

Introductory Rifle Reloading Techniques

New Holland Rifle & Pistol Club

CMP Program

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Civilian Marksmanship Program



- Mission - The Civilian Marksmanship Program (CMP) is a national organization dedicated to training & educating U. S. citizens in responsible uses of firearms & air guns through gun safety training, marksmanship training & competitions.



Introduction To Rifle Reloading

- Why Reload?
 - Save money – Most Bang for your Buck!
 - Achieve best accuracy performance from firearm & ammo
 - Strive for accuracy & precision
- Cost Example
 - Federal Gold Match .308 (Box of 20) - \$25.99
 - Cost to reload same box of ammo - \$11.31
 - Buy bulk, surplus, over run, seconds; same more!
 - Equipment will eventually pay for itself



Safety

- Wear safety glasses, gloves, mask
- No smoking
- Don't eat, drink, & reload
- Limit distractions
- Follow manufacture reloading data
 - manuals, labels, or manufacture websites.
- Label & record everything
- Stay within recommended load charges
- 1 powder on the bench at a time



Basic Required Reloading Tools

- Reloading Press – Single caliber, Single Stage, Multi-Progressive
- Reloading Dies - Resizing die & Seating die (Example; .223, .308)
- Shell Holders – Holds the brass shell, may come with dies.
- Brass lubrication – water or solvent based (paste, spray, aerosol)
- Brass Trimmer – Hand or automated.
- Brass cleaner – Rock or brass tumbler (rotary or vibration), ultra sonic
- Tumble Media – Corn cob, walnut, proprietary, metal (dry vs wet)
- Powder Measure – Scale or dispenser (Gravimetric, Volumetric)
- Caliper – To measure brass & OAL

RELOADING



**AMMO
BOXES**



**CASE
PREPARATION**



**DIES &
SHELLHOLDERS**



**RELOADING
KITS**



**POWDER
MANAGEMENT**



PRESSES



**RELOADING
BOOKS**



**RELOADING
ACCESSORIES**



**RELOADING
COMPONENTS**



**SCALES &
SCALE PARTS**

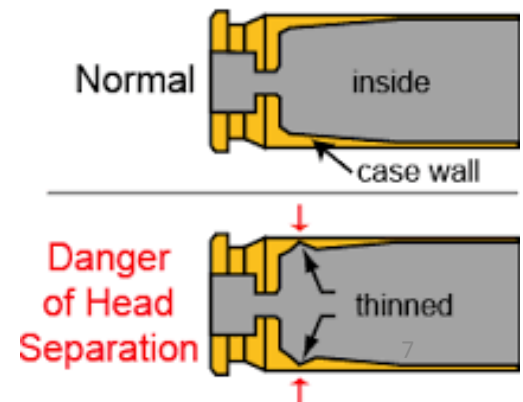
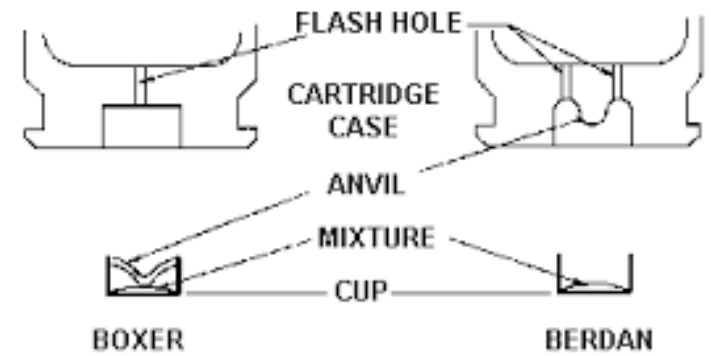
**VIEW RELOADING
BRANDS**

Sorting Brass

- Purpose – Visual inspection, uniform brass
- Brass collective (new, spent, surplus, or range pick-up)
 - Sort Brass – caliber > head stamp > date > month > lot > weight
 - Check for primer method - discard berdan primed brass
 - Check for defects – cracked necks, case heads, primer pockets, dents, holes
 - Defective Brass - collect & recycle scrap brass for good \$\$

• First Cleaning

- Equipment – Brass tumbler with media
- Remove – carbon & dirt so you don't wear out or damage



1st Cleaning

- Purpose – Removed dirt so you don't wear out or damage dies
- Equipment – Brass Cleaner (don't use chemical polish!)
 - Tumbler
 - process time ~ hours
 - Rotary or Vibrational
 - Dry or wet
 - Requires media – corn cob, walnut, proprietary, alloy metal
 - Ultra-sonic Cleaning
 - process time; minutes & or ~ hour(s)
 - Sonic waves through water solution
 - Avoid standing waves (move brass around periodically)
- Separate out media - brass should be clean & shiny!



Working Brass

- Purpose – To restore fired brass to original (shape) specification
 - <http://www.saami.org/>
- Lubricate Brass – A must!
 - Lube – Paste, stray, aerosol.
 - Container – Ammo can or plastic bag
 - Brass needs to be well coated, especially case mouth or neck.
- Resize & de-prime
 - Equipment – Reloading Press, Resize/ de-prime die, shell older.
 - Sizing – Full length (recommended) or partial (neck sizing)
 - Process – line up & knock down! Minutes to hours (amount dependent)
 - Careful not to dent case mouth



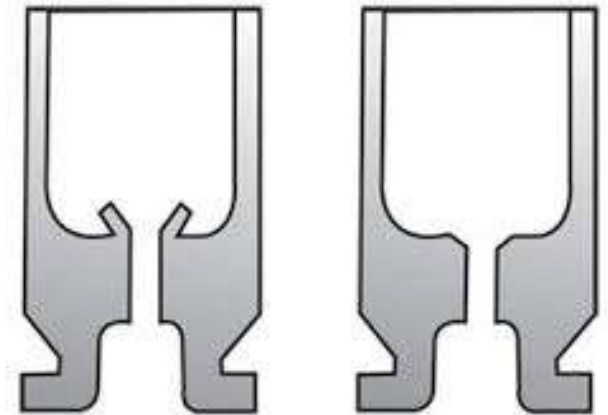
Trimming Brass

- Purpose – Restore brass length to specification.
 - Brass can stretch & drawl from firing & resizing.
 - Need to trim back to original length.
- Brass Trimming
 - Equipment - Hand tools, fixtures & automated.
 - Trim brass to length desired
 - Chamfer & Deburring case mouth
 - VLD vs Standard – 45 degree chamfer for some match bullets.
 - Process –automation speeds up time & volume



Primer Pocket

- Purpose – Clean & uniform the primer pocket
- Primer Pocket Maintenance
 - NATO or GI crimp?
 - Remove carbon build up – Flat head screw driver
 - Remove flash hole blockages
 - Thumb tack or large paper clip.
- Special or extra steps (optional)
 - Special Equipment needed
 - Remove Primer Crimp
 - Uniform flash hole
 - Primer Pocket Uniformity



2nd & Final Cleaning

- Purpose – Remove Lubrication & Residuals.
- Process - Same as first cleaning.
 - Final polished - “worked” brass is now reloadable
 - May need to pick out media from flash hole.
- Good place to stop & store before final reloading
 - Store in sealable & dry container
 - Label & date!



Final Reloading - Priming

- Purpose – Recreate live cartridge, tailored to your specifications!
- Prime Brass
 - Equipment – Hand tool or Press
 - Press new primer into primer pocket
 - Make sure primer is recessed into primer pocket
 - At minimum primers must be flush with case head
 - Primer is flush or recessed (below) which is preferred



Final Reloading – Powder Charge

- Add propellant to primed brass
 - Propellants – Single, double, triple base.
 - Select best one for your needs!
 - Powders have velocity “sweet spots” or accuracy nodes.
 - Keep pistol & rifle powders & components separate!
 - Never have more than 1 powder on the bench at a time!
 - Equipment – Scale or dispenser, both should be equal in load.
 - Gravimetric – Scale, weight charge.
 - Volumetric – Dispenser, “throw powder”.
 - Use recipes from approved reloading guides - moderate loads work best!
 - Note - Select moderate loads, carefully work up to max amount if needed.
 - Never exceed maximum load for a cartridge!



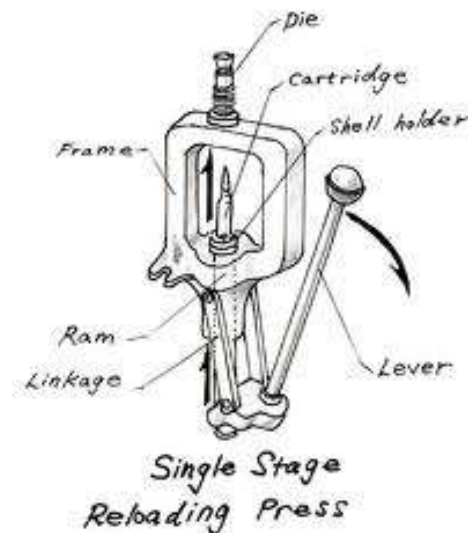
Final Reloading – Seating Bullet

- Verify powder charge is in case – inspect!
 - Small flash light.
- Seat bullet to complete cartridge
 - Bullet – Selection from a large variety & uses!
 - Types - FMJ, SP, HP, BT, FN, etc.
 - Competition Types (HPBT) – Match, Hybrid, VLD
 - Equipment – Reloading Press, Seating Die, Shell Holder, calibers.
- Crimping
 - Tube magazine & lead bullets– Best practice.
 - Box or internal magazine – not necessary, avoid bullet deformation.



Final Reloading – Seating Bullet cont.

- Process
 - Place Primed brass with powder charge on shell holder
 - Loosely place bullet on case mouth
 - Press bullet half way down
 - Turn brass case 90 degrees, then press bullet in until stroke is complete
 - Adjust bullet relief as needed
 - Verify OAL with calipers.
 - Optional - Place final crimp on if needed.
- Cartridge Complete!
 - Record all load data & date!
 - Store in composition or data book for reference.



Questions?

- Questions & Answers at reloading stations
- “Show & Tell” sessions - Please touch & play with equipment



Post Clinic Comments

- Thanks folks for coming & thanks to the station coaches for leading discussions!
- The next step is “what next” if you don’t have any equipment.
- Use your favorite internet search engine & try this:
 - Reloading kit
 - Beginners reloading kit
- Contact the company & see if they have rebates, coupons, discounts!
- Ask me any questions you would like in the future!
- Best of luck!