TRIGGER SHIMS TECHNICAL GUIDE

LANCE'S TECH TIP:
Rimfire Bolt Shim Installation

~ A General Guide for Two-Piece Bolts ~

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1. Understanding Rimfire Headspace

Unlike centerfire cartridges where headspace is measured from the shoulder, the .22 LR is rim-headspaced. The total dimension from the recessed bolt face to the barrel breech face determines how much "play" or clearance the cartridge rim has.

Rimmed cartridges utilize the thickness of the cartridge rim for head-spacing. A two-piece bolt requires a precise fit to hold the cartridge rim closely against the breech without crushing it. Installing our **Bolt Shims** between the two bolt halves eliminates excessive internal slop and rearward endplay, creating a solid mechanical setup that maximizes firing pin energy transfer to eliminate misfires and light strikes while enhancing accuracy.

Generally speaking, factory production rifles leave extra room between the bolt face and the breech to accommodate a wide variety of ammunition with varying rim thicknesses. **You should first measure the depth of your bolt face pocket to ensure it meets SAAMI headspace minimum depth.** Shimming between the two bolt halves ensures the bolt is seating the cartridge up gently against the breech with your chosen brand of ammunition.

2. How to Fit and Measure Your Shims

You can use our color-coded numbered shims like a gauge to find exactly when the bolt face touches the barrel breech face. From there, you can calculate your ideal bolt headspace depth based on your preferred ammunition's rim thickness.

- **Fit by Feel:** I cannot tell you which specific shim will work best with your rifle; you determine that yourself by fitting, feel, and live-fire testing.
- **Measure in the Rifle:** Installing Bolt Shims requires fitting by hand and checking with the bolt fully installed and locked down in the rifle action. Do not attempt to measure this with the bolt removed from the rifle.
- **Use an Empty Chamber:** To establish the proper bolt-to-breech fit, shims must always be fitted on a completely empty chamber.

- **Extractor Tip:** If possible, removing the extractors on some rifle models during the fitting process will give you a much better "feel" for the bolt face making contact.
- **Finding the Stack:** Start with a 4 or 5-pack of shims. Install the thinnest shim (.0015" or .002") and check how your bolt closes. If it closes normally, continue trying sequentially thicker shims (or stacking them if necessary) until the bolt handle begins to close harder than normal.
- **Identifying the Slack:** The exact point where your bolt begins to close hard indicates the total amount of mechanical slack that was present in your bolt layout.

3. Fine-Tuning the Fit

- **Step Back One Number:** Once you find the thickness that causes the bolt handle to close tight, remove that setup and step back by .001". For example, if a .005" Red Shim causes the bolt handle to close harder than normal, remove it and install a .004" Purple Shim.
- **Avoid Undue Stress:** If you have to force or put undue stress on your bolt to close it, you must reduce the shim thickness. Forcing the bolt closed puts premature wear on the shims and will not increase accuracy.
- **Target Feel:** When you have the correct shim installed, your bolt should close normally or just ever-so-slightly tighter than normal.
- **Target Feel & Final Calculation:** When you have the correct shim thickness installed, your bolt should close normally or just ever-so-slightly tighter than normal. If it feels tight, back up one step (.001").
  At this point, you have successfully used the shims to tune the space available for your cartridge rim. By comparing your **factory bolt pocket depth to your ammunition's rim thickness**, you can determine exactly how much shim thickness to leave inside the bolt assembly to **adjust your excess headspace.**
  Example:
    - Your factory **Bolt Pocket Depth** measures a tight **.038"**.
    - Your favorite ammunition has a **Rim Thickness** of **.041"** (meaning the cartridge rim is physically .003" thicker than the factory pocket depth).
    - By testing, you find it takes a **.005" shim** to completely eliminate internal slack and bring the bolt face up flush to the breech face.
    - Because you have a .038" bolt pocket and a .005" shim to touch the breech, backing up by just .002" leaves a **.003" shim** inside your bolt assembly to completely address your headspace issue.
    - *Because of slight variations in rim thickness, it is better to be slightly loose rather than a slight crush, so trying the .003" shim and .002" shim for best fit is recommended in this example.*
- **Lubrication:** For the longest shim life, apply a very small drop of oil or a tiny smear of grease to the shim before final installation.

4. Range Testing & Maintenance

Now you can go to the range. With the barrel pointed in a safe direction, check the fit with your favorite ammunition.
Due to natural variations in rim thickness across different ammunition brands, you may occasionally need to adjust your shim stack. Remember, you have already removed the excess mechanical headspace from the bolt assembly; your goal now is simply to fine-tune the clearance to find the "sweet spot" for your preferred cartridge rim thickness. If you ever have safety questions or want to verify your dimensions, always use a dedicated rimfire headspace gauge to check your work.

Consistent chambering yields consistent results. Your satisfaction is guaranteed. If you feel you receive no benefit, you may send your shims back to TriggerShims for a full refund.

TriggerShims.com (Shively Sales)

Quality Gun Shims Made in the USA

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