

FEB 19 1964

J. H. JAMES

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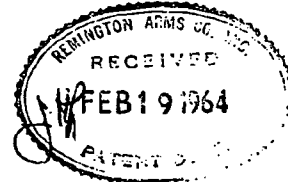
FEB 21 1964

L. S. JAMES

cc: S. M. Alvis  
M. H. Walker

F. E. MORGAN  
Bridgeport

Ilion, New York  
February 17, 1964



This is a reply to your request to review the original strength test established on the Model 721 Rifle. The various conditions between "A" and "N" have been reduced somewhat in the recent test to facilitate better testing procedures and establish a strength status without distractions. At the present time we start at the 3.2 gram powder load, using 4198 as the established proof powder, and successively raised the loading to 3.3 and 3.4 grams respectively. The latter loading results in a full case of powder and is sometimes questionable as to whether it produces as much pressure as the 3.3 gram load. However, it must be pointed out here that to date no method of measuring the pressures had been established as pressure measuring equipment would be disintegrated under the magnitude of these loads.

We have eliminated the test under conditions "H" and "I" which appear now to be superfluous and start out under conditions "J", "K", "L", "M" and "N", using the 3.4 gram load. A special situation exists here which is absolutely necessary, and that is that these bullets when forced into the barrel must be touching the nose of the bullet on the proof load. If there is any air space between them, the barrel will very definitely split and burst, regardless of the condition of the steel in the barrel or its size.

We have to date tested all known standard sporting arms and most of the military arms with this progressive type of proof test, and have found no gun in existence that will withstand the pressures that have been originally established by the M/721 and its counterpart, the M/700 & 600, which basically has the same strength characteristics.

I would like to point out that we failed to note one of the design characteristics in the M/700 which makes it outstanding and which gives us this phenomenal strength result. That is the support of the shrouded head on the bolt by the barrel, and in turn, the support of the barrel by the receiver. I haven't as yet had the opportunity to look at one of the new Model 70 Winchester's, but a cross sectional view of that rifle and its claims of strength indicate that the design lacks support

F. E. Morgan

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of the shroud on the bolt. This means, then, that the strength of the rifle is limited to the strength of the shroud without further support. I think it would be absolutely desirable and necessary for us to submit the Model 70 Winchester to a strength test as soon as one is available, and rewrite the strength test on the basis of our streamlined procedure, and review this with you so that it will be possible for you to determine the pertinent information for your advertising.

I am assuming that your department is obtaining one of these models as we have not initiated a requisition for one. Please advise if you do not agree with this procedure, and we will get together to determine alternative measures.

W. E. Leek  
Firearms Design Section  
Illion Research Division

WEL:T

