

REMINGTON ARMS COMPANY, INC.
ILION RESEARCH DIVISION
March 5, 1965

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LAMINATED STOCK EVALUATION
M-600

The following investigation was conducted on the M-600 laminated stock and a normal walnut stock. A laminated stock was used on the control sample.

The purpose of the tests that follow is to compare the effects of humidity and temperature on the laminated stock vs. a homogeneous walnut stock with regards mainly to point of impact stability.

Test (1)

Determine accuracy and point of impact of each of 3 guns.

31223	No. 1 gun	control gun Laminated Stock	3.1
31222	No. 2 gun	test sample Laminated Stock	3.1
31116	No. 3 gun	test sample Walnut Stock	3.1

Test (2)

Determine accuracy and point of impact after guns 2 & 3 were stored for 90 hours at 150° F and 95% humidity. Control gun stored in rack at existing conditions in plant.

Test (3)

Determine accuracy and point of impact of guns 2 & 3 after being stored for 168 hours (1 week) at 150° F and 10% humidity. Control gun stored in rack at existing conditions in plant.

The tests are tabulated on attached sheets as is a diagram showing progressive group sizes and points of impact.

LAMINATED STOCK EVALUATION
M-600

CONCLUSIONS AND OBSERVATIONS:

1. The control gun and the test sample with the laminated stock performed inside of the range of the walnut stock in regards to change in point of impact.
2. A larger sampling of guns with both types of stock should be used to give substantial weight to this "better" performance. Indications are, however, from this limited testing, that the laminated type of stock will maintain a more stable point of impact during changes in its external environment.

M/600 - LAMINATED STOCK TEST - 1-12 - 1-28-65

CONDITIONS OF TEST:

1. All stocks bedded with epoxy in recoil shoulder slot.
2. Front trigger guard screws tightened 60 in.-lb. torque.
3. Weight of stocks checked: Equal.
4. Both laminated stock fired by hand (inaccuracy device) because of a problem involving accuracy machine. Shot this way complete test.
5. Walnut stock had 30 lbs. more air pressure applied to comb because there was no recoil pad on stock.
6. Ribs of both guns warped considerably after taking them out of environmental cabinet.
7. Metal surfaces of #31116 and # 31250 were coated with grease before putting them in cabinet the first time - (Test # 2).
8. They were not greased the second time because of high temp (150°F) and low humidity, (10%).
9. Trigger guard plates bulged at bottom in both rifles.

CBW:ep


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MODEL 600 .350 MAG. LAMINATED STOCK TEST - 1/12/65

RIFLES USED

- #1 - M/600 .350 Rem. Mag. - Serial No. 31233
 Acquired from C.O. Pardee, plant gallery foreman, to be
 used as control gun (standard production gun at that time).
- #2 - M/600 .350 Rem. Mag. - Serial No. 31250
 Standard production laminated stock
- #3 - M/600 .350 Rem. Mag. - Serial No. 31116
 Stock is modified M/600 35 Rem.

TEST NO. 1

Ammunition used through all tests: Rem 350 Mag 200 gr SPCL #DO9U

- A. Test was conducted in plant gallery using accuracy device.
 Three seater shots were fired before groups were started.
 Three five-shot groups were fired through each gun.
- B. Point of impact was established from shoulder using open sights by
 L. Evans, production personnel.
- C. All groups were measured center to center and recorded.

THREE FIVE-SHOT GROUPS PER GUN
 (Center - Center Measurement)

#31116 - Plain Stock	Spread	
	Horizontal	Vertical
Group Size		
#1 - 3.000	.950	3.000
#2 - 1.800	1.000	1.800
#3 - 3.000	.680	2.950
Total 7.800	2.630	7.750
Avg. 2.600	.870	2.580

TEST NO. 1 Continued

#31250 - Laminated Stock	Spread	
	Horizontal	Vertical
Group Size		
#1 - 3.700	2.850	3.200
#2 - 3.750	1.950	3.250
#3 - <u>1.850</u>	<u>1.500</u>	<u>1.100</u>
Total 9.300	6.300	7.550
Avg. 3.100	2.100	2.510

#31233 - Control Gun - Laminated Stock

#1 - 4.050	1.680	4.000
#2 - 3.700	1.700	2.300
#3 - <u>1.150</u>	<u>1.000</u>	<u>.950</u>
Total 8.900	4.380	7.250
Avg. 2.966	1.460	2.410

Groups shot by machine (Shooter - Earl Palmer)

POINT OF IMPACT
(One Five-Shot Group per Rifle)

#31116 - Plain Stock

Group Size - 1.800
 .650 Low)
 .200 Left) Point of impact

#31250 - Laminated Stock

Group Size - 1.000
 .600 High)
 .320 Left) " " "

#31233 - Control Gun - Laminated Stock

Group Size - 1.800
 1.500 High)
 .500 Left) " " "

All three groups shot from shoulder by Lou Evans (with open sights).

TEST NO. 2

1/18/65

After Test No. 1 was completed in the Gallery, guns #2 and #3 were placed in the environmental cabinet:

Temperature	150° F.
Humidity	90 - 95%
Time in cabinet	90 hours

Guns were immediately taken to the Gallery to repeat Test No. 1. Results follow.

TEST NO. 2 ContinuedLAMINATED STOCKS VS. PLAIN STOCKS

ACCURACY

All Rifles Shot from Machine

- #1 - Plain Stock - #31116 - 3-5 shot groups
 Started shooting 10:25 am
 Safe extremely hard to put on
 Rib warped
 Gun fired automatically
- #2 - Laminated Stock #31250 - 3-5 shot groups
 Started shooting 10:30 am
 Safe extremely hard to put on
 Rib warped - all openings
 Trigger pulled by hand, in machine
- #3 - Control Gun - Laminated Stock #31233 - 3-5 shot groups
 Gun fired by hand, in machine
 Safe - ok
 Rib - ok

POINT OF IMPACT

One five-shot group through each rifle,
 from the shoulder. No adjustments made.
 Shot by Lou Evans

- #1 - 31116 - Shot 10:35 am
 #2 - 31250 - Shot 10:38 am
 #3 - 31233 - Control gun

Total time after taken from cabinet - 25 minutes

GROUPS FOR ALL THREE RIFLES
 Three Five-Shot Groups per Gun

#31116 - Plain Stock	Group Size	Spread	
		Horizontal	Vertical
#1 - 2.000		1.950	1.720
#2 - 2.700		1.720	2.450
#3 - 5.100		2.450	5.000
Total	9.800	6.120	9.170
Avg.	3.266	2.040	3.050

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TEST NO. 2 Continued

#31250 - Laminated Stock	Spread	
<u>Group Size</u>	<u>Horizontal</u>	<u>Vertical</u>
#1 - 2.000	1.950	1.600
#2 - 3.600	3.450	1.600
#3 - <u>1.800</u>	<u>1.500</u>	<u>1.250</u>
Total 7.400	6.900	4.450
Avg. 2.466	2.300	1.480

#31233 - Control Gun - Laminated Stock

#1 - 3.800	1.500	3.600
#2 - 3.400	.600	3.300
#3 - <u>2.250</u>	<u>2.250</u>	<u>2.250</u>
Total 9.450	4.350	9.150
Avg. 3.150	1.450	3.050

Shot from machine (Shooter - Earl Palmer)

POINT OF IMPACT
Five Shots per Group

#31116 - Plain Stock

Group Size - 1.750	
.800 Right)	
.600 High)	Point of impact

#31250 - Laminated Stock

Group Size - 3.200	
.150 Left)	" " "
1.100 High)	

#31233 - Control Gun - Laminated Stock

Group Size - 5.000	
.400 Left)	" " "
2.350 High)	

All groups shot from the shoulder by Lou Evans

TEST NO. 3

1/25/65

After completing Test No. 2 guns #31116 and #31250 were put in the environmental cabinet again:

Time in cabinet Monday, 1/18/65 to Monday, 1/25/65
 Temperature 150°
 Humidity 10%

Guns were then taken to Gallery to repeat Test No. 2.

Results were as follows:

GROUPS FOR ALL THREE RIFLES
 Three Five-Shot Groups per Gun

#31116 - Plain Stock	Group Size	Spread	
		Horizontal	Vertical
#1 - 2.360		.580	2.360
#2 - 3.150		.250	3.100
#3 - <u>3.420</u>		<u>1.540</u>	<u>3.170</u>
Total 8.930		2.370	8.630
Avg. 2.970		.790	2.870

#31250 - Laminated Stock

#1 - 1.650	.950	1.650
#2 - 1.900	1.600	1.600
#3 - <u>2.200</u>	<u>1.100</u>	<u>2.050</u>
Total 5.750	3.650	5.300
Avg. 1.910	1.210	1.760

#31233 - Control Gun - Laminated Stock

#1 - 2.100	2.050	1.400
#2 - 1.850	1.750	.800
#3 - <u>1.400</u>	<u>1.000</u>	<u>1.200</u>
Total 5.350	4.800	3.400
Avg. 1.780	1.600	1.130

Groups shot from machine (Shooter - Lou Evans)