

C O P Y

MANAGEMENT MEETING

7/22/47

It is to be expected that a High Power Bolt Action Rifle shall be strong. In the Model 721 design this objective has been achieved without adversely affecting gun weight (Max. 7# 12 oz. for 30-06) - (Minute #21 - 1944), or cast, or appearance and balance.

The keystone to this achievement is the shrouded Bolt Head made possible by a new Extractor design, a small spring steel component purchased at a cost of \$.085 each. The shrouded Bolt Head and Extractor design was originally conceived for the Models 760 and 740 and applied later to the Model 721. Later in this discussion we shall show exhibits of test results which demonstrate the importance of such an insignificant looking part.

To determine the ultimate strength of the Model 721, we have performed unusual tests which I would like to review with the assistance of the color chart and mechanism layout and samples of "Wreckage".

The important strength features may be listed as follows:

1. Shrouded Bolt Head.
2. Large Locking Area.
3. Solid Firing Pin.
4. Large Area on Barrel Bracket to absorb recoil.
5. Heavy Breech Section.
6. Stronger Stock around Magazine.

(Discuss these features with exhibits).

OTHER FEATURES

Adjustable Target Type Fire Control

Low Scope Mounting

Light Weight

Good lines and balance

Adaptable to High Grade Finish

Suited for hand loading

Strength Features

1. Shrouded Bolt Head made possible by Extractor design.
  - a. Maximum gap at chamber less than thickness of brass in cartridge.
  - b. Exhibit A - Cross cut section of M/721 showing head of brass cartridge case being supported by shrouded head - barrel and receiver section.  
Bolt containing cartridge which produced excessive pressure.  
Exhibit B - Sample Extractor and Bolt - M/721, 30-06 cartridge.
2. Exhibits of strength tests of M/721 and other standard actions.
  - a. Comparison of strength features.
  - b. Exhibit C - 9 calibers. Cartridges actually fired through a 30-06 M/721. No damage to gun.
  - c. Exhibit D - Comparison of locking area of Bolt Lugs (Springfield, M/70 and M/721 Bolts).
3. Solid Firing Pin
  - a. Exhibit E - M/721 and Springfield. Refer to construction drawing.
    1. The firing pin in the M/721 pre pilot line gun withstood 10,000 dry cycles without breakage.
4. Area of Barrel Bracket in Stock
  - a. M/721 area twice that of Enfield and M/70. 30% larger than M/70.
5. Heavier Breech and Barrel Section than Mauser, Springfield or M/70.
6. Stock section around Magazine stronger than all other types of bolt action rifles.
7. Other Features -
  - a. Adjustable target type fire control.
  - b. Low scope mounting.
  - c. Light weight.
  - d. Good lines
  - e. Adaptable for high grade finish
  - f. M/721 Action ideally suited for handloading and those interested in wildcat loads because of its superior strength features.

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Condition of Guns as shown on Chart

Model 721

- B. Annealed Extractor
- E. Breech pressure forced Ejector in to Firing Pin hole in Bolt Body.
- G. Breech pressure cocked Firing Pin
- L. "
- M. " . Stock broke because of recoil.
- N. Breech pressure cocked Firing Pin. Bolt Lugs frozen to Action. Bolt Handle broken attempting to unlock gun. Strength of gun undetermined.

Model 721 (without shrouded Bolt Head)

- B. Excessive breech gas pressure cracked stock.
- E. Excessive breech gas pressure disintegrated stock.
- F. "
- J. Excessive breech gas pressure cocked Firing Pin.
- K. Excessive breech gas pressure disintegrated stock. Brass from ruptured cartridge leaving gun. Primer left primer pocket.
- L. Action failed. Final strength of gun.

Model 1917 Enfield

- B. Excessive breech gas pressure.
  - F. Broken Extractor caused by breech gas pressure.
  - G. Stock disintegrated by breech gas pressure.
  - J. Excessive breech gas pressure cocked Firing Pin.
  - K. "
  - L. Breech gas pressure deformed Bolt Stop.
  - M. Left rail of Receiver deformed. Accomplished by breech gas pressure.
- Further final strength of gun undetermined.