

## WHAT ARE THE MUZZLE-LOADING ARTILLERY SAFETY RULES AND WHY ARE THEY IMPORTANT?

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Loyal Train of Artillery Chapter of the United States Field Artillery Association

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The purpose of the drills taught by the Loyal Train of Artillery Chapter of the United States Field Artillery Association (LTAC-USFAA) is safety, and given the number of artillery accidents that have occurred over the years, there is no greater responsibility of a member of a cannon crew than to ensure the safety of the cannon, the crew, other Muzzle Loading Artillerists, other reenactors, and the general public. Each member of the cannon crew is a safety officer with the duty to prevent anything unsafe from happening. The following safety rules of the LTAC-USFAA have been compiled from actual experience in the field.

1. The Three-Minute Rule must be followed at all times – no exceptions. This rule states that three-minutes must elapse between the time the cannon fires and the next round is introduced into the muzzle. Since the last thing that happens when a cannon is fired is that the tube is wormed and sponged, and the first thing that happens when a cannon is loaded is that the tube is wormed and sponged again, the chances of premature firing from burning embers are greatly reduced.
2. All members of the gun crew must wear ear protection when firing powder charges.
3. All crew members must make sure they are never directly behind the wheels or the carriage when the cannon is loaded. This is to prevent recoil injury and should be followed whether or not live ammunition is being used.
4. The artillerists serving on the gun (Numbers 1-4) must wear wool coats buttoned neck to waist when firing powder charges. Wool does not burn, and this provides protection in the event of premature firing.

Cotton does burn quickly and canvas burns more slowly, so these should be reserved for shirts and pants only.

5. No one may wear any synthetic material while serving on a cannon crew. Synthetic materials melt in heat and can fuse to the skin in an accident.
6. The artillerists serving at the front of the gun (Number 1 & 2) should wear leather welding gloves on both hands when firing powder charges. Leather does not burn, and this helps protect the hands in the event of premature firing.
7. Number 1 should always have the thumb of their right hand pointing out and their right hand grasping the rammer on the bottom when firing powder charges. This will reduce injury in the event of premature firing while ramming.
8. Never use flour, corn meal, or other substances with powder charges. It creates a fire hazard and makes the tube harder to clean. It can also reduce the smoothness of the cannon's bore, increasing the chance that a powder charge could be accidentally ripped open while ramming and causing a potential premature firing situation.
9. Be careful not to load too much powder into each charge. Be sure to use Fg or cannon grade black powder ONLY (never use anything other than black powder). Powder should not exceed 2 oz. per inch of the bore diameter.
10. Never use charges that are not double wrapped in heavy aluminium foil. Make sure there are no holes or tears in the foil.
11. Never use charges where the black powder is not placed in a sandwich "baggie" prior to being wrapped in foil. This keeps the powder from getting imbedded in the aluminium foil and reduces the chance of the powder charge breaking open while ramming and causing a potential premature firing situation.
12. Never ram two charges at the same time to create a bigger bang. One could explode outside the muzzle, creating a dangerous situation with shrapnel from the aluminum foil. To create large charges, load two baggies of powder into a single foil tube. If it is too hard to get the baggies in the tube, take a double thick sheet of foil and wrap it around the baggies to make the charge.

13. Do not allow anyone not part of the cannon crew or its chain of command to cross between the limber and the carriage.
14. Do not fire if anyone is within a 90 degree arc from the centre line of the tube or within 50 yards of the front of the muzzle.
15. Always fire with the cannon set at maximum elevation when firing toward other people.
16. Keep the limber locked at all times when not in use.
17. Do not let anyone smoke within 20 yards of the cannon line or the limber line, regardless of whether or not the limber is locked.
18. Do not let anyone who has consumed alcohol within the past 12 hours to serve on a the gun crew. The liability is just not worth the risk.
19. Make sure all gun crew members are properly trained and supervised.
20. Make sure the area around the limber and between the limber and the cannon is free from rocks, sticks, or anything else that could hamper safe operation of the cannon.
21. Never allow anyone to fire small arms over the limber chest.
22. When retreating without the cannon during a reenactment, take all implements, lock the limber, and make sure someone “dies” on top of the limber to keep anyone from using it.
23. Never leave a loaded cannon unattended.
24. Always look around before firing to be sure it is safe to do so.
25. Always inspect the cannon before its use. The inspection should be carried out by the Gunner, the Chief of Section, and the Safety Officer.
26. Vent Pricks. When using a cast iron or steel barrel, be certain to use a bronze or brass vent prick. When using a bronze barrel, be certain to use a steel vent prick. This is to prevent a spark from being generated by using a ferrous metal with another ferrous metal when cleaning the vent. An unintended spark could cause the powder charge to prematurely fire while the powder charge is being pricked before the friction primer is inserted into the vent.
27. Medical Kits. It is advisable to have at least one US Navy M-3 Medical Kit (or equivalent) in the Limber Chest at all times to handle on-site emergency situations.

28. Water. Always make sure that all cannoneers are well hydrated at all times.

Reenacting is a hobby, and while black powder can be dangerous, there are ways to keep the hobby safe for artillerists, other reenactors, and the general public. The key is to be observant and to be prepared.

Ready to learn more about the muzzle-loading artillery safety taught by the LTAC-USFAA? Artillery Safety is taught to all students who attend the Artillery Schools, and the manuals can be purchased online at <http://artillerypublications.com/>.