

*Technical*

bcc: ~~S. R. HUTCHINSON~~, Mgr. Advt.  
Bpt.

→ J.F. Finnegan - Ilion

August 5, 1963

Mr. S.C. Tegan  
2810 Hillvale Avenue  
West Lawn, Penna.

Dear Mr. Tegan:

Some time ago you wrote to Mr. S.R. Hutchinson of our Advertising Department regarding the inadequacies of information about the strength tests on high power bolt action rifles. Although you did not specifically ask for a reply Mr. Hutchinson thought that we might wish to further advise you regarding the background and also of our restraint in supplying more specific data.

In firearms research we have always been rather reluctant to publish technical information that may suggest inherent deficiencies in other U.S. made firearms, and especially where there may be numbers or values (figures) involved. First it can become controversial since difficult to exactly duplicate the same methods of measurements, together with variations in instruments. However we have had occasions to give and receive information to and from other manufacturers when it seems to be in the best interest of safety. This explains our identifying the test guns by letters such as "A" or "B".

When the Model 721 rifle was introduced in 1948, one of the features claimed was that of unusual strength for the action and made possible by virtue of the unique design of the patented extractor. With this spring ring type of extractor located within the counterbore of the bolt head, it is possible to eliminate need for any extractor clearance cuts in the bolt and thus provide a complete shroud around the base of the cartridge when subjected to excessive cartridge pressures beyond the held point of the brass. It will usually swell or expand into the shroud of the bolt head but supported by steel so that no rupture occurs. Under extreme pressures the primers will usually be blown and possibly it may also drive the firing pin rearward but without damage to the rifle beyond an extractor replacement. Most important of all there is protection for the shooter. However, in our destructive tests we have overloaded rounds to the extent that the recoil was sufficient to split the stocks but still the action was not damaged.

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Mr. S.C. Tegan

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When Weatherby started advertising their rifle as the "world's strongest action" we were certain that this was not true, so repeated our tests with their rifle which caused the bolt to fail. We then agreed to permit our Advertising Department to use counter advertising with the claims that you have questioned.

You are entirely correct that the "weakest link is still the brass". This was the object for our bolt and extractor design, i.e., to provide complete support for the brass which would prevent sufficient expansion to a point of rupture. We have never been able to wreck a Model 721 type of action with any cartridge overloads and the pressures attained were beyond the range for our instrument measurements. However they were estimated to be well in excess of 100,000 lb. p.s.i. This same extractor and bolt design has been carried forward for use in the current Remington center fire models.

When the Model 721 rifle was first introduced, the late General Hatcher, was a staff writer and consultant for the NRA. He learned of our strength tests and visited the laboratory to obtain data to use for the basis of an article which was published in the American Rifleman magazine. At the moment I do not recall the exact date of the issue but believe it was about March or April, 1948.

We appreciate your interest in rifle designs and the opportunity of describing the background, development and tests in this field.

Sincerely yours,

S. M. Alvis, Manager  
Ilion Research Division

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