Artillery Procedures, Policies and Safety

Fort Tejon Historical Association Rules as Modified for Use at Independent Events

SECTION 1: CHAIN OF COMMAND

1.1 The chain of command from the Division Commander to the respective gun crews shall occur as follows:
- 1.1.1 Division Commander.
- 1.1.2 Chief of Artillery (Battalion Commander)
- 1.1.3 Battery Commander(s)
- 1.1.4 Section Commander(s)
- 1.1.5 Gun Captain(s)
- 1.1.6 Gun Crew(s)

SECTION 2: CHIEF OF ARTILLERY (ARTILLERY BATTALION COMMANDING OFFICER)

2.1 Position
- 2.1.1 The Chief of Artillery will be in command of the battalion's artillery pieces for each event.
- 2.1.2 He reports directly to his Division Commander.
- 2.1.3 He relays all orders to his subordinate commanders.

2.2 Duties
- 2.2.1 To supervise artillery pieces and personnel under his command.
- 2.2.2 To verify the safety and skill in loading and firing drills of all artillery personnel under his command and to administer necessary tests of personnel, particularly new recruits, so as to ensure their familiarity with safety issues.
- 2.2.3 To command the movement, use and placement of artillery pieces on the field as per the orders of his Division Commander.
- 2.2.4 To command the loading and firing of all artillery pieces of the artillery battalion.
- 2.2.5 To organize the construction and storage of all artillery powder Charges, to include proper bulk powder storage (See Section 5 below).
- 2.2.6 To supervise the general safety of the artillery practices during all demonstrations and functions.
- 2.2.7 To insure that all artillery personnel understand the artillery battle plan of each scenario or demonstration.
- 2.2.8 To verify the authenticity of the personnel under his command regarding their uniform and drill procedures on the field pieces.
- 2.2.9 To coordinate with the Chief of Artillery and the Division Commander of the opposing forces as to how the artillery pieces will be fired (e.g. by volley, section or piece) and the number of rounds that are to be fired during each scenario or demonstration.
- 2.2.10 To establish and coordinate a system or communication with the Chief of Artillery of the opposing forces as to the status of the pieces fielded under his command... (ie. "loaded", "misfire", "hang fire" or "clear".)

SECTION 3: DUTIES OF THE BATTERY PERSONNEL

3.1 Battery Commander and/or Section Commander:
- 3.1.1 To command the movement, use and placement of the artillery pieces according to the orders of the Chief of Artillery.
- 3.1.2 To assume, during battle re-enactments, all responsibilities for the safe operation of the pieces under his command and that the 75 feet safety zone in front of the cannon line is properly marked before each battle.
- 3.1.3 To immediately inform the Chief of Artillery if, during the course of a re-enactment, a piece should misfire, and immediately assume command of that piece. The battery commander or section commander shall then initiate the procedures as described in "Misfire Instructions" of the Artillery Safety Appendix.
- 3.1.4 To supervise and organize the training of the gun crews of his battery or section.
- 3.1.5 To insure that the men under his command adhere to the rules and regulations of the program, including authenticity standards.

3.2 Gun Sergeant
- 3.2.1 To supervise the general safety practices of the artillery piece under his command.
- 3.2.2 To command the gun crew assigned to his piece, with respect to the functions of loading, firing, worming, sponging, and to any other actions necessary for the safe and effective operation of the piece.
- 3.2.3 To determine whether the front of his piece is obstructed by personnel or horses within a distance of 75 feet from the muzzle and to insure that the piece shall not be fired if such circumstances occur.
- 3.2.4 To insure that:
  - a. The tube and the vent are clear of obstructions before each battle and demonstration.
  - b. All equipment and accoutrements needed to operate the piece are in position on the piece prior to any demonstration or battle, and the 75 foot danger zone is properly marked for all personnel.
  - c. All crew members serving on the piece or transporting powder charges are wearing welder's gauntlets composed of heavy leather, the cuffs of which are to extend to the middle of the forearms. Crew members serving the vent must wear either a thumbstall or protective leather gloves (Note: The No. 4 crew member is not required to wear gauntlets when handling friction primers or the lanyard.)

3.3 Gun Crews
- 3.3.1 To execute the commands of the gun sergeant in the servicing of the piece.
- 3.3.2 To know and execute their specific duties on the piece, as well as those duties of all other positions on the piece.
- 3.3.3 To know and apply the procedures needed to rectify misfires and hangfires.
- 3.3.4 To insure that his piece is properly cleaned at the end of each battle or demonstration.

SECTION 4: BASIC LOADING AND FIRING PROCEDURES FOR GUN CREWS

4.1 The **National Safety Rules and Procedures for Shooting Muzzleloading Artillery** are adopted for use, in general, with the exception of any procedure that pertains to the actual firing of projectiles, and which does not conflict with any procedure specified herein. See http://artillerymanmagazine.com/safety_rules.html

4.2 The **National Safety Rules and Procedures** describe specific actions and sequences or steps of actions only. How these particular actions are to be assigned to members of a gun crew is the responsibility of the gun sergeant of a specific piece, pending approval by his battery or section

commander. It is HIGHLY recommended, for the sake of authenticity, that the gun sergeant assign these procedural duties to his gun crew members based on such references as the "1862 Ordnance Manual," Gibbon's "Artillerists Manual," French's "Instruction for Field Artillery," **Switlik's** "The Complete Cannoneer" and/or other similar document(s).

SECTION 5: PREPARATION OF THE ARTILLERY CHARGES AND THEIR STORAGE

5.1 Construction of Rounds

5.1.1 All charges are to be made of either Fg or Cannon Grade black powder.

5.1.2 Without specific approval of the Event Reenactor Coordinator, the maximum allowable charge of black powder for a given piece shall NOT exceed in ounces three times the bore diameter of the piece in question. For example, if a piece has a bore diameter of 3 (three) inches, the maximum allowable powder charge for that gun is 9 (nine) ounces. Smaller charges are strongly encouraged.

5.1.3 Powder charges are to be placed in a lightweight, non-ziplock type plastic sandwich baggie which is then wrapped in 3 layers of double thickness heavy duty wrap aluminum foil.

5.1.4 Charges are to be constructed in an area approved by the Chief of Artillery.

5.1.5 No jewelry or objects made of steel, silver or other electrically conductive metal are to be worn during the construction of the charges.

5.1.6 No smoking or open flames are permitted within 50 feet of the area.

5.1.7 (Reserved.)

5.1.8 (Reserved.)

5.2 Storage of Artillery Rounds

5.2.1. All powder in excess of 1 lb. shall be stored in the powder magazine located at the direction of the Chief of Artillery with the approval of the Division Commander.

5.2.2 Immediately prior to each battle re-enactment, artillery crews shall obtain only those numbers of rounds needed for that specific presentation.

5.2.3 The rounds shall be transported to the field in a pass box. They will be kept secured in the pass box, and the pass box shall be placed in a limber chest if one is available.

5.2.4 These limber chests are to be constructed of wood with a self-closing lid restricted to opening at no greater than an 80 degree angle.

5.2.5 The limber chests are to be placed at a minimum of 20 (twenty) feet behind the piece and positioned so that the lid opens toward the piece.

5.2.6 The limber chest is to be opened only long enough to receive a round of ammunition and then closed immediately.

5.2.7 Friction primers and/or other priming devices are to be stored separately from the powder charges in the limber chest and separate from the powder in the powder storage tent.

5.2.8 The powder runner, in the process of transporting the round of ammunition to the piece, shall do so with the round of ammunition in a sealed container or heavy canvas haversack or leather gunner's haversack.

5.2.9 If opposing forces should reach a manned piece, the powder runner is to rout from the field, taking the limber chest or pass box and its contents with him if it can be moved. Otherwise, he shall remain with the closed chest, guarding it and its contents and warning all others away from the area. The powder runner, guarding the chest is not subject to capture for any reason whatsoever and will only leave the chest when instructed to do so by his battery, section or gun commander, the Chief of Artillery or the Division Commander.

5.3 Blast Box requirements:

5.3.1 Powder shall be kept in the storage tent in a metal container that is wood lined and that is capable of being properly sealed, or in a commercial container that is approved for powder

storage. The storage container must be kept locked at all times except when powder is being extracted for use on the field.

SECTION 6: PLACEMENT AND USE OF THE PIECES ON THE FIELD AND SAFE FIRING PRACTICES

6.1 Artillery pieces are to be positioned at a minimum of 40 (forty) feet from the public during battles. If the nearest spectators are less than 60 feet from the piece, barrel shall be deflected a minimum of 30 (thirty) degrees away from an imaginary line parallel to the rope barrier downfield demarcating the area occupied by the public.

6.2 The minimum distance between the guns on the line on either side of the field shall be 20 (twenty) feet.

6.3 The minimum safe firing distance for cannon with personnel or horses to the front of the piece's position is 75 (seventy-five) feet.

6.4 (Reserved)

6.5 Intervals of Fire during Re-enactments:

6.5.1 Upon firing the piece, artillery crews shall do the following:

a. Clean the vent.

b. Worm out any remaining pieces of the cartridge bag (foil).

c. Sponge with a damp sponge, not a sopping wet sponge; turn the sponge against the breech three complete revolutions, withdraw the sponge halfway out of the barrel, then repeat the sponging.

d. Dry the breech chamber with a dry sponge.

e. Load with a smoothly tapered hardwood rammer or a plain pole (no period rammer head), holding it one hand, underhand, thumb to the side while wearing heavy duty, gauntlet-style welder's or foundry workers' gloves, and standing with the body behind the muzzle.

f. Drop the hand away from the rammer as the charge reaches the breech. Do not tamp the charge. Wait 5 to 10 seconds and withdraw the rammer one hand, underhand, thumb to the side using several strokes to clear the muzzle.

g. For steps b through f, ensure that the No. 3 man properly seals the vent with a thumbstall or leather glove until, in step f, the No. 1 man has cleared the muzzle with the rammer and is in a safe position.

6.5.2. Using the foregoing steps, a minimum of three (3) minutes will be observed between the loading of any piece. If, after step d, steps a, c, and d are repeated before proceeding to step 3, a minimum of two (2) minutes will be observed between the loading of any piece.

6.6 Misfires, Hangfires and Their Management

6.6.1 Misfire: A misfire occurs when a piece fails to fire on the first attempt to effect ignition of the main powder charge.

6.6.1.1 Management Procedures for Misfires:

a. Upon the event of a misfire, the gun sergeant shall cry out in a loud, clear voice "MISFIRE!" and shall ensure that this situation is reported to the battery or section commander, who shall in turn and inform the Chief of Artillery. The gun sergeant shall wait 60 seconds, during which time he shall ensure that the front of the piece is clear of personnel and that no personnel enter the 75 (seventy-five) foot safety area to the front of the piece. He shall then reset the firing mechanism and await orders to re-fire the piece.

b. If, upon attempting to re-fire the piece, the piece again misfires, the gun sergeant shall repeat procedure

c. If the piece should fail to fire after three l attempts the condition of the piece shall be upgraded to a "Hangfire".

6.6.2 Hangfire (definition) A misfired piece which fails to fire despite three attempts .

6.6.2.1 Management Procedures for Hangfires:

a. The battery commander shall inform the Chief of Artillery that a specific piece is a hangfire.

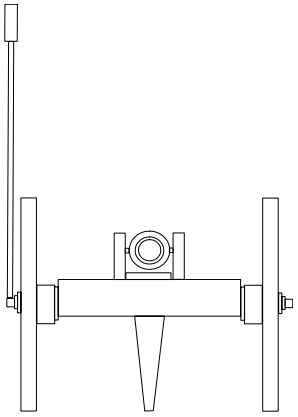
b. (Reserved)

c. The tube shall be elevated as many degrees as possible using the elevating screw of the piece and water shall be poured into the vent and the muzzle, flooding the bore and powder charge. The gun sergeant shall make the determination when adequate water has been introduced into the piece. The bore shall remain in this flooded condition for a minimum of 15 minutes before any further action is taken to correct the situation.

d. After 15 (fifteen) minutes, the Chief of Artillery or his designee shall remove the powder charge with the worm. The extracted charge shall be emptied into a full bucket of water and then broken open to fully saturate the contents. As soon as possible, the charge shall be disposed of in a manner that will not allow any possibility of permitting it to be ignited.

SECTION 7: SIGNALS TO OPPOSING FORCES AS TO THE STATUS OF THE PIECE

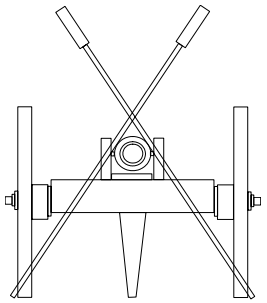
7.1 Piece Loaded and Ready to Fire: The No. 1 man shall place the rammer on the hub of the right wheel of the piece with the sponge shaft at a 90 degree angle above the horizontal. The rammer should be straight up in the air.



LOADED

7.2 Piece is Secured:

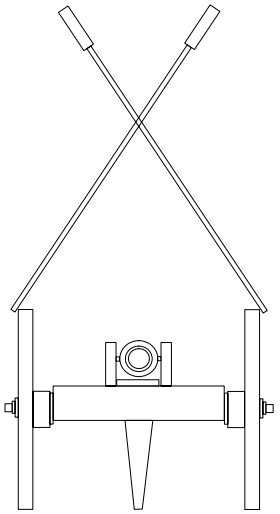
The sponges shall be laid across both sides of the chase of the tube at 90 degree angles to the axis of the bore, forming a large letter "X" when seen from the front, with the sponge heads on top.



SECURED

7.3 Unsafe Piece (Misfire or Hangfire)

The No. 1 and No. 2 man shall cross their implements over the top of the piece with the shafts parallel to the axle at 90 degrees to the axis of the tube, the base of the shafts of the implements resting on the top of each wheel, forming a large letter "X" over the gun. In no case shall the men signaling the status of the piece leave their positions without specific direction by the Chief of Artillery.



UNSAFE PIECE
(Misfire or Hangfire)

SECTION 8: REQUIRED IMPLEMENTS AND EQUIPMENT

8.1 The following shall be considered the minimum required equipment to safely operate an artillery piece. The Chief of Artillery may, at his discretion, require additional equipment as needed:

8.1.1 rammer and 1 dry sponge implement*
8.1.2 wet sponge implement
8.1.3 worm implement

8.1.4. handspike
8.1.5 vent pick of either solid copper or brass
8.1.6 leather gunner's haversack or heavy canvas pass pouch or a pass box.
8.1.7 (Reserved.)
8.1.8 Heavy welder's gauntlets for No.1 and No. 2 crew members, the cuffs of which should reach to at least the middle of the forearms, and leather gloves for every other member of the crew.
* (Note: Sponge covers should fit tightly into the bore with minimum windage.)

Section 9: Authenticity Standards

9.1 Artillery at events must be full-scale on No. 1 or No. 2 carriages. The barrels must be either 6 Pdr., 12 Pdr., 10, 3-Inch, or 20 Pdr. Parrott, or 3-Inch Ordnance Rifle guns, or 12 Pdr., or 24 Pdr. field howitzers. On an individual basis and only with approval in advance, the use of other types of full-scale field pieces may be approved by the Chief of Artillery with the concurrence of the Division Commander.

Section 10: Use of Artillery Pieces at Events

10.1 The use of an individual artillery piece at independent events, given the varying conditions of the physical sites and the difference in compensation provided by event sponsors, shall be on an event-by-event basis, with an important consideration being the history of participation by the unit and the number of guns fielded at the prior event at the same location.