



RELOADING

*Where consistency becomes accuracy.
A straight-talking guide for beginners and old hands.*

CAP COAST GUNSMITHING · YEPPOON, QLD

A First Round Effect knowledge guide

Why reload, really?

Ask ten shooters why they reload and you'll get ten answers, but they mostly come down to four. **Consistency:** factory ammo is made to a price and a tolerance, while a good handload is made to *your* rifle, the same way every time. **Cost:** the gear costs up front, and depending on calibre and components, reloading can bring your per-round cost down once you're rolling. But the bigger win is control, not cents. **Independence:** when the shelves are bare, the person who reloads still shoots. And **the craft:** there's a real satisfaction in a tack-driving load you built yourself.

Here's the honest other side, because we don't oversell: reloading is a discipline, not a shortcut. It takes time, focus and care, and if you only shoot a box a year, quality factory ammo is the smarter call. But if you want to understand your rifle, tighten your groups, and take ownership of the whole system, this is where it starts.

This guide won't hand you recipes. It'll give you the map: how to think about reloading, what actually matters, what's worth your money, and the habits that keep it safe and accurate. Read it once and you'll know how the pieces fit, whether you're pressing your first case or your hundred-thousandth.

Safety first. Data always. Ego never.

The mindset, and the rules that keep it safe

Before a single tool, the most important thing on the bench is your attention. Reloading is not hard, but it is unforgiving of the careless, so treat **focus as your primary safety tool**. Music low or off, no chatting, no kids or grandkids underfoot, phone away. The one moment you're distracted is the one that creates the mistake you don't see: a wrong powder, a missed or double charge, a high primer, a mixed component, a bad measurement.

And a rule we hold to firmly: **never reload when you're frustrated, angry, tired, unwell, or anything less than stone-cold sober**. Gunpowder, primers and projectiles demand your full attention, and a bad head is exactly when mistakes creep in. If you're not in the right frame of mind, walk away and do it tomorrow. The brass will wait.

The rest of the safety spine is simple and non-negotiable:

- **Published data only.** Always work from current published load data, straight from the powder or bullet maker (ADI, Hodgdon, Vihtavuori, Hornady, Nosler, Sierra and the like) or a current loading manual. This guide never quotes a charge weight, and neither should any mate at the range. Your rifle, your components, published numbers.
- **Start at the published starting load and work up.** Not an arbitrary reduction, the actual published *starting* charge for your exact bullet, powder, primer and case, then step up in small increments. (Never just knock a chunk off a maximum load, some powders are genuinely unsafe reduced too far.) As you climb, watch for warning signs: stiff or sticky bolt lift, cratered or pierced primers, ejector marks, a primer pocket gone loose, or velocity higher than the data predicts. Treat these as imperfect and often *late* warnings, not a pass/fail gauge, because primer appearance in particular can mislead. Your real safety controls are published data, careful measurement and a chronograph. Any doubt, stop.
- **One change at a time.** Change one variable, test, record. Change three and you've learned nothing except how to get hurt.
- **Set up safe.** Wear safety glasses every session, keep a fire extinguisher and a first-aid kit within reach, and store powder and primers separately, in their original containers, somewhere cool and dry and away from heat, flame and children.
- **One powder on the bench.** Only one powder open at a time, in its original, labelled container. Never use or store unlabelled powder, and tip the measure back into the right tin at the end of a session.
- **Log everything.** Every load, every result, in a book or the app. Reloading is the same creed as the range: data always.



A stable, well-lit bench with everything in its place. Clutter and movement are where mistakes hide.

What handloading actually is

A cartridge is four parts: the **case** (brass), the **primer**, the **powder**, and the **bullet**. Pull the trigger and the primer lights the powder, the powder drives the bullet down the barrel, and all that's left in the chamber is the empty case and a dead primer.

That empty case is the whole point. Brass is the one part you can use again, and handloading is simply the craft of taking fired brass, restoring it, and building it back into a fresh, accurate cartridge with a new primer, a measured powder charge and a new bullet. Do it well and that case will serve you for many firings before it's retired.

So the "loop" of reloading is: **fire, recover the brass, prep it, reload it, shoot it again**. Everything in this guide hangs off that loop. Get each step consistent and the rifle rewards you. Rush or skip a step and the rifle tells you, sometimes politely, sometimes not.



A cartridge is four parts: case, primer, powder and bullet. Only the brass case is reused.

The bench and the kit

First, the bench itself. Reloading wants a solid, stable surface with the press bolted down hard, good overhead light so you can actually see into a case mouth, and a bit of ventilation. Keep powder and primers stored separately and locked away from heat and children, and leave a clear, uncluttered space for inspecting finished ammo. A tidy bench is a safe bench.

Now the kit. You need less than the catalogues suggest, but the few things that matter, matter a lot: spend where precision and safety live, economise everywhere else.

The press is the heart of the bench. A single-stage press (the RCBS Rock Chucker is the long-standing benchmark) does one operation at a time and is the best place to learn: slow, deliberate, easy to inspect and easy to understand. Turret and progressive presses trade some simplicity for speed and suit higher volumes once you know what you're doing. Start single-stage unless you already know you need volume.

Dies are where your cartridge takes shape, so this is a "buy once" item. A set contains a sizing die and a seating die (bottleneck rifle). Makers like RCBS, Redding, Forster and Hornady all earn their keep here, and quality pays off in concentric, consistent ammo for years. For straight-wall pistol, carbide dies save you lubing.

A good scale is non-negotiable, because the powder charge is the part that can hurt you. This is the last place to cut corners. Whether it's a quality balance-beam or a trusted electronic scale and trickler, you want one that's repeatable to a tenth of a grain.

Calipers for measuring case and cartridge length, **case prep tools** (trimmer, chamfer/deburr, primer-pocket cleaner), a **priming tool**, a **tumbler or cleaner**, and, most important of all, a **current reloading manual** (a comprehensive one such as the Lyman manual, plus your powder and bullet maker's current data). That manual is your primary reference. Never guess a charge.

From the bench: the three things worth spending real money on are the scale, the dies and the calipers. Everything they touch is either a safety issue or an accuracy issue. Cheap out on a tumbler if you must, never on those three.



A case-prep station keeps trimming, chamfering and primer-pocket work consistent.

The process, part one: clean, size, trim

This is the loop at principle level, not a recipe. Every step is about consistency.

1. Inspect, clean and dry. Before anything, look at every case. This is a safety step, not a formality (see the inspection checklist on the next page). Knock out the spent primers, then clean the brass so grit doesn't score your dies or chamber. Dry tumbling in media or wet tumbling with stainless pins both work: wet leaves brass brighter, dry is simpler. Either way, the brass must be bone dry before it goes near powder or primers, so let it air off or give it a spell in a low oven after wet tumbling.

From the bench: after tumbling, check every case for media or stainless pins trapped inside, stuck in the flash hole, or hiding in the neck. A pin left in a case is a squib or a jam waiting to happen. A quick look and a shake sorts it.

2. Lubricate (bottleneck rifle). Before sizing, give bottleneck cases a light, even coat of case lube. Too little and the case jams in the die; too much and you dent the shoulder. The case should feel slick, not wet, and wipe the lube off again before you load or store the finished round. Straight-wall pistol brass sized in carbide dies usually needs no lube at all.

3. Resize and decap. The sizing die squeezes the fired case back toward its original dimensions so it'll chamber again, and knocks out the spent primer. On bottleneck cases this includes setting the shoulder back a touch, called "shoulder bump," which is exactly the headspace story from our Headspace guide: bump too far and you've handed your chamber excess clearance and started stretching your own brass. Bump just enough and no more. Measuring that bump properly takes a comparator or case gauge, not calipers alone; and the simplest field check is that a correctly sized case lets the bolt close with no resistance.

From the bench: full-length size periodically even if you neck-size for accuracy, because cases grow and shoulders can bind. And always full-length size any brass that was fired in a different rifle, it wasn't formed to your chamber.

4. Trim. Cases stretch as they're worked, so trim them back to a consistent length (your manual gives the trim-to length). Consistent length means consistent bullet release and consistent crimp.

From the bench: on semi-autos and other actions with less camming leverage, measure case length every firing and trim whenever cases approach maximum. You'll trim far more often than with a carefully managed bolt-action batch, and it keeps them feeding and grouping.

The process, part two: prime, charge, seat, check

5. Prime. Seat a fresh primer of the correct type (small or large, rifle or pistol, standard or magnum, matched to your load data) squarely into a clean pocket, fully seated to the bottom of the pocket and just below flush, without crushing it. A high primer is a serious fault: it can cause a jam, a misfire, or in some actions a slam-fire. If a primer won't seat with normal pressure, stop, don't force it. Check for the wrong size, a crimped pocket, or debris in the way.

From the bench: a clean pocket seats primers consistently, so give each one a quick clean. For match ammo, uniforming the pocket to a consistent depth and deburring the flash hole makes seating dead even, a genuine accuracy step, but treat it as a refinement, never a substitute for good data.

6. Charge. Throw or weigh the powder charge from your published data. This is the step that demands the most focus of all (the anti-squib method is on the next page).

7. Seat the bullet. Set the bullet to your chosen cartridge length. Seating depth, how far the bullet sits from the rifling, is one of the biggest levers on accuracy, which is where load development begins.

From the bench: chamfer the inside of every case mouth after every trim, with a good low-drag tool. It stops the mouth shaving copper off the bullet, bulging the case, or seating the bullet crooked. Small step, big difference.

From the bench: neck tension, how firmly the neck grips the bullet, decides how consistently each round lets go, and that shows up directly as velocity spread on the target. Even neck tension comes from consistent sizing, uniform brass and, eventually, annealing. Get it consistent before you chase anything exotic.

8. Crimp (only if needed). Some loads, particularly for semi-autos and heavy-recoiling or tube-magazine guns, want a crimp to hold the bullet in place.

From the bench: crimp as a *separate* step after seating, never both at once, and trim your brass to a consistent length first or the crimp depth will be all over the place. And go easy: over-crimping collapses or bulges the shoulder and the round won't chamber.

9. Final visual and chamber check. Eyeball every finished round, then drop each one through a chamber checker gauge. This matters enough to have its own page, coming up next.

10. Box and label with full load data. Box the batch and label it before it leaves the bench: cartridge, projectile, powder and the charge from your data, primer, brass and number of firings, seating length, the date, a batch number, and which rifle it's for. An unlabelled box of handloads is a guess waiting to happen.



Sizing, seating and measuring. Consistency at every step is the whole game.

Inspect every case, every time

This page could save your rifle, or your hand. Before a case goes back into the loop, look at it under good light:

- **Neck cracks.** A split or cracked neck is done. If you find it on an already-loaded round, quarantine it and pull it down safely, then retire the case. Only reuse components if you're certain of their identity and condition.
- **A bright, shiny ring around the case, just forward of the case head.** This is the big one, especially on bottleneck rifle brass. That ring is the brass thinning from the inside as it stretches, the early warning of **case-head separation**, the failure that vents high-pressure gas back at you. When in doubt, retire the case.
- **Dents.** Small, soft dents usually iron out on firing and are no drama. Serious dents can crack, so bin those or keep them well away from anything important.
- **Loose primer pockets.** If a primer seats too easily, treat that case as a reject and a pressure warning until proven otherwise. Retire it, and if a batch shows it, quarantine the batch and review your load, your brass history and any pressure signs. It's often a hot load, but tired, soft or unknown brass can do it too.

From the bench: the shiny-ring check and the loose-pocket check are the two that matter most. One warns of case-head separation, the other warns of over-pressure. Learn to spot both and you've headed off the two ways reloading actually bites people.



The warning to know on sight: a bright ring low on the case is the brass thinning inside, the early sign of case-head separation. Retire that case.

Killing the squib (the charging step, done right)

A "squib" is a round with too little or no powder, or the nightmare twin, a double charge. Both come from the same place: charging cases one at a time and losing your place. So don't.

Charge a manageable block of prepped cases at once (a tray of fifty is plenty), stood up in a loading block. Then, before a single bullet goes on, **run a strong light across every case mouth and look in.** Every case should have powder, and the level should sit the same as its neighbours. A missed case shows as empty; a double shows as high. Lined up in the block like that, both are far easier to spot than they'd ever be one case at a time. Do the block in one unbroken pass: no interruptions, and never walk away and leave charged cases unattended, that's exactly how you lose your place.

Never seat bullets on cases one at a time as you charge them. That's how a distraction becomes an empty case or a double, and you never see it because there's nothing to compare against. Keep a clearly-labelled *inert dummy* round in the corner of the block as a reminder of what you're building this session, never a live round, which is just a mix-up waiting to happen.

From the bench: this one habit, charge the block, light-check the row, then seat, is one of the cheapest safeguards on the bench. It costs ten seconds and it catches the mistake you can't see any other way.

If you run a progressive press, a powder-check die (which alarms on a missing or double charge as the case passes under it) does this same job automatically, and is cheap insurance for the speed you're working at.

And out at the range: if a round ever sounds or feels wrong when you fire it, a weak report, an odd recoil, stop immediately, unload safely, and check the bore for an obstruction before the next shot. A squib that lodges a bullet in the barrel turns the next round into a disaster.



Charged cases stood in a block, ready for one light check across every mouth before a bullet goes on.

Quarantine, don't gamble. If you're ever unsure about a batch, an uncertain charge, a component you can't confirm, an odd shot, set it aside and mark it. Quarantine means don't fire it, don't mix it into good ammo, don't pass it to anyone. Pull it down safely or get advice. "It's probably fine" is not a plan with a cartridge.

Prove every round before it matters

You've built the ammo. Before you trust it, check it fits and feeds. This is the step people skip, and it's the cheapest confidence you'll ever buy.

Use a **chamber checker gauge** (a simple drop-in gauge cut to chamber dimensions) on **every** handload. A round that drops in cleanly and sits flush will almost certainly chamber in the rifle, and the gauge catches the odd one that's a hair long, not quite sized, or has a high primer. It takes seconds per round once you've got the rhythm.

Here's the distinction worth remembering: **a gauge checks your ammunition against a standard. The rifle checks it against reality.** So gauge every round, and for anything that truly matters, confirm in the rifle itself. When you do cycle live rounds by hand to check feeding, treat it as live fire: muzzle in a safe direction, finger off the trigger, at the range. And for **dangerous-game or critical hunts, personally cycle-check every single round** in the exact rifle you'll carry. The one that jams is always the one that mattered.

From the bench: a chamber checker lives next to the seating die for a reason. "It'll probably chamber" is not a plan when you're a long way from the truck with one animal in front of you.



A drop-in chamber checker. Every finished round should sit flush in the gauge before you trust it in the rifle.

Look after the ammo you've made

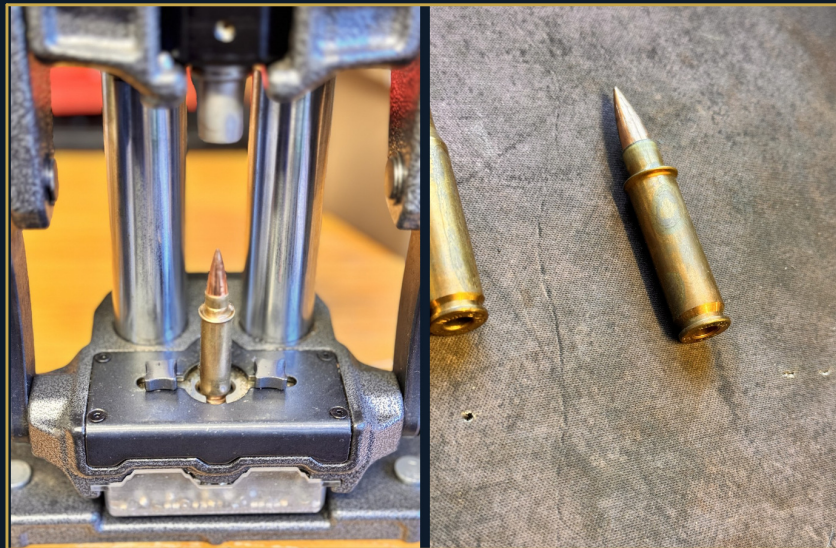
Good ammo can still let you down if it's stored badly:

- **Never leave loaded rounds on a hot dashboard.** Smokeless powder is more stable than the old stuff, but heat can still drive pressure up and stick cases. The glovebox in a Queensland summer is not a magazine.
- **Don't leave cartridges in a leather belt long-term.** Leather holds moisture and its tanning agents corrode brass, and a corroded round won't chamber when you need it.
- **Keep ammo out of open boxes and dusty sheds.** Grit on a cartridge goes straight into your chamber and down your barrel, scoring both and causing malfunctions. Boxed, labelled, and out of the dust.

Myths and mistakes worth avoiding

Reloading has more folklore than almost any corner of shooting. A few worth putting straight:

- **"Neck sizing is always more accurate."** It can help, right up until the case grows and won't chamber. Full-length size periodically regardless, or you'll be forcing a bolt closed one day.
- **"Once you're experienced you can eyeball a charge."** No. Every charge gets thrown or weighed and visually checked. Eyeballing powder is how good shooters blow up good rifles.
- **"More crimp means more reliable."** Over-crimping bulges the case and stops it chambering. Crimp only if the load needs it, and only enough.
- **"Brass is good for a set number of firings."** Brass fails on its own schedule, not a counter. Inspect every case every time. Fatigue is real and it doesn't read the manual.
- **"A hot load's fine if the rifle didn't blow up."** Pressure damage is cumulative and the signs build gradually. Staying inside current published data greatly reduces the risk, but you still start at the published starting load, work up carefully, watch velocity, and prove the load in your rifle.
- **"Semi-autos don't really need trimming or full-length sizing."** They do, and skipping it invites malfunctions and unreliable ammo. Different platform, stricter rules.



What a lapse in focus looks like: a buckled neck and a crushed shoulder. Both are scrap. This is why we go slow.

What actually moves accuracy (and where to go next)

Once your ammo is safe and consistent, accuracy is a game of removing variables. The big levers, in rough order: **consistent powder charge**, **consistent seating depth** (bullet jump to the rifling), **consistent neck tension**, and good, sorted, uniform **brass**. Chase those with a chronograph and careful notes and you'll find the load your rifle likes.



Annealing softens the case neck so it grips the bullet the same way every time. Consistent neck tension is one of the quiet keys to a low velocity spread.

That process, load development, is a craft of its own, and doing it properly (and safely, always working up from published starting loads) is more than this guide can hold. **Beginners:** don't get lost here yet. Master clean, consistent, safe ammo first. The accuracy comes once the fundamentals are boring. **Old hands:** you already know this is the fun part.

We're building a dedicated **Load Development guide** as the next piece in this series, which is where we'll go deep on the method. Until then, your safest, best reference for the numbers is always current published load data.



A chronograph turns load development from guesswork into data. Watch velocity as closely as group size.

Where to go from here

Reloading rewards the careful and punishes the casual, which is exactly the kind of shooter Cap Coast Gunsmithing is built for.

Want more like this? This is one guide in a growing library of straight-talking explanations of the things that matter in precision shooting. Browse the rest: the **CCG Knowledge library**. The Load Development guide is coming next.

Your reference for the numbers. This guide never quotes a charge, and that's deliberate. Always load from current published data: your powder and bullet maker's tables (ADI, Hodgdon, Vihtavuori, Hornady, Nosler, Sierra) or a current loading manual such as Lyman's. Start low, work up, one change at a time.

Log it in the app. The free CCG-LR app is built for exactly this kind of record-keeping: your loads, your dope, your truing. [About the app](#).

And a paper record for the bench. Our free printable [Load Development Log](#) has a line for every field that matters and a row for every charge step. Print it and keep it by the press.

And the bigger picture. First Round Effect, the CCG Long Range Programme, is where we teach the *shooting* side, trajectory, wind, zeroing and reading conditions, to put that handload where you want it. [See the course](#).

Safety first. Data always. Ego never.

A note on safety

Reloading is a rewarding craft, but it carries real risk, and this guide is general education, not a set of instructions for a specific load. It deliberately contains no load data. Always work from current published load data for your exact components, start at the published starting charge, work up in small steps, and change only one variable at a time. Trust a load only after you've validated it, carefully and on record, in the rifle it's meant for. If anything looks wrong, a bright ring on a case, a loose primer pocket, a sign of high pressure, stop and seek advice from a qualified gunsmith or an experienced handloader. And confirm you're within your firearms licence conditions and your state or territory's storage, handling, transport and licensing rules before you buy, store, load or transport anything. When in doubt, don't.

Reloading rewards patience, not ego. The best handload isn't the fastest one, it's the one you can measure, reproduce and trust because the data backs it up.

© Cap Coast Gunsmithing · Yeppoon, Queensland. Prepared as general educational guidance.