



QLHF Artillery By-laws

The safe use of blank-firing muzzle-loading artillery in re-enactment

PURPOSE

The purpose of these guidelines is to set the procedures that must be followed by anyone using full-scale muzzle-loading artillery in training, demonstrations or performances. It also provides instruction on proper maintenance and inspection.

1 MARSHALS

- 1.1 Please refer to the QLHF Marshal By-law for information on marshals. All marshals must be accredited by QLHF or their association.
- 1.2 This By-Law must be read in conjunction with the Marshal By-law.

2 INSURANCE

- 2.1 It is the duty of group hosting the event to insure that all participants are suitably insured (public liability insurance) for the activity being conducted (Note: QLHF members are provided insurance coverage as part of being a member).
- 2.2 QLHF members are NOT considered insured if the member has membership fees outstanding
- 2.3 It is the duty of the group to inform the QLHF committee of events that they are attending, preferably via E-mail. All events attended must be recording in the group's records such as Facebook.
- 2.4 If in doubt about any activity, the group is to contact the QLHF committee for clarification regarding clauses within the insurance policy.



3 MEDICAL

- 3.1 A comprehensive first aid kit is to be brought to the event:
- 3.2 A casualty evacuation plan should be prepared prior to the event and relevant medical facilities notified of the events existence and potential for injury.
- 3.3 Should an injury be serious or life threatening, all activity is to cease immediately and medical attention sort as a matter of urgency.

4 ALCOHOL, MEDICATION AND OTHER PERFORMANCE EFFECTING SUBSTANCES

- 4.1 No participant shall handle a weapon while under the influence of alcohol or other performance effecting substances.
- 4.2 Any participant found to be under the influence of alcohol or other performance effecting substances including prescribed medication, they will be barred from further participation at the event, suffer disciplinary action or may be expelled from the QLHF. If any participant has a pre-existing medical condition that could affect safety, it must be declared to the Marshal before participation.
- 4.3 The participant should provide sufficient information about the medication to allow the coordinator to make an informed decision or to refer to a medical officer or 1st aider.

5 WARNING

- 5.1 Blank-firing antique or reproduction muzzle-loading artillery pieces is a dangerous activity and could result in death, dismemberment or serious injury.
- 5.2 Structural integrity of the barrel, powder charge preparation, premature discharge because of burning embers remaining in the barrel from previous firing, and other unforeseen and unanticipated conditions may contribute to accidents, serious injury and or death.
- 5.3 Antique guns should be regularly inspected for faults or cracks.



- 5.4 Reproduction guns should consist of a bore lined with seamless steel tubing with a minimum 9.5mm (3/8-inch) wall thickness and a yield strength of 586 MPa (85,000 p.s.i.) or greater.
- 5.5 The breech plug should be threaded and pinned; welded and pinned breech plugs can be equally strong but require expert installation by competent manufacturers.
- 5.6 Sand-cored bores are not recommended. The vent should be drilled in a threaded copper bolt to provide an unbroken passage through the casting and the liner, into the bore.
- 5.7 Participants should be thoroughly trained by competent instructors, and fully aware of the potential for injury or death. A copy of these guidelines should be provided to all intending participants. Only commercially made Black Powder or Black Powder substitute is to be used. SMOKELESS POWDER is never to be used.
- 5.8 No projectile will be fired from any gun.
- 5.9 No wadding should be placed over the charge.
- 5.10 No member of the gun detachment should have on their person matches, cigarette lighter or other fire-starting devices. The only exception is a designated gunner firing a piece with linstock.
- 5.11 Guns will be charged only with the quantity of powder appropriate to the bore. The maximum blank charge for any artillery piece should not exceed 50% of the service charge used on the piece. Where the service charge is unknown the maximum blank load will not exceed 70g (2.5 ounces) of Fg powder for every 25mm (1 inch) of bore diameter. The use of blasting or other coarse-grained powders is forbidden.
- 5.12 Black powder should be brought to the event in pre-made cartridges and kept in an ammunition box. The ammunition box must be at least 8 metres behind the gun. A 'No Smoking' zone is to be enforced within 8 metres of the ammunition box.
- 5.13 The ammunition box shall be attended or locked. The lid of the ammunition chest shall be closed except when removing a powder charge. No powder charges may be kept outside of the ammunition chest. The box interior shall be lined with a non-sparking material and the box itself shall be stoutly constructed.
- 5.14 QLHF safety guidelines prohibit rapid fire. No gun should exceed the rate of fire of one discharge every three minutes.



- 5.15 Guns must be at least 5 metres apart when being fired and will not be discharged within 10 metres of a member of the public.
- 5.16 Before firing a cannon or small arm, a safety message must be delivered to the public. This message must warn them of the loud noise, recommend caution to individuals with hearing aids, and advise control of children and/or pets.

6 FIRING PROCEDURES

- 6.1 Make sure each crew member has knowledge of procedures and safety rules. They should memorize and recall the firing sequence:
1. Clean the vent;
 2. Stop the vent;
 3. Worm the bore;
 4. Wet sponge the bore;
 5. Dry sponge the bore;
 6. Load powder
 7. Pick the charge;
 8. Prime;
 9. Fire.

If something is done incorrectly, STOP. Think it through. Act to correct it.

6.2 Clean the vent

Clean the vent as the first step in each cleaning, loading, firing sequence. Use an appropriately sized bronze cleaning brush on a suitable rod and brush the entire vent twice. If no brush is available, the priming pick or gimlet can be pushed up and down the vent twice, twisting it to make sure the vent is completely free of remnants.

6.3 Stop the vent

Seal the vent with thumb pressure during the entire cleaning and loading procedure. This means no air should escape the vent from the time the worm enters the muzzle until the rammer is removed after the projectile has been seated. Use a leather thumbstall or heavy leather glove to protect your thumb and make a tight seal.

6.4 Worm the bore

Using a tool with two sharp steel points which replicates an original cannon cleaning worm, worm the bore twice. Give two complete turns of the worm at the breech each time to pick up any powder container remnants and to loosen any powder residue. The worm should fit closely so the points will pick up debris easily.



DO NOT place the sponge/rammer or dry sponge on the ground, where a danger exists that any foreign matter may be picked up and ultimately end up in the tube of the cannon. Hold these implements about the middle of the staff in the right hand, and trail it at an angle of 45°, head uppermost.

6.5 Wet sponge the bore

Sponge with a wet (but not sopping) tight-fitting sponge with a head of lamb's wool over a wooden cylinder affixed to a shaft at least one foot longer than the bore. The end of the sponge head should conform to the shape of the breech plug.

Seat the sponge against the breech with hand pressure and give two full rotations of the shaft. Withdraw the sponge half-length, twist, then reseal against the breech and give another two full rotations.

Remove the sponge. If any powder container remnants or unburned powder comes out with the sponge, repeat the entire process, starting with Step 3: Worm.

6.6 Dry Sponge the Bore

After wet sponging, the same procedure is used with the dry sponge. The dry sponge is cleaned and dried off periodically with an absorbent rag or towel. The purpose of the dry sponge is to remove excess moisture from the bore. If the bore remains damp it may cause incomplete burning of the next powder charge, and leave ignited residue.

6.7 Load Powder

6.7.1 Use a plain wooden pole without a head, or with a smoothly tapered head as a rammer, so that it might force the hand open should a premature ignition occur. The staff should be dense hard wood. Painted cardboard tube rammers are safer than wood and can be obtained in heavy-duty long lengths which are durable but will disintegrate into less dangerous pieces.

6.7.2 Mark the rammer in advance in two places, one to show the amount of shaft which should be left out of the muzzle when the charge is fully seated, and the other to show when the rammer is fully seated at the breech without a charge.

6.7.3 The ammunition chest should be located 8m behind the gun. Powder charges should be prepared in advance. Each charge should be kept in an individual safety container within the chest to prevent them from breaking open during transport or accidental upset of the chest. Tightly sealed containers are recommended.

6.7.4 Open the chest only long enough to remove one safety container and transfer it to a leather haversack. (Do not open the chest following a warning that a gun is about



to fire until 10 seconds after the gun has been discharged. This is to prevent hot vent debris from falling into chest).

- 6.7.5 Carry container within leather haversack to the gun. Do not proceed to load unless 3 minutes has elapsed since the gun was last fired, even though cleaning procedure has been completed. Use a stopwatch.
- 6.7.6 Open safety container. Remove charge and place it in muzzle with one hand. Use heavy leather welding gloves.
- 6.7.7 Wearing the heavy gloves, stand to the side of barrel with as much of your body as possible behind the plane of the muzzle. Grasp rammer underhand, with one hand, thumb-to-the-side. Seat the charge lightly with smooth, short strokes. Do not pound the rammer against the charge.
- 6.7.8 Immediately upon feeling the charge reach the breech, drop your hand away, releasing the rammer. After 10 seconds and after ascertaining the charge is fully home (according to the rammer marks) remove the rammer, one hand, underhand, thumb-to-the-side. This may require grasping and releasing the shaft a few times. At no time should more of the body than absolutely necessary be forward of the muzzle face and never in front of it. Never have two hands on the rammer. The right shoulder should be thrown back and the eyes cast toward the front until the charge is home. At the moment of seating, the right hand drops off the shaft under the muzzle for a brief pause, and the right foot is brought to the left, so as to be clear of the muzzle.
- 6.7.9 After another pause, the rammer is removed.
- 6.8 Pick the charge
To insure ignition, pick the powder charge wrapper through the vent with a pick or gimlet held by the shaft, between glove protected fingers. The pick should not be so long that it reaches the bottom of the bore when fully inserted, to avoid making pits under the vent.
- 6.9 Prime
Priming the vent depends on the type of ignition to be used. Typical systems are: linstock and priming powder, fuse, priming quills, friction primers, and percussion cap.



6.10 Fire the Gun

- 6.10.1 The gunner designated to ignite the charge calls out "Ready" in a loud voice to alert other crews on the line that his gun is about to fire, and raises the right hand to head height to notify the gun captain that the piece is primed. At this call, any open ammunition chests are immediately closed. The gun captain makes a quick visual inspection of the range forward of the muzzle to make sure no one is in the safety zone, and then commands "Fire". The primer is then ignited.
- 6.10.2 Priming powder, fuse and priming quills are ignited with a linstock which should be long enough to allow the gunner to stand outside the wheels. The linstock holds the burning slow match made of cotton rope impregnated with potassium nitrate or lead acetate to make it burn.
- 6.10.3 If a lanyard is used to ignite friction primers, or to activate a lock using percussion caps or blank cartridge, it also should be long enough to allow the gunner to stand outside the wheels and out of the way of possible recoil.
- 6.10.4 Care shall be taken by the gunner to ensure no person is standing behind the vent at the time of ignition. Debris and flash from vent on firing use flash diversion board.
- 6.10.5 Start your stopwatch to be sure at least 3 minutes elapses before the gun is reloaded.
- 6.10.6 Double worming and double sponging is recommended during this three-minute interval.
- 6.11 Following any firing demonstration, individuals or units will clean-up and dispose of empty cartridges or debris.

END



Contact Officer	QLHF Marshal
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Related Policies, Procedures, Guidelines, Forms or Templates	This by-law works in conjunction with all other QLHF by-laws.
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