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February 11, 1938

TO: S. H. Allen

FROM: W. E. Lock

SUBJECT: ACCURACY TEST MODEL 722 - 222 CAL. -
BRASSED AND FRONT SIGHT RAMP

Twenty-five Model 722 Rifles in the 222-Cal. were selected at random for an accuracy comparison test involving soldered and brass Front Sight Ramps. Tests measurements were made before and after ramping after which six 5-shot groups were fired through each gun as follows:

Range - 100 Yds.
 Rate of fire - 1 shot per min.
 Method of holding and firing - Accuracy Series

Tests measurements show a decided enlargement of the bore under the ramp section after brazing. This variation definitely produced larger size groups during the accuracy test. Average results of the accuracy test are as follows:

Type of Ramp	Ave. Bore Enlargement under ramp after brazing	Ave. Enlargement in Rifling under Ramp after brazing	Group Size Measurements 6 5-shot groups 10 guns fired after brazing			
			E.S.	E.V.S.	E.L.S.	E.R.
Brass	.0004"	.0004"	2.2	1.63	1.5	.797
Soldered	.0001"	.0001"	1.5	1.02	1.18	.544

From the above data it can readily be seen that a few .010" variation in the bore (especially at the muzzle section) can affect the control of the bullets flight and therefore cause poor accuracy in the gun. It is a well-known fact through the measuring of hundreds of barrels that brazing of the Front Sight Ramp on the Models 721 & 722 does enlarge the critical bore section. Measurements in this test show this enlargement through brazing and also show that one can expect to get an average increase of .7" group spread if the gun contains a brass ramp. (This has not been confirmed in any caliber except the 222 Rem.)

Other conditions being equal, we know that brass type ramping will reject more guns, and it is also true that a greater number of guns have been passed that are border line. We would do well to take advantage of a .7" decrease in group size by eliminating the brazing method of ramping and pursue other methods of attaching the Ramps to barrels.

WEL:LJ

W. E. Lock
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