The Role of Cylinder Shims – Version 4.2

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1. Understanding the Key Measurements

- **Barrel-to-Cylinder (B/C) Gap** – **Fixed geometry** determined by:
    1. **Barrel set-back** (how far the barrel is threaded into the frame)
    2. **Cylinder length** (front-to-rear dimension of the cylinder body) → **Cylinder shims do NOT increase B/C gap.**
- **End Shake (End-Play)** – Forward/backward movement of the cylinder on the yoke shaft. → **Cylinder shims limit end shake to 0.002"–0.004"** (0.003" ideal) to **slow wear from use**.
- **Headspace** – Rearward position of the cartridge rim against the recoil shield. → Factory-set via yoke-to-frame fit and yoke shaft length. → **Never increase headspace in the field.**

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2. How to Measure Correctly

1. **Hold cylinder fully rearward** → measure gap = **TRUE B/C gap**.
2. **Push cylinder fully forward** → measure again → **difference = end shake**.

Rubbing when forward? That's **excess end shake**, not a tight B/C gap.

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3. Cylinder Shims – Primary Fix

Benefit	Explanation
Limit End Shake	0.002"–0.004" shims behind cylinder on yoke shaft
Cure Rubbing	Eliminates cylinder-to-forcing-cone contact under recoil
Slow Erosion	Reduces battering on yoke and forcing cone
Improve Cylinder Timing	Excessive end shake allows forward cylinder drift → misaligns bolt with notch → delays clean lock-up. Shims hold cylinder rearward for **crisp, consistent bolt engagement**. *— lowegan (Ruger Forum): "End shake pushes the cylinder forward so the bolt has to chase a moving target. Shim it, and the bolt drops crisp every time."*
No Effect on B/C Gap	Shims **stabilize**, do not **enlarge**

4. Yoke Shims – Advanced Use Only

Available at TriggerShims.com — not for routine B/C gap adjustment.

Use Case	Location	Effect
Frame Wear Compensation	Between yoke and frame	**Reduces B/C gap** by pushing yoke/cylinder forward
Tolerance Stack Correction	Same	Restores **original factory B/C gap** after wear
Headspace Risk	**Increases headspace**	**Only if frame or yoke is worn — must verify with headspace gauge**

Rule of Thumb:

- **Cylinder shims** = **safe, universal, no headspace risk**
- **Yoke shims** = **gunsmith-only**, **frame-wear fix**, **verify headspace after install**

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5. Factory Realities (Ruger Example)

- Ruger ships **GP100, Redhawk, Super Redhawk, SP101** with **0.006"–0.012" B/C gaps**.
- **Not a design goal** — it's **tolerance stacking**.
- **0.012" is excessive** — **0.006"–0.008" functional**, **0.004"–0.006" ideal**.
- Velocity loss from 0.006" vs. 0.012"? **<5 fps** — **negligible**.

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6. The Bottom Line

- **Measure B/C gap with cylinder held rearward.**
- **End shake accelerates wear** — **cylinder shims** are the **first-line fix**.
- **Yoke shims are for frame wear only** — **use with caution and headspace checks**.
- **Shims don't "open" gaps** — they **preserve correct geometry**.

Cylinder shims = longevity. Yoke shims = repair. Know the difference.

All measurements in inches. Use feeler gauges. Verify headspace with yoke shims.
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