

Flintlock Muzzleloaders

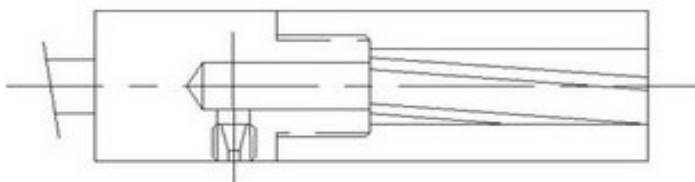
For pilgrims who have interests in traditional FLINTLOCK muzzleloaders (aka "sidelocks"), I've cobbled together a bit of information about these guns as they pertain to both onshore built and the "cost effective" variety found offshore (via Spanish and Italian manufacturers), based on my experiences with such guns over the last 5 or so decades of shooting, smithing, and kit building such firearms. Some of the foregoing will also pertain to percussion (cap lock) guns, but I vastly prefer those of flintlock ignition. In-line muzzleloaders are modern concepts that have absolutely no place in any talk of traditional sidelock MLs.

IMHO, onshore built guns from reliable outfits and gunsmiths are typically the better way to go for a reliable gun that will excel in both performance, durability, and overall value. These guns will sell new for at least \$1500, though used versions can be had for in and about \$1000. As with anything in life, there may also be some caveats to onshore gunsmiths, and investigation of such is prudent thinking before purchasing.

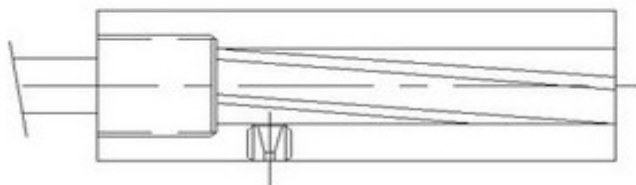
Offshore trad MLs mostly come from manufacturers in Spain (Traditions, CVA, etc) and Italy (Investarms, Pedersoli, etc - typically re-branded as Lyman, Cabela, DGW, etc). My decades of experiences with Spanish built trad MLs has not been all that good, mostly with breech plugs that are seemingly welded to barrels. Indeed, Traditions advises that tampering with their breech plugs is tantamount to destroying the gun. On the other hand, most if not all the Italian guns will exhibit breech plugs that can be removed. Why the need to remove a trad ML breech plug? Truthfully, there may never be a need if the gun is treated properly and is well maintained. However, then there is Murphy's Law. You be the judge.

Patent breech plugs. Almost all offshore trad ML guns sport them, as opposed to almost all onshore trad MLs that employ classic flat faced breech plugs. What's the difference and what's the big deal? Patent plugs have "ante-chambers", which are chamber bore constrictions that are thought to enhance muzzleloader ignition, but I and many others think otherwise. As you can see from the images below, the smaller diameter ante-chamber will never accept any manner of fouling control from a bore sized cleaning rod. Most ante-chambers are best addressed for fouling control by a fitting the cleaning rod with a bronze or nylon brush that's of ante-chamber diameter, and draped with a patch. Clearly, understanding these patent breech plugs is important, and failure to recognize they need special attention has ruined more than a few offshore trad MLs from ever achieving reliable ignition, if not badly bugged breech plugs that typically will need removal and/or replacement.

**Patent
Breech
Plug**



**Traditional
Breech
Plug**



A flintlock is a 17th century French invention that uses a stone (the flint) to strike a piece of very hardened steel (frizzen, or "hammer steel") in order to scrape off tiny bits of white hot metal which falls down to ignite the pan powder, which in turn throws extreme heat into the barrel chamber touch hole that ignites the main powder charge within the barrel's chamber. With a good lock, this occurs in milliseconds and the resulting ignition and blast out the muzzle are nearly simultaneous.

Typically, all offshore flintlocks will arrive with cut flints in the jaws of the cock. While cut flints will work to some degree, knapped English black flints or knapped amber French flints are far more reliable and it is highly recommend using knapped flints only. Knapped flints will almost always be sharper and, because they are knapped, they can be easily resharpened by knapping them while right on the gun, which is quite the common practice. There are two kinds of flints - common and fine. Common knapped flints are thick and have two cutting edges that can be swapped around. Fine knapped flints are thinner than common flints and have one cutting edge. Most flintlock users will eventually gravitate to using only fine knapped flints. Track of the Wolf can provide either style of knapped flint IF specified.

When things don't go well - no flint/frizzen sparks, pan flashes and no main charge ignition, delayed "kaaaaaa-boom!" ignition ...

Flintlock pans ***MUST*** be primed with REAL black powder. "Substitute" black powder is actually a form of smokeless powder. "Subs" are fine for the tube, but not the pan. Real black powder is hard to find locally. This is mostly due to government black powder storage regulations for sporting goods stores, and the fact that the demand for real black powder has wanned over the years in favor of sub powders for the more popular in-lines and percussion cap guns. As a result, most of us get our black powder via mail order or by attending muzzleloading events that have on-site sponsors. Typically, group buys for larger quantities of black powder are the way to go for lowered cost per pound of powder. Most buys are in 25 to 50 pound lots. Today, the better commercially offered black powder is either Swiss (Germany) or Olde Eynesford (USA) and they will both cost more per pound. Goex (USA) is cheaper and still a solid performing black powder.

Contrary to popular "interweb" thought, there is no need for special fine flintlock pan powder. The impression that 4F or Null-B is required for the pan whilst 2F for the tube, isn't at all that necessary. One powder granulation, such as 3f or even 2F, is a good answer for both pan and tube, for reliable fast ignition, and excellent performance. It means that one pound of powder will do the job instead of the need to buy two pounds of powder. Also consider that centuries ago the most common of black powder was coarse 1F, and 2F was considered "fine". I use Swiss 3F for all calibers, from .32 to .62, for both pan and tube.

The flintlock. The mating of all moving surfaces of the lock can have an effect on the lock's performance. The lock can be completely taken apart, the lock plate fine filed smooth and flat, sears polished, put back together and all bearing surfaces oiled. This effort is usually beyond that of most folks, so just cleaning off the lock and applying a tiny drop of oil to bearing surfaces will do just fine. The knapped flint should be sized so that it's just as wide as the cock jaws, but it can be a tad wider. it's initial length should allow it to be wrapped with a thin piece of leather and sit in the cock jaws so that when the cock is at half, and the hammer steel (frizzen) is closed over the pan, the cutting edge of the flint will barely touch the hammer steel's face. Make sure the stock side of the flint that's in the cock jaws doesn't come into contact with the stock - move it over as need be and tighten down the cock jaws. As the flint wears, and is knapped sharp, the flint can be moved to sit further out of the cock jaws, to better achieve that close half cock distance to the hammer steel.

Flint bevel up or down? All that matters is where the cutting edge of the flint strikes the hammer steel, and that it will reliably scrape off white hot bits of the hammer steel's face to ignite the pan powder. Let the lock dictate whether to go with bevel up or down. The hammer steel (frizzen) needs to be Very hard. If not hard enough, the flint will not produce proper white hot sparks and ignition will not be as reliable as it should. The hammer steel can typically be easily removed and sent out to a smith for hardening.

The barrel chamber touch hole (aka "vent"). It needs to be properly sized. If need be, drill it out with a 1/16" (.062") drill bit. If the touch hole has a removable liner, as most will be with offshore guns, remove it before drilling. It *may* need to be further opened to 3/64", but only if *all* other avenues of ignition are explored.

Sizing the projectile. A patched ball needs to fit the bore properly. "Properly" means either a super tight fit (as used by target shooters) that will require a short starter rod to pound the patched ball down into the first 4 to 6 inches past the muzzle, or a press fit that only requires thumb or knife handle seating past the muzzle. There are proponents of each kind of load. For the most part, a cast pure lead ball that's about .010" less than the diameter of the rifling bore is a good projectile start (i.e. - .490" ball for a .50 bore). Acquiring several thicknesses of 100% cotton or linen patches or patch material will allow testing for the fit of the patched ball. However, unlike working up a load for a cartridge gun, once pushed past the muzzle, a patched ball will not be as easy to remove as it would be for a cartridge in a rifle chamber. It's probably a good idea to have at least two different patch thicknesses for the first load of any trad ML, .010" and .015", and use the thinner first - this is called a "loose ball load", and at least initially it will offer some good benefits.

Loading the gun. Is the gun already loaded? Some folks leave muzzleloaders loaded. This is not a good idea, nor a safe one. If in camp, on the hunt, leaving the muzzleloader loaded overnight makes sense, but to come home from a day at the range or afield and leave the gun loaded for an extended days of time is not a good idea. You be the judge. For any trad ML, new or used, before its first shooting, clean it. The loading/cleaning rod that came with the gun will work well. Fit one end with a jag that's proper for the bore of the gun. Patch material (any 100% cotton or linen material (t-shirt, etc) can be cut into patch squares. What liquid to put on the patch? Pretty much any gun cleaning solvent, or just use WD-40. Wet the patch and run it down and out the tube. Do this until a patch comes out *reasonably* clean - patches will Never come out 100% clean, it is what it is. If the gun is an offshore type with a patent breech, remove the jag and replace it with a bronze or nylon brush that's .22 to .30 in caliber, drape the brush with a patch, and run it down the bore and into the patent breech plug ante-chamber. Do this until the patch comes out *reasonably* clean.

Now is a good time to take an empty barrel measurement. With the cleaning/ramming jag screwed on its end, drop the ramrod down the barrel until it comes to a stop at the end of the main chamber (which sits in front of any ante-chamber). At the muzzle, put a mark on the rod - best done by scoring/indenting the wood, all around the rod with a knife. This is the empty barrel indicator. You will use it often.

If the gun is to be immediately loaded and shot, run 2 or 3 dry patches to clean out any liquid - do this for the tube and then for the ante-chamber. If the gun is to be stored, dripping wet a dry patch with a good gun oil and run it down the tube and leave the patch, jag, rod in the barrel. This is all good insurance against rust.

With a clean and dry bore (offshore guns: dry ante-chamber, too), measure a charge of black powder from a powder horn or powder can into a fixed size powder measure and pour the powder down the barrel. Thump the side of the barrel/stock with your hand to settle the powder into the barrel chamber(s). Lube the patch or patch material. This lube can be saliva (only if the gun will be immediately fired) or most any commercial or homemade lube. Place the patch or patch material over the muzzle. Thumb the ball slightly into the patch material and partially into the muzzle. This is where a thin patch used for the very first load fired from the gun makes sense - it will be an easy start and seat, just use a thumb or knife handle to push the patch and ball down past the muzzle. If a strip of patch material is used, take a sharp knife and cut off the excess patch material flush with the muzzle. Holding the ramrod a few inches above its ramming end, begin to push the patched ball down the barrel, always holding the rod only a few inches above the muzzle. Holding the rod 6 to 12 inches above the muzzle will probably introduce lots of flex that can break the rod off and into your hand! Now "bounce the rod" - flick the rod down the barrel to smack the patched ball. Do this until the rod "trampolines" up. This insures that the patched ball is seated directly on the charge of powder. Any air space between powder and ball is not a good thing that can bulge barrels, or worse. Leave the rod down the barrel and on top of the patched ball. Mark/score the rod at the muzzle - this is your loaded gun indicator.

Cradle the the gun with an arm, keeping the muzzle pointed down range, put the cock to half notch, open the hammer steel fully off the pan, take a piece of clean cotton cloth and wipe the face of the hammer steel, the cutting edge of the flint, and the pan. Take your vent pick (a piece of non-ferrous wire - brass or copper - that's under 1/16" in diameter) and poke into the touch hole. This will increase the surface of the chamber powder that will receive the heat of the pan flash, to better enhance ignition of the main powder charge.

From the powder horn or flask or can, shake a few grains of powder into the middle of the pan. It should not be so much powder as to fully fill the pan, nor be located closer to or further away from the touch hole. Close the hammer steel. Pull the cock to full notch. Shoulder the gun, with butt set firmly to the shoulder. Aim. Pull the trigger.

If nothing happens and no spark was generated - make sure to use a knapped flint, or knap the existing flint. Check that the hammer steel is clean, that the pan has powder, try again.

If the pan flashes but there is no main powder charge ignition - was the barrel clean and DRY before the main powder charge was poured down the tube? Put the rod down the barrel to insure the gun is properly loaded. Bring the cock to half notch, clean the hammer steel, the flint edge, the pan. Put a few grains of powder in the pan and tilt the gun so that the pan powder is up against the touch hole. Use the touch hole pick to force a few kernals of fresh powder into the touch hole, and then pick deep into the touch hole. Center the pan powder, close the hammer steel, come to full cock, shoulder, aim, fire.

If the pan flashes again but there is no main powder charge ignition, and the ramrod indicator shows that the full load mark is below the barrel muzzle, it was probably "dry balled" - no powder, only a patched ball. If the gun is charged and the pan repeatedly flashes but no main ignition occurs, it could be wet powder. In both of the aforementioned conditions, the remedy will begin by pulling out the patched ball. If the ball was "tight patched", this will be a chore at the least. If the ball was "loose patched", it should be relatively easy to remove using a ball worm screw to replace the patch jag, running the screw worm down the tube and into the pure lead ball, twist the rod while applying pressure on the ball so that the screw worm will bite into the ball for purchase.

Pull on the ramrod while someone holds the gun. A lanyard might be able to be attached to the ramrod end so that it can be looped over an object (tree limb, etc) and then pulling the rifle can release the ball out of the barrel. I use a heavy brass cleaning rod for ball removals. The working end is always fitted with a ball worm, and the handle end is drilled for an added lanyard loop of parachute cord. I allow the weight of the dropped brass rod to drive the ball worm into the ball. Everyone will dry ball sooner or later. It is what it is.

If the gun fired, great. Time to directly reload, or clean then reload? If time to immediately reload without doing fouling control, it's time to immediately blow down the barrel. This is a centuries honored practice that achieves two direct benefits. First, it insures that there are no hot embers left in the tube or chamber(s) that are waiting to detonate the new load of fresh powder poured down the tube without doing any fouling control. Gun crank author Mike Nesbitt failed to barrel blow after taking a shot and upon tipping his measure of powder down the tube it blew up nearly in his face. He was extremely lucky he was not injured or worse ... and brave to be humble enough to write about his failing as a warning to all. As a result of the 1992 NMLRA ban of blowing down the barrel, all USA gun clubs will not allow that practice to occur at their ranges and shoots. Second, moist breath keeps the black powder residue soft for a possible reload without fouling control, or at least will make fouling control easy. Blowing down the barrel was always endorsed by muzzleloading groups such as the NMLRA, but they banned the practice as considered unsafe. I read that as a "politically correct" NMLRA call. Read more about this here ...

<http://www.bwanabob.info/page2.html>

I will *always" barrel blow immediately after every shot is fired. Not doing this is, in my opinion, a totally unsafe practice.

For a first time go 'round with a new gun, or as a new trad flintlock muzzleloader shooter, I recommend doing fouling control after every shot fired, at least initially. Wet a patch and run it down and out the tube. It will be filled with black powder residue crud. You can run down another wet patch if you like. Down and out a dry patch. If it's an offshore gun, remove the patch jag and replace with the ante-chamber brush, drape with a wet patch and send it into the ante-chamber, twirl it around, pull it out. Replace that wet patch with a dry one and dry the ante-chamber. Do that again. Load the tube - powder, lubed patch, ball. Cock to half notch and clean the hammer steel, flint cutting edge, pan. Pick the touch hole. Powder in the pan, hammer steel down on the pan, cock to full notch. Shoulder. Aim. Fire. Repeat. Life is good. :)

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