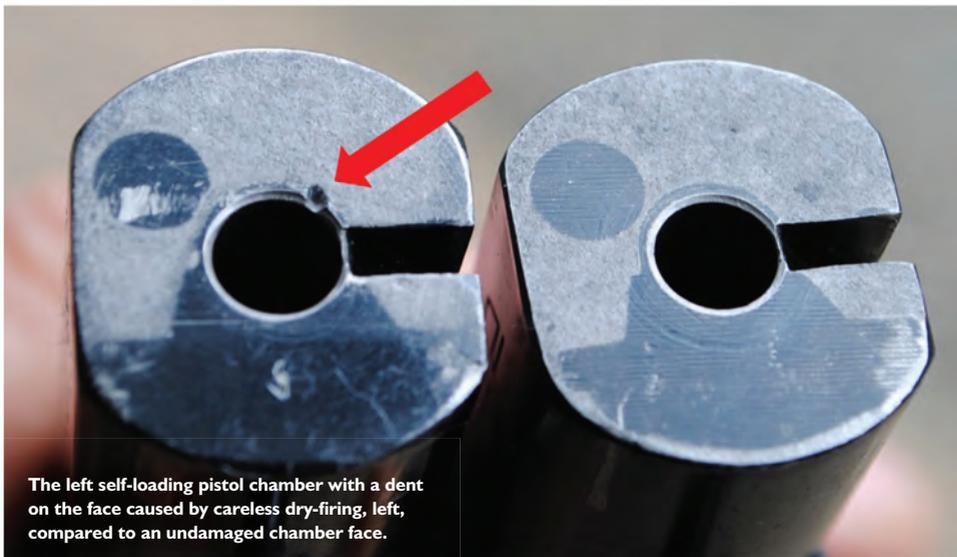


Understanding and remedying .22LR handgun malfunctions

by Alek Wadi



The left self-loading pistol chamber with a dent on the face caused by careless dry-firing, left, compared to an undamaged chamber face.

The most common malfunction in handguns is a feeding problem due to a dirty chamber or a faulty magazine.

At our club, I see disappointed friends having problem after problem with their .22LR-calibre self-loading pistols or even with their revolvers. Often, this could be avoided or repaired with some experience, understanding of the functioning of a pistol, a bit of thinking and a lot of reading.

In the following, I will review the most common malfunctions in .22LR pistols with suggestions on how to remedy them. If you have an occasional malfunction or misfire, let's say every 500 to 1000 rounds, don't worry; this is perfectly normal and part of the ammunition statistics. However, if you have a malfunction or

misfire with every 10 to 20 rounds, then you had better find your solution.

The most common malfunction in handguns is a feeding problem due to a dirty chamber or a faulty magazine. Failures of the bolt to return to battery, misfires and hung casings may indicate a mismatch between your ammunition and the magazine, a damaged firing pin, a worn-out extractor and/or ejector or weak recoil or other springs.

You may be able to complete many of these repairs yourself with caution and in accordance with your state or territory's laws. However, as with any changes to your firearm, if you don't

feel confident, please consult a qualified and experienced gunsmith.

Before you proceed and do the suggested check and possible repairs yourself, always make sure that your handgun is safe. Point the muzzle in a safe direction, remove the magazine and check **twice** that the chamber is indeed empty on your self-loader, or open the cylinder of your revolver and ensure again that all chambers are empty.

Common problems fixed with cleaning

Are you experiencing frequent feeding, extraction or ejection problems at the range? Are you



having difficulties chambering your rounds? Does the (bolt) breech close properly against the chamber after chambering a new round without applying due force? Have you experienced a 'dead' trigger and no shot? Have you noticed the rear of the case protruding from the chamber? Is the round set properly against the chamber face? This would come mostly from crud accumulating at the bolt face or at the breech (chamber face), leaving the rim of the cartridge unsupported.



A cartridge fails to fully enter the chamber and the bolt face does not contact the chamber face. This could be from a dirty chamber or worn-out recoil spring.

Have you cleaned your equipment after the last shooting session? If not, your firearm is no doubt still dirty with muck, grit and bullet wax all over the chamber face, the bolt, the magazine well and other places. Therefore, the first step is to give your firearm a thorough cleaning.

The .22LR round has a lead bullet, but the length and hardness of the bullet may vary from manufacturer to manufacturer. If you have been using different ammunitions, it is likely that you have lead accumulation inside the chamber, especially at the end just before the rifling starts. This area may prevent long bullets from feeding properly. It could also happen in target pistols with tighter chamber specifications.

Similarly, repeated firing leaves carbon residues, especially if the chamber is on the saggy side. Powder residues and carbon accumulate on chamber walls without regular cleaning. When cleaning the chamber, be careful not to damage the rifling. Use a dedicated .22LR bore brush, preferably of nylon to start with or all bronze. Do not use steel at all in the chamber or on the rifling.



A rimfire case-head ruptures due to the round not being in the battery and the bolt face remains slightly open when the firing pin strikes.

Bend the brush into an 'L' shape, with the short leg as long as a spent case. This will allow cleaning the chamber without getting the brush into the rifling. Rotate the bent brush back and forth using a lead and carbon solvent. Clean the chamber with several passes with a cotton patch. Again, do not get into the rifling, as you will push all sorts of residues in there. Repeat as long as necessary until the cotton patch comes out clean,

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then mop out the residues at the entrance of the rifling with a cotton bud. With a cotton patch, clean the rifling from the muzzle to the chamber to remove all remaining dirt.

Now, take your firearm to the range and, as always, with much care and pointing the muzzle in a safe direction and with the safety on, insert a live round into the chamber. Is it any better? Remember to remove the live round from the chamber before packing your gun away.

Damaged chamber entry

Some of the aforementioned problems may also result from a damaged chamber entry. The .22LR is a rimfire cartridge that is ignited by a strike of the firing pin on the circumference of the rim against the face of the chamber. The barrel of your gun is made of rather soft steel that can be easily damaged with repeated and careless dry-firing. This is not recommended on a .22LR firearm, so use a plastic plug in the chamber.

You may see a small burr or indent created by the strike of the firing pin on the periphery of the entrance of the chamber. Depending upon the firing pin indent or burr, this could be fixed by your gunsmith with a special .22 chamber ironing tool. It will swage out the burr in .22 chambers until smooth and round, and most of the time, it will restore proper case feeding and extraction. Do not attempt to fix, file or grind the dent or burr yourself, as you may ruin your barrel or

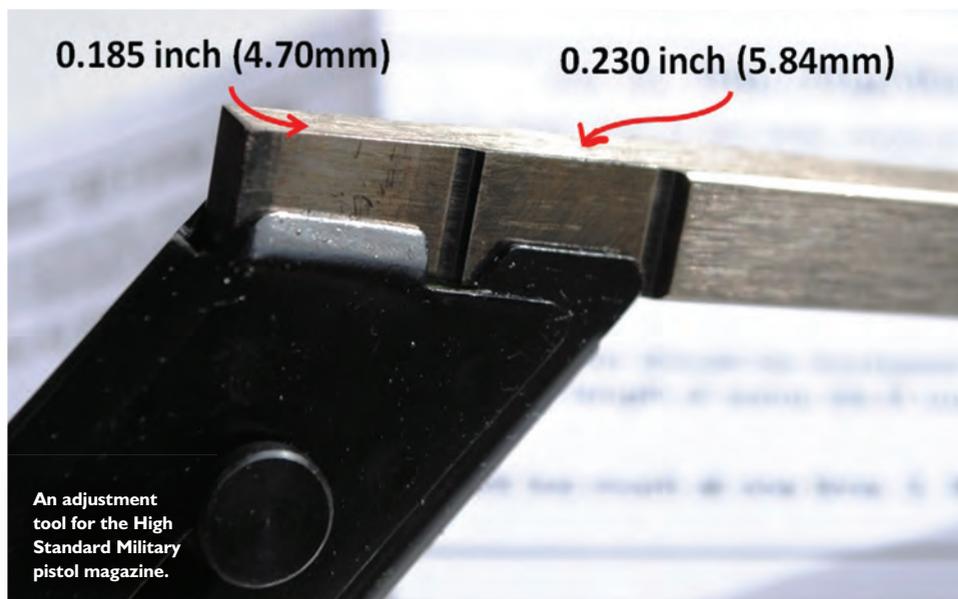
cylinder. Talk to your gunsmith.

Recoil spring and rod defects

Self-loading pistols may receive recoil spring and rod defects. If the spent case failed to extract, first make sure that you are using the proper ammunition with your firearm. Some .22LR self-loaders are a bit fussy with their ammunition. For subsonics, you may use extra-heavy 46- to 61-grain bullets (3-4g) or better, for standard-velocity, 40-grain (2.6g). For high-velocity, we have 40-grain solids (2.6g) or 36-grain hollow-point copper-plated lead bullets (2.3g), and for hyper-velocity, we have 30-grain (1.9g) to 32-grain (2.1g).

Different bullet weight means different length projectiles, which is another possible cause of misfeeding. There is generally no need for high- or hyper-velocity copper-plated ammunition in .22LR self-loaders with short, 5 to 6" (13 to 15cm) barrels. These projectiles will increase the recoil, impose more stress and possibly damage your pistol, as well as deposit copper coating in your barrel. Standard-velocity .22LR loads are usually recommended for most common self-loading target pistols. A few subsonic ammunition brands may also not generate enough recoil energy to action the bolt.

Finally, make sure you use a .22LR cartridge with a case length of .613" (15.6mm) and not a .22 Short rimfire cartridge of .421" (10.7mm) unless your pistol is designed to shoot .22 Short.



Again, rimfires are notoriously fussy, so try different appropriate .22LR types and brands until you find the one you pistol shoots best.

Another rare incident could happen when the round is not fully chambered, the round does not go into battery and the firearm does not lock up. An ammunition expert would say this is a 'firearm issue' and not an ammunition problem. However, if the round is out of chamber as little as .012" (0.35mm) and you pull the trigger, the rimfire case-head may rupture when the bolt face remains slightly open and the firing pin strikes, resulting in dire consequences.

A weak recoil spring or a damaged recoil rod could be the culprit too. Compare your old spring and a new one. Is the old one shorter than the new one? Does the spring have marks of wear and tear? This would prevent the slide from fully pushing the cartridge into the chamber. In this case, replace the weary recoil spring and carefully examine the guiding rod. It has to be perfectly smooth with no tool marks or dents. You may polish the rod with a 400-600-grit fine sandpaper. Clean the rod carefully to remove any trace of grit before you replace it. If this is not possible, replace both the faulty rod and recoil spring.

Magazine defects

If you cleaned your chamber and are still experiencing feeding problems, this may be from magazine defects. Before you proceed, wear glasses to protect your eyes from parts and springs that may fly over your bench. Again, if



you're not confident, consult your gunsmith.

Magazine feeding defects come from a dirty magazine that has accumulated grit and carbon residues. To remedy this, you have to disassemble the magazine. Carefully remove the floorplate and extract the spring and elevator. Dip the lot in a quality firearm solvent, then brush with an old soft toothbrush all parts

including inside the magazine frame where the dirt accumulates. Wash out any dirt with the solvent. Once done, dry all parts using compressed air. Make sure all parts are perfectly dry and that no solvent is left inside the magazine frame to prevent contamination of ammunition. Reassemble, slightly oiling the metal elevator (don't use oil on plastic ones) and the slide knob

too. Be reasonable when oiling, as too much oil will accumulate and foster dirt and grit.

Look out for mechanical or manufacturing defects in the magazine. Once you have cleaned your magazine, test it empty. Is it working smoothly, or is it 'stuttering', gritting or scratching? Does the follower get stuck or have difficulties moving up or down? If so, it could be a worn-out and slack magazine spring. Any 'thwack' on the spring? Replace the spring with a new one, checking that the new spring is for a .22LR or (for a .22 Short) magazine. Or better still, buy a new original magazine.

It could be that there are still some burrs or irregularities inside the magazine casing made of stamped steel. Test your magazines for smooth movement of the follower. If you still feel pauses as the follower moves up or down, disassemble the magazine. Wrap 400-600-grit fine sandpaper around a pencil and clean up any burrs inside the magazine casing. Make sure to completely clean the magazine again before reassembling it. Slightly oil the moving parts, with no oil drip from any parts of your magazine.

Now, go to the range and test. Hopefully, there will be no more problems. If the new rounds keep failing to get into the chamber, proceed to the next possibility.

Another glitch may be that the feeding lips of your magazine are out of alignment or worn out. Have you dropped your magazine on a concrete floor recently? Or do you toss your magazine into your range box with any other tools? Remember that the lips of the magazine are essential parts of your pistol, holding and properly guiding your new cartridge onto the ramp and/or in the chamber. If the lips are damaged, worn out, sharp with burr or misaligned, the feed angle on your magazine is almost certainly wrong, especially so if the lead of the cartridge is visible above the front lips.

As an example, the following recommended adjustments are only valid for the High Standard Military pistols that have no feeding ramp. Other .22LR self-loading pistol magazines may have different adjustments. If you do have another pistol, do not attempt to adjust with these specifications. Buy a new original magazine for your firearm.



A cartridge in a magazine protrudes too far upwards (wrong feeding angle), top, compared to a cartridge at the proper feeding angle.

On the High Standard magazine, check the rear (feeder lips) and the front lips (kicker lips). Are they parallel and properly spaced? The rear lips must make contact with all the length of the brass of the case of the top cartridge. The internal dimension between the parallel rear lips must be about 0.185" (4.70mm), while the internal dimension between the parallel front lips must be around 0.230" (5.84mm).

If they are not, you will need to adjust them. Use a small pair of pliers or a special magazine adjustment tool (available from www.highstandardpartsonline.com) and insert it to check the spacing, symmetry and parallelism of the front and rear lips simultaneously.

Bending the rear lips in will lower the feed angle, while opening these lips will raise the feed angle. Adjust each lip equally a small amount and test the placement of the cartridge. If too much lead is exposed, the cartridge may feed high and hit the top of the chamber. If the rear lips are bent down too much, you may have a jammed cartridge hitting low on the chamber. Adjust the front lips so that the bullet itself slips freely between the front lips. If this is too difficult for you, buy an original magazine for your pistol. This could be more expensive than a cheap copy, but will certainly serve you well.

Firing pin defects

If you experience an occasional misfire, it is likely a bad cartridge. No mercy, throw it away! If you have frequent misfires, the chamber may still be dirty with crud accumulated at the breech and elsewhere. Clean it up again. Then check that



'Stovepiping' or a 'hung case', likely caused by a worn-out or bent ejector.

the firing pin moves freely in its casing. The firing pin must strike the rim of the cartridge against the face of the chamber, but the strike may be not strong enough to ignite. If not, the firing pin casing and spring may be packed full with dirt. See your gunsmith to have it properly cleaned.

Does the firing pin protrude from the bolt face? Is the striking end of the firing pin blunt, rounded, worn out or damaged? If in doubt, consult your gunsmith and have a new original firing pin and spring fitted.

Extractor defects

A loose, worn-out or broken extractor is often proven by the failed extraction of the spent case. The case stubbornly remains stuck in the chamber whenever you try to eject it by pulling the bolt rearwards several times. If so, push the spent case out of the chamber with a bronze cleaning rod carefully inserted from the muzzle. Do not use a sharp object or a screwdriver to extract the refractory spent case, as you may damage the chamber face. Check that the extractor groove is not obstructed or blocked with accumulated crud and dirt. If so, clean it carefully with a soft toothbrush.

Have a look at the extractor end on the face of the bolt. Use a lens to examine the end of the extractor. Is the angle of the end 'hook' open and rounded, or worn out? If so, have a new ejector and ejector spring fitted. Remember that the extractor is made of hardened steel that may shatter under a sharp blow. This may happen when you remove the bolt from your pistol and it escapes from a slippery hand, unexpectedly striking the barrel face.

Ejector defects

Do your spent cases extract but not fully eject? Do they get caught upright or sideways between the bolt and the chamber? This is a 'hung case' or what is called 'stovepiping'. If it happens often, the reason may be a loose or bent ejector that negatively affects the backward and forward motion of the bolt, causing problems with extraction, ejection or feeding. This may also be caused by 'weak' ammunitions or a faulty recoil spring or rod. Test other ammunition brands and if it is not resolved, consult your gunsmith.



Special pliers to adjust the lips on the High Standard magazine.

Revolver feeding problems

Most of the time, feeding problems on rimfire revolvers come from damaged chambers caused by repeated dry-firing. Proceed as you would for any self-loading pistol to remove burrs at the entrance of the chambers if any, and clean the chambers for possible grit, carbon and lead accumulation.

Misfires may also come from a worn-out or damaged firing pin. Get an original new firing pin replaced by a qualified gunsmith. Insist on having a new **original** firing pin installed, and not a locally made one that will cause much more damage and frustration.

Summary

If you experience any of the situations mentioned, you may try to remedy them by yourself. However, if you feel you don't have the time, resources or confidence to do the job safely or properly, don't hesitate in seeking the expertise of a qualified gunsmith. If you are told that the firing pin or any other parts are worn out, have them changed for new original ones. You may be able to acquire ones locally made, but I find it's more effective to just buy a whole new set of original parts and springs and have all the old ones replaced. You won't regret it. ■