

**CONFIDENTIAL DRAFT****Remington Arms Company Inc.**

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**Introduction**

The Remington Model 710 is a low cost bolt action centerfire rifle currently in development at the R & D Technology Center. Although similar to the Model 700 in its basic function, it does utilize new and innovative design concepts to take full advantage of synthetic materials to aid in reducing cost. One of these is a synthetic insert that slides into the circular receiver. This serves as a guide for the bolt, eliminating costly internal receiver cuts. In addition this same insert houses the fire control components with additional support from a single steel side plate attached to the right side of the fire control. This means that the pins that support the fire control components (trigger, sear safety cam) are supported in plastic on the left side and steel on the right side. Since load is transmitted to these pins from the firing pin main spring a series of tests were devised to evaluate the strength of this design. This report documents work done on one of these tests where a high load is applied to the rear of the firing head to determine the force required to render the system inoperable. Since no absolute pass/fail criteria has been established for any of these tests the results will be evaluated using standard engineering Factor of Safety guidelines.

**Procedure**

A standard Model 710 barreled action was assembled to an aluminum test stock which contained the as designed internal inletting cuts. The exterior of the stock was not contoured and was squared off. The stock was cut off in the back just behind the stock mounting nut. The front end of the stock and the barrel were also shortened to allow the entire assembly to be mounted in the Instron Model 8502 Tension/Compression Fatigue machine. The action was clamped vertically in a vise which in turn was secured to the Instron's table. The 1,000 lb. load cell was mounted in the Instron and a large diameter pin was secured in the upper jaws and aligned with the back of the firing pin head. The synthetic bolt shroud was removed from the bolt assembly to allow access to the firing pin head. The Instron machine was set-up for 0-.150 inch travel with a maximum load limit of 950 lbs. All tested actions were checked for correct engagement before being mounted in the test setup. The action was operated to cock the firing pin and then closed. The safety was put in the ready to fire position and the load was applied at a rate of .1 inch/min. Force versus displacement data was captured for each action tested at a sampling rate of 10 pts/sec. Two 710 fire control assemblies were tested this way. In addition one 710 assembly was soaked overnight (24 hrs.) in Birchwood Casey solvent before testing. One 700 control sample was also tested.

Remington Model 710, .30-06 Caliber Bolt Action Rifle  
R & D Technical Center Project No. 241095

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Subject to Protective Order - Williams v. Remington

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