigger as needed to 4.5 lb.
7. Reassemble with stock & scope to using torque specs.
8. Perform Standard SAAMI Jar-off testing of all guns.

Per our normal procedure if a gun fires during testing, leave the gun as it was dropped and contact a member of management or engineering.

Resource Usage:
Manpower Requirements –

Facility Requirements –

Test Results Required:
Formal Report: Data Only:

Requested Completion Date: 02/06/04

Required Materials/Parts/Equipment (include quantities):

Test Parts Availability Date: 02/06/04

Start Date: 2/6/04

Completion Date: 2/9/04

Report Date: 2/9/04

Test Assigned To: Steve Wade & Jeff Wade

Assignment Date: 02/06/05

ET20062

Test Lab Work Request Form

Rev.3 -20 April, 2000

Date Submitted: 02/06/04	Tracking #: TLW 1395
Project #: 241314	Engineer: Franz
Test Objective: Test 710 Magnum Firecontrol performance at new settings during Std. SAAMI Jar-off testing	
Test Description: Test 6 new M/710 Magnum rifle for SAAMI Jar-off. 1. Measure breakaway torque of scope ring mounting screws when loosening. 2. Measure breakaway torque of all take down screws when removing stocks. 3. Measure Trigger/Sear engagement as set by the factory. 4. Measure Trigger Pull as set by the factory. 5. Reset Engagement as needed to .025" 6. Reset Trigger as needed to 4.5 lb. 7. Reassemble with stock & scope to using torque specs. 8. Perform Standard SAAMI Jar-off testing of all guns. Per our normal procedure if a gun fires during testing, leave the gun as it was dropped and contact a member of management or engineering.	
Resource Usage: Manpower Requirements – Facility Requirements –	Test Results Required: Formal Report: Data Only: Requested Completion Date: 02/06/04
Required Materials/Parts/Equipment (include quantities):	
Test Parts Availability Date: 02/06/04	
Start Date: 2/6/04 Completion Date: 2/9/04 Report Date: 2/9/04	Test Assigned To: Steve Wade & Jeff Wade Assignment Date: 02/06/05

ET20063

PROJECT # 241314

710 OUT OF BOX MEASUREMENTS

TRACKING # TLW1395

SERIAL # 71146753	TORQUE OF SCOPE FRONT TAKE DOWN SCREW 26 INCH LB.	TORQUE OF SCOPE REAR TAKE DOWN SCREW 30 INCH LB.			
	TORQUE OF STOCK FRONT TAKE DOWN SCREW 35 INCH LB.	TORQUE OF STOCK MIDDLE TAKE DOWN SCREW 22 INCH LB.	TORQUE OF STOCK REAR TAKE DOWN SCREW 17 INCH LB.		
ENGAGEMENT	1 0.0311	2 0.0312	3 0.0308	AVG 0.03103	
TRIGGER PULL	1	2	3	4	5
TRIGGER SCAN	5.998	6.063	6.138	5.559	5.733
SPRING SCALE	6.0	5.75	6.0	6.0	5.75
SERIAL # 71147098	TORQUE OF SCOPE FRONT TAKE DOWN SCREW 30 INCH LB.	TORQUE OF SCOPE REAR TAKE DOWN SCREW 35 INCH LB.			
	TORQUE OF STOCK FRONT TAKE DOWN SCREW 30 INCH LB.	TORQUE OF STOCK MIDDLE TAKE DOWN SCREW 25 INCH LB.	TORQUE OF STOCK REAR TAKE DOWN SCREW 11 INCH LB.		
ENGAGEMENT	1 0.0297	2 0.0298	3 0.0300	AVG 0.0298	
TRIGGER PULL	1	2	3	4	5
TRIGGER SCAN	5.128	5.439	5.154	5.306	5.198
SPRING SCALE	5.50	5.75	5.50	5.75	5.75
SERIAL # 71146744	TORQUE OF SCOPE FRONT TAKE DOWN SCREW 35 INCH LB.	TORQUE OF SCOPE REAR TAKE DOWN SCREW 26 INCH LB.			
	TORQUE OF STOCK FRONT TAKE DOWN SCREW 33 INCH LB.	TORQUE OF STOCK MIDDLE TAKE DOWN SCREW 25 INCH LB.	TORQUE OF STOCK REAR TAKE DOWN SCREW 16 INCH LB.		

BARBER - 5.22.06P0003685

Confidential - ~~SPRINGER~~ - 5028010003685 Order
Williams v. Remington

ET20064

PROJECT # 241314

710 OUT OF BOX MEASUREMENTS

TRACKING # TLW1395

ENGAGEMENT	1	2	3	AVG		
	0.0307	0.0307	0.0308	0.03073		
TRIGGER PULL	1	2	3	4	5	AVG
TRIGGER SCAN	4.844	4.749	4.747	4.963	4.745	4.810
SPRING SCALE	5.25	5.25	5.50	5.25	5.25	5.300
SERIAL # 71147044	TORQUE OF SCOPE FRONT TAKE DOWN SCREW 25 INCH LB.	TORQUE OF SCOPE REAR TAKE DOWN SCREW 20 INCH LB.				
	TORQUE OF STOCK FRONT TAKE DOWN SCREW 30 INCH LB.	TORQUE OF STOCK MIDDLE TAKE DOWN SCREW 25 INCH LB.	TORQUE OF STOCK REAR TAKE DOWN SCREW 12 INCH LB.			
ENGAGEMENT	1	2	3	AVG		
	0.0303	0.0302	0.0304	0.03030		
TRIGGER PULL	1	2	3	4	5	AVG
TRIGGER SCAN	4.755	4.863	4.859	4.755	4.769	4.794
SPRING SCALE	5.0	5.0	5.25	5.25	5.50	5.200
SERIAL # 71147034	TORQUE OF SCOPE FRONT TAKE DOWN SCREW 52 INCH LB.	TORQUE OF SCOPE REAR TAKE DOWN SCREW 25 INCH LB.				
	TORQUE OF STOCK FRONT TAKE DOWN SCREW 34 INCH LB.	TORQUE OF STOCK MIDDLE TAKE DOWN SCREW 17 INCH LB.	TORQUE OF STOCK REAR TAKE DOWN SCREW 18 INCH LB.			
ENGAGEMENT	1	2	3	AVG		
	0.0318	0.0315	0.0318	0.03170		
TRIGGER PULL	1	2	3	4	5	AVG
TRIGGER SCAN	5.434	5.547	5.468	5.586	5.286	5.464
SPRING SCALE	5.25	5.25	5.50	5.50	5.25	5.350

BARBER - 5.22.06r0003686

PROJECT # 241314

710 OUT OF BOX MEASUREMENTS

TRACKING # TLW1395

SERIAL # 71147082	TORQUE OF SCOPE FRONT TAKE DOWN SCREW 30 INCH LB.	TORQUE OF SCOPE REAR TAKE DOWN SCREW 40 INCH LB.				
	TORQUE OF STOCK FRONT TAKE DOWN SCREW 32 INCH LB.	TORQUE OF STOCK MIDDLE TAKE DOWN SCREW 23 INCH LB.	TORQUE OF STOCK REAR TAKE DOWN SCREW 13 INCH LB.			
ENGAGEMENT	1 0.0304	2 0.0306	3 0.0304	AVG 0.03046		
TRIGGER PULL	1 5.226	2 5.302	3 5.220	4 5.259	5 5.324	AVG 5.266
SPRING SCALE	5.75	5.75	5.25	5.50	5.50	5.550

TLW 1395

Project No. 241314

300 Win Mag

S.A.A.M.I. JAR-OFF, DROP & ROTATION TEST**JAR-OFF TEST**

Firecontrol No. _____ Firecontrol Type: Standard Date: 2/6/04
 Dry Cycles/Rounds Completed: _____ Stock Type Syn
 Engagement at Start (1) .0251 (2) .0249 (3) .0251 Average .02503
 Engagement at End (1) .0245 (2) .0245 (3) .0242 Average .02440
 Model No. 710 Serial No. 71146753
 Trigger Pull at Start of Test (1) 4.593 (2) 4.518 (3) 4.607 (4) 4.531 (5) 4.579
 Average Trigger Pull at Start of Test: 4.566 Std. Dev. of Trigger Pull at Start of Test: _____
 Trigger Pull at End of Test (1) 4.506 (2) 4.149 (3) 4.195 (4) 4.210 (5) 4.239
 Average Trigger Pull at End of Test: 4.260 Std. Dev. of Trigger Pull at End of Test: _____
 Tester Initials: SW/JW
 Additional Notes and Comments

For additional details on the proper procedures to be used for this Test Procedure refer to:

ANSI/SAAMI Z299.5-1990

SAAMI Specifications for Standard Jar-Off Test:

Jar-Off Test: 12-inch drop - onto 1" thick 85 Durometer (Shore A) Rubber Matt
 Firearm ready to fire, Safe in "Fire" position, Fresh Primed Case in
 Chamber, Magazine loaded to capacity with Dummy Rounds.
 After each drop, fire Primed Case to verify firearm will still function.

12 inch drop (safety in "Fire" position) - one drop per orientation.

Note: for Firearms with the ISS system installed - The ISS will be set in the unlocked

position for all six orientations of the Jar-Off Test

<u>Orientation</u>	<u>ISS Unlocked</u>	<u>Comments</u>
Barrel Vertical, Muzzle Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Vertical, Muzzle Down:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Left side of Stock Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Right side of Stock Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Bottom of Stock Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Bottom of Stock Down:	Pass <input checked="" type="checkbox"/> Fail _____	_____

Notes: (continue on back of sheet if necessary)

Tester's Initials SW/JW

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ET20067

TLW 1395

Project No. 241314

300 Win Mag

S.A.A.M.I. JAR-OFF, DROP & ROTATION TEST**JAR-OFF TEST**

Firecontrol No. _____ Firecontrol Type: Standard Date: 2/6/04
 Dry Cycles/Rounds Completed: _____ Stock Type Syn
 Engagement at Start (1) .0252 (2) .0252 (3) .0251 Average .02516
 Engagement at End (1) .0252 (2) .0254 (3) .0251 Average .02523
 Model No. 710 Serial No. 71147098
 Trigger Pull at Start of Test (1) 4.638 (2) 4.608 (3) 4.458 (4) 4.634 (5) 4.407
 Average Trigger Pull at Start of Test: 4.549 Std. Dev. of Trigger Pull at Start of Test: _____
 Trigger Pull at End of Test (1) 4.581 (2) 4.410 (3) 4.497 (4) 4.460 (5) 4.602
 Average Trigger Pull at End of Test: 4.498 Std. Dev. of Trigger Pull at End of Test: _____
 Tester Initials: SW/JW
 Additional Notes and Comments _____

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For additional details on the proper procedures to be used for this Test Procedure refer to:

ANSI/SAAMI Z299.5-1990

SAAMI Specifications for Standard Jar-Off Test:

Jar-Off Test: 12-inch drop - onto 1" thick 85 Durometer (Shore A) Rubber Matt
 Firearm ready to fire, Safe in "Fire" position, Fresh Primed Case in
 Chamber, Magazine loaded to capacity with Dummy Rounds.
 After each drop, fire Primed Case to verify firearm will still function.

12 inch drop (safety in "Fire" position) - one drop per orientation.

*Note: for Firearms with the ISS system installed - The ISS will be set in the unlocked
 position for all six orientations of the Jar-Off Test*

<u>Orientation</u>	<u>ISS Unlocked</u>	<u>Comments</u>
Barrel Vertical, Muzzle Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Vertical, Muzzle Down:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Left side of Stock Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Right side of Stock Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Bottom of Stock Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Bottom of Stock Down:	Pass <input checked="" type="checkbox"/> Fail _____	_____

Notes: (continue on back of sheet if necessary)

Tester's Initials SW/JW

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TLW 1295

Project No. 241314

300 Win Mag

S.A.A.M.I. JAR-OFF, DROP & ROTATION TEST**JAR-OFF TEST**Firecontrol No. _____ Firecontrol Type: Standard Date: 2/6/04Dry Cycles/Rounds Completed: _____ Stock Type SynEngagement at Start (1) .0249 (2) .0251 (3) .0251 Average .02503Engagement at End (1) .0249 (2) .0249 (3) .0250 Average .02493Model No. 710 Serial No. 71146744Trigger Pull at Start of Test (1) 4.672 (2) 4.467 (3) 4.552 (4) 4.475 (5) 4.552Average Trigger Pull at Start of Test: 4.544 Std. Dev. of Trigger Pull at Start of Test: _____Trigger Pull at End of Test (1) 4.582 (2) 4.481 (3) 4.372 (4) 4.409 (5) 4.525Average Trigger Pull at End of Test: 4.474 Std. Dev. of Trigger Pull at End of Test: _____Tester Initials: SW/JW

Additional Notes and Comments

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*For additional details on the proper procedures to be used for this Test Procedure refer to:**ANSI / SAAMI Z299.5-1990****SAAMI Specifications for Standard Jar-Off Test:***

Jar-Off Test: 12-inch drop onto 1" thick 85 Durometer (Shore A) Rubber Matt
 Firearm ready to fire, Safe in "Fire" position, Fresh Primed Case in
 Chamber, Magazine loaded to capacity with Dummy Rounds.
 After each drop, fire Primed Case to verify firearm will still function.

12 inch drop (safety in "Fire" position) - one drop per orientation.

Note: for Firearms with the ISS system installed - The ISS will be set in the ***unlocked***
 position for all six orientations of the Jar-Off Test

<u>Orientation</u>	<u>ISS Unlocked</u>	<u>Comments</u>
Barrel Vertical, Muzzle Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Vertical, Muzzle Down:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Left side of Stock Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Right side of Stock Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Bottom of Stock Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Bottom of Stock Down:	Pass <input checked="" type="checkbox"/> Fail _____	_____

Notes: (continue on back of sheet if necessary)

Tester's Initials SW/JW

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TLW 1395

Project No. 241314

300 Win Mag

S.A.A.M.I. JAR-OFF, DROP & ROTATION TEST**JAR-OFF TEST**

Firecontrol No. _____ Firecontrol Type: Standard Date: 2/6/04
 Dry Cycles/Rounds Completed: _____ Stock Type Syn
 Engagement at Start (1) .0253 (2) .0253 (3) .0252 Average .02526
 Engagement at End (1) .0252 (2) .0252 (3) .0253 Average .02523
 Model No. 710 Serial No. 71147044
 Trigger Pull at Start of Test (1) 4.585 (2) 4.596 (3) 4.412 (4) 4.539 (5) 4.540
 Average Trigger Pull at Start of Test: 4.534 Std. Dev. of Trigger Pull at Start of Test: _____
 Trigger Pull at End of Test (1) 4.533 (2) 4.542 (3) 4.397 (4) 4.492 (5) 4.480
 Average Trigger Pull at End of Test: 4.489 Std. Dev. of Trigger Pull at End of Test: _____
 Tester Initials: SW | JW
 Additional Notes and Comments

For additional details on the proper procedures to be used for this Test Procedure refer to:

ANSI/SAAMI Z299.5-1990

SAAMI Specifications for Standard Jar-Off Test:

Jar-Off Test: 12-inch drop - onto 1" thick 85 Durometer (Shore A) Rubber Matt
 Firearm ready to fire, Safe in "Fire" position, Fresh Primed Case in
 Chamber, Magazine loaded to capacity with Dummy Rounds.
 After each drop, fire Primed Case to verify firearm will still function.

12 inch drop (safety in "Fire" position) - one drop per orientation.

Note: for Firearms with the ISS system installed - The ISS will be set in the unlocked
position for all six orientations of the Jar-Off Test

Orientation	ISS Unlocked	Comments
Barrel Vertical, Muzzle Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Vertical, Muzzle Down:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Left side of Stock Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Right side of Stock Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Bottom of Stock Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Bottom of Stock Down:	Pass <input checked="" type="checkbox"/> Fail _____	_____

Notes: (continue on back of sheet if necessary)

Tester's Initials SW | JW

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ET20070

TLW 1395Project No. 241314300 Win Mag**S.A.A.M.I. JAR-OFF, DROP & ROTATION TEST****JAR-OFF TEST**

Firecontrol No. _____ Firecontrol Type: Standard Date: 2/6/03
 Dry Cycles/Rounds Completed: _____ Stock Type Syn
 Engagement at Start (1) .0254 (2) .0255 (3) .0252 Average .02536
 Engagement at End (1) .0252 (2) .0256 (3) .0253 Average .02536
 Model No. 710 Serial No. 71147034
 Trigger Pull at Start of Test (1) 4.449 (2) 4.493 (3) 4.553 (4) 4.595 (5) 4.424
 Average Trigger Pull at Start of Test: 4.503 Std. Dev. of Trigger Pull at Start of Test: _____
 Trigger Pull at End of Test (1) 4.078 (2) 4.064 (3) 4.061 (4) 4.007 (5) 3.945
 Average Trigger Pull at End of Test: 4.031 Std. Dev. of Trigger Pull at End of Test: _____
 Tester Initials: SW/SW
 Additional Notes and Comments _____

For additional details on the proper procedures to be used for this Test Procedure refer to:

ANSI / SAAMI Z299.5-1990

SAAMI Specifications for Standard Jar-Off Test:

Jar-Off Test: 12 inch drop - onto 1" thick 85 Durometer (Shore A) Rubber Matt
 Firearm ready to fire, Safe in "Fire" position, Fresh Primed Case in
 Chamber, Magazine loaded to capacity with Dummy Rounds.
 After each drop, fire Primed Case to verify firearm will still function.
 12 inch drop (safety in "Fire" position) - one drop per orientation.

Note: for Firearms with the ISS system installed - The ISS will be set in the unlocked

position for all six orientations of the Jar-Off Test

Orientation	ISS Unlocked	Comments
Barrel Vertical, Muzzle Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Vertical, Muzzle Down:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Left side of Stock Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Right side of Stock Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Bottom of Stock Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Bottom of Stock Down:	Pass <input checked="" type="checkbox"/> Fail _____	_____

Notes: (continue on back of sheet if necessary)

Tester's Initials SW/SW

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TLW 1395

Project No. 241314

300 Win Mag S.A.A.M.I. JAR-OFF, DROP & ROTATION TEST

JAR-OFF TEST

Firecontrol No. _____ Firecontrol Type: Standard Date: 2/6/04
 Dry Cycles/Rounds Completed: _____ Stock Type: Syn
 Engagement at Start (1) .0254 (2) .0254 (3) .0256 Average .02546
 Engagement at End (1) .0249 (2) .0249 (3) .0249 Average .02490
 Model No. 710 Serial No. 71147087
 Trigger Pull at Start of Test (1) 4.524 (2) 4.588 (3) 4.471 (4) 4.455 (5) 4.489
 Average Trigger Pull at Start of Test: 4.509 Std. Dev. of Trigger Pull at Start of Test: _____
 Trigger Pull at End of Test (1) 4.502 (2) 4.533 (3) 4.585 (4) 4.510 (5) 4.563
 Average Trigger Pull at End of Test: 4.539 Std. Dev. of Trigger Pull at End of Test: _____
 Tester Initials: SW/JW
 Additional Notes and Comments _____

For additional details on the proper procedures to be used for this Test Procedure refer to:

ANSI/SAAMI Z299.5-1990

SAAMI Specifications for Standard Jar-Off Test:

Jar-Off Test: 12-inch drop - onto 1" thick 85 Durometer (Shore A) Rubber Matt
 Firearm ready to fire, Safe in "Fire" position, Fresh Primed Case in
 Chamber, Magazine loaded to capacity with Dummy Rounds.
 After each drop, fire Primed Case to verify firearm will still function.

12 inch drop (safety in "Fire" position) - one drop per orientation.

Note: for Firearms with the ISS system installed - The ISS will be set in the unlocked
 position for all six orientations of the Jar-Off Test

<u>Orientation</u>	<u>ISS Unlocked</u>	<u>Comments</u>
Barrel Vertical, Muzzle Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Vertical, Muzzle Down:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Left side of Stock Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Right side of Stock Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Bottom of Stock Up:	Pass <input checked="" type="checkbox"/> Fail _____	_____
Barrel Horizontal, Bottom of Stock Down:	Pass <input checked="" type="checkbox"/> Fail _____	_____

Notes: (continue on back of sheet if necessary)

Tester's Initials SW/JW

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