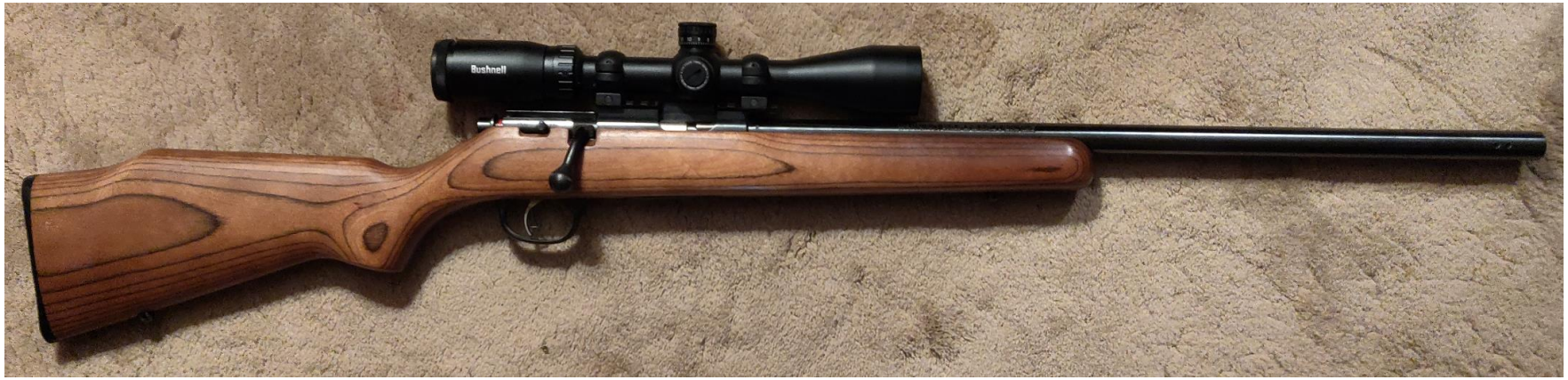
17 HMR Modifications



Accuracy Modification Theory

- The theoretical model used for these modifications:
  - The gun will structurally deflect when each shot is fired
    - The goal of the structural modifications is to ensure those vibrations are as repeatable as possible from one shot to the next
    - Repeatable deflections will result in the bullets repeating the same trajectory for each shot.
  - Reducing turbulence at the transition from the barrel bore to the atmosphere will similarly increase shot trajectory repeatability

Accuracy Modification Components

- Modification consists of 4 items
  - Action bedding block

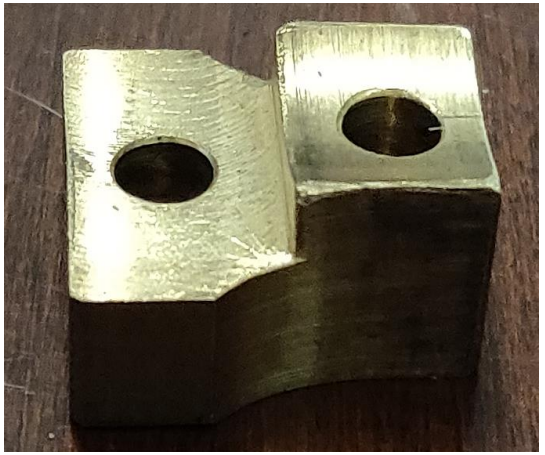
  - Barrel bedding block

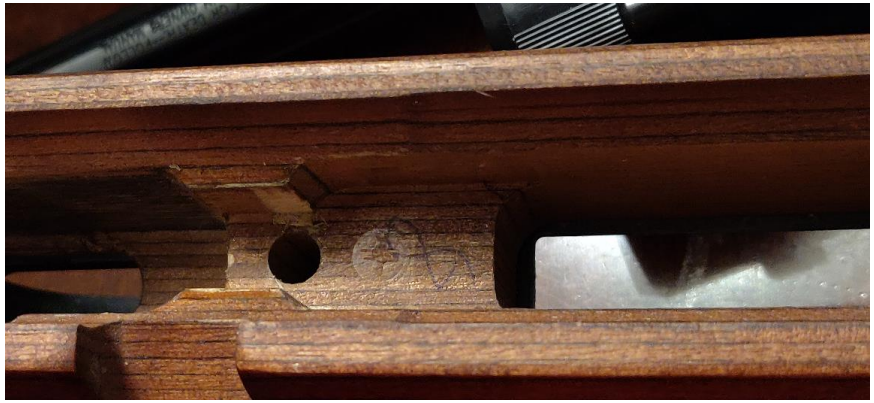
  - Longer, tighter fitting barrel lug

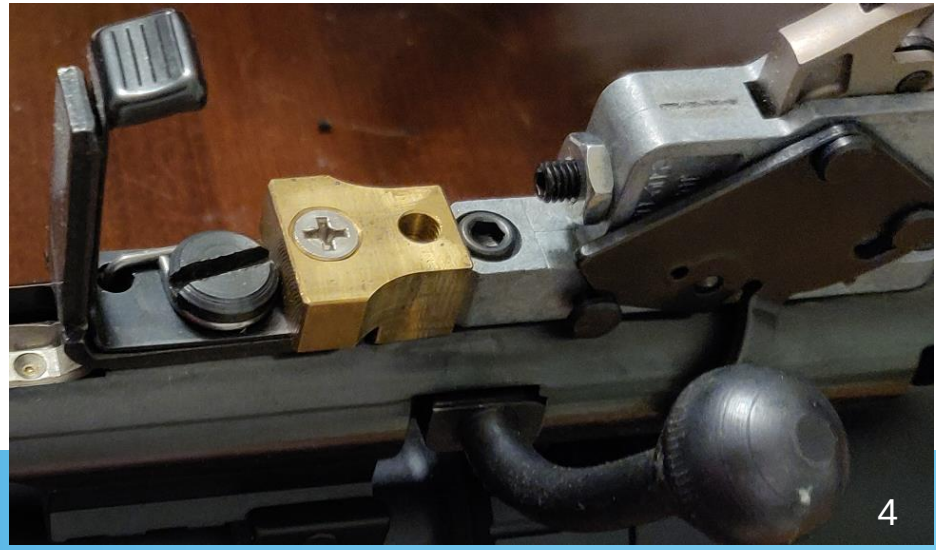
  - Barrel porting

Action Bedding Block

- Structurally prevents action from being bent as it is installed in the stock
- Surprisingly did not have an apparent impact on accuracy

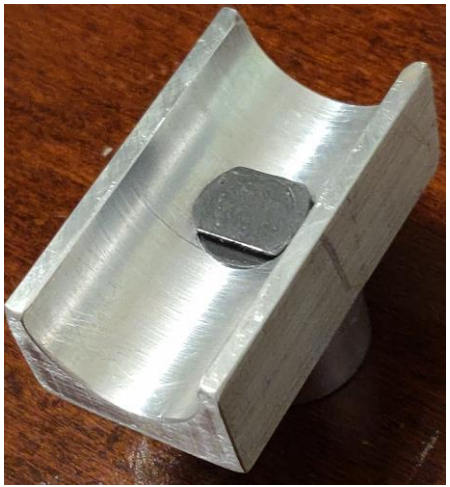


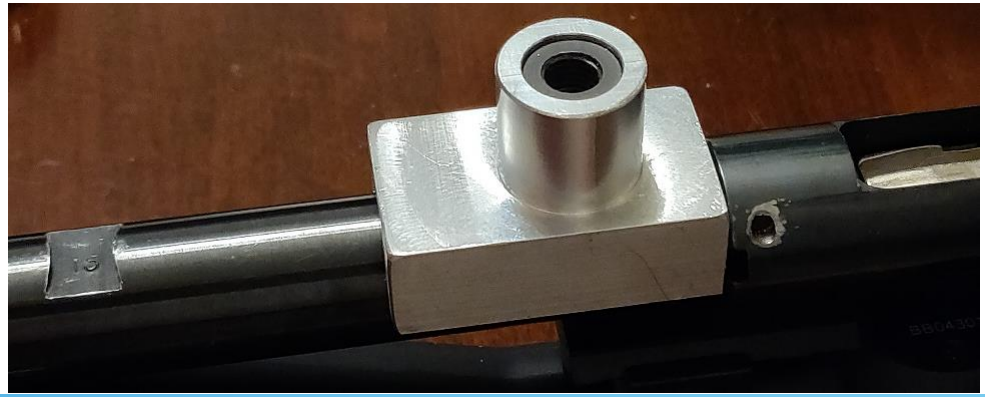




Barrel Bedding Assembly

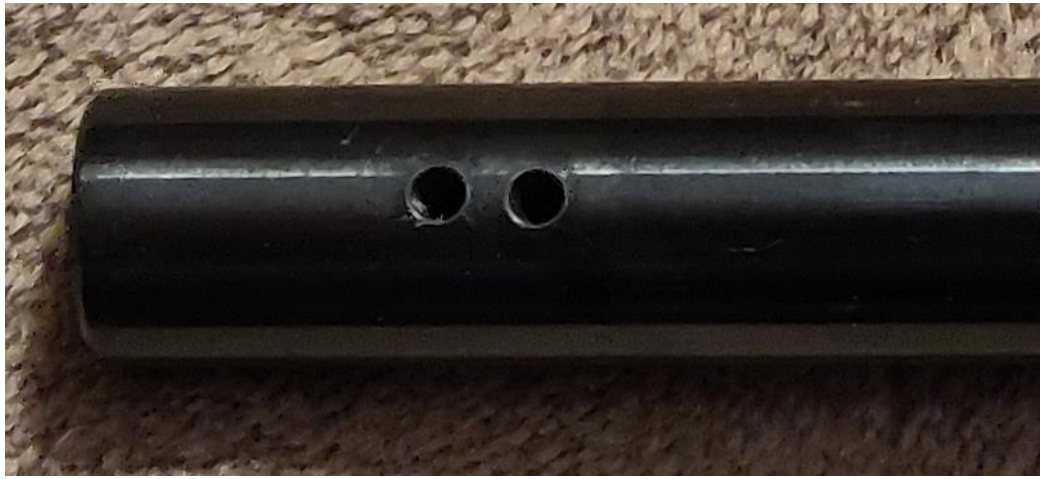
- Barrel bedding block
  - Securely holds the aft portion of the barrel where it connects to the action.
  - Biggest single improvement on accuracy
- Barrel lug
  - Dovetail end fits into slot cut in the bottom of the barrel
  - Secures the barrel in translation & rotation





Barrel Porting

- Goal of porting is to reduce the buffeting of projectile due to propulsion gas turbulence at the muzzle
  - Provides gas bleed path
  - Port symmetry important to prevent barrel deflections
  - No internal burrs allowed!
  - Precision hole location required for small bore



- Second biggest improvement to accuracy!

Results

- 0.172 diameter bullets at 100 meters
- It’s not easy to group them so most are touching
- 7 shot group

Results degraded with subsequent firings!