Safety Rules

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, 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 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 load command is given. This helps ensure that any burning embers remaining in the tube from the previous firing are extinguished before another powder charge is introduced into the tube. 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 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. Number 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. 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 steel wool with powder charges. It creates a fire hazard and makes the tube harder to clean.
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. Do not allow anyone not part of the cannon crew or its chain of command to cross between the limber and the carriage.
13. 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. A 12-pounder Napoleon firing a 2 pound charge could easily knock someone off a horse within that distance.
14. Always fire with the cannon set at maximum elevation when firing toward other people.
15. Keep the limber locked at all times when not in use.
16. Do not let anyone smoke within 20 yards of the cannon line or the limber line, regardless of whether the limber is locked or not.
17. Do not let anyone who has consumed alcohol within the past 12 hours to serve on a the gun crew.
18. Make sure all gun crew members are properly trained and supervised.
19. 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.
20. Never allow anyone to fire small arms over the limber chest.
21. When retreating without the cannon, during a re-enactment, take all implements, lock the limber, and make sure someone "dies" on top of the limber to keep anyone from using it.
22. Never leave a loaded cannon unattended.
23. Always look around before firing to be sure it is safe to do so.
24. Always inspect the cannon before its use. The inspection should be carried out by the Gunner, the Chief of Section, and the Safety Officer. The following is a sample artillery checklist.

Artillery Safety Issues

Safety is the **number 1** issue that Artillery should have on their minds. We try as artillerymen to portray the drill as it was done back in the days, but when does originality and safety collide? The gunner and everyone on a crew must remember his number one concern should be that everyone on that crew is going to be going home safe and sound. Below are some Safety issues that are stressed at the Artillery School.

Safety in front of the gun

#1 and #2 have the most dangerous jobs, especially #1. They must be aware that at any moment the gun could go off while they are working around the muzzle. The flame coming from the bore can easily reach out to 25 feet. Wearing of gloves is very important. Welding gloves gives the men the best protection.

Safety around the vent

Another place of danger on the gun is the vent hole. Even though #3 has the possibility of having his thumb broken if the gun fires prematurely, he must keep the vent covered from the

time the worm enters the bore until the time the rammer leaves the bore. When working on misfires, #3 and #2 must keep from working over the vent hole in case the gun were to fire.

Safety on Misfires

An Artillerymen's worst fear!!! It's going to happen to you one day. There are many ways to handle a misfire. When the gun is fired, #1 and #2 should be watching the front of the muzzle to make sure the gun fired. #3 watches the vent hole to make sure the primer fired. If any of them see the gun hasn't fired, then they can yell misfire to the gunner. The gunner should yell "failed primer, do not advance." At that point #1 and #2 cross their implements over the trunnions of the gun. The gunner informs his section or battery commander of his misfire. After waiting 3-5 minutes from the time the gun stops smoking, the gunner tells #2 he has control of the piece. #2 now is in charge and takes control of getting the gun back in service. He hugs the wheel as he enters between the gun and left wheel (on Mountain Howitzers and 3/4 scale he works over the left wheel). He and #3 are the only ones to work around the gun. They pass equipment over the wheels and trunnions. Below are some ways to handle a misfire from here.

- If #3 did not see the primer go off, then it may be a matter of just pulling out the primer and repicking the charge.
- If #3 saw the primer go off, then there are a few things that may of happened.
- the primer was to weak to set off the charge.
- the charge was not picked correctly.
- the charge was not completely seated to the back of the bore.

The first two can be fixed by repicking and repriming. The last is a decision that #2 must make. To re-ram or not. Many crews will not. If you have a French rammer (or U rammer) it can be done relatively safely. Another option, which is not recommended, is using a large rag and rapping around the rammer shaft and ramming the charge with #1 on the other end of the rag. This keeps you both away from the front of the muzzle. #2 then repricks the charge.

When #2 asks for a primer, he is handed a primer and the Lanyard by #4 and he inserts it into the vent hole. It is advisable to have Titanium Friction Primers for misfires. They fire hotter and can go through the foil bag without picking the charge. When #4 is in his ready position, #2 gets back into his firing position outside the wheel and says "gunner you have command of the piece". The gunner retakes over control of the gun.

If the piece does not fire a second time, it is advisable to try and remove the charge (if it can be safely done in the heat of battle). The crew goes back into it's misfire drill with crossed rammers and 5 minute wait. You need to flood the barrel and vent hole to put out any embers that may be in the bore. A syringe with a rubber tube on the end works great for the vent hole. Others use the sponge bucket or a large flexible funnel to pour water down the bore. Great caution must be used when doing anything in front of the muzzle though. After the charge is soaked it must be removed. There a couple ways to do this.

The other option is using the rag again to worm out the charge. #1 and #2 slide the worm down the barrel and turn the worm by pulling on the rag until the charge is grabbed. They then pull out the charge and lay it on the ground. However, since you cannot release a rag any faster than you can release the worm, this is not recommended.

The gun should be re-wormed and sponged to get the bore clean of any foreign objects. The gun then can be put back in service.