



mishap

LESSONS LEARNED

MISHAP SUMMARY

Mishap

Artillery Training (Impact from Recoil)

Damage

N/A

Injury

One (1) Major Injury

Operation

CONUS Training; 29 Palms

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mount. The remaining seven Marines manning the howitzer at the time of the incident immediately called for support from the battery's two Corpsmen and fell in to the rear of the piece. At this time, the battery executive officer began coordinating information for the air medevac.

Consequences from Artillery Mishandling

SUMMARY

An Artillery Battery, conducting a live-fire exercise as part of a larger Battalion evolution, had a misfire occur on one of its howitzers. After the initial attempt to fire, an additional attempt to fire was made. Both attempts were made utilizing the firing linkage lever and six foot lanyard.



Prior to the third attempt to fire, the section chief instructed cannoneer #2 to attach the six foot lanyard directly to the M51 Firing Mechanism. During the third attempt, the M51 Firing Mechanism separated from the Primer Feed Mechanism Assembly (PFM). Cannoneer #2 was instructed to re-attach the M51 firing mechanism to the howitzer. As cannoneer #2 was re-attaching the M51 Firing Mechanism, the howitzer fired. During the recoil of the howitzer, cannoneer #2 was struck in the face by the breach and thrown against the M171A1 sight

CAUSES

- **Cannoneer #2 “hand firing” the howitzer.** It is believed that while cannoneer #2 inserted the firing mechanism into the PFM, he twisted the firing mechanism clockwise which resulted in the firing mechanism initiating the firing pin, causing the gun to fire.
- **Gun crew failed to conduct misfire procedures as per Marine Corps TM 10407C-OR/1 and JREGTO 3570.1d.** When cannoneer #1 attempted to fire, the howitzer did not fire. As per Marine Corps TM 10407C-OR/1, this is considered a misfire. Cannoneer #1 attempted to fire again with the same results. At this time the section chief should have made the decision to fire in the degraded mode, which consists of attaching the 25 foot lanyard directly to the lanyard lever (conducted by cannoneer #2) as opposed to utilizing the Remote Firing Linkage (RFL). In this situation, the section chief decided to continue utilizing the six foot lanyard. When the section chief pulled on the 6 foot lanyard

the firing mechanism detached from the breach and fell into the cradle. The section chief instructed cannoneer #2 to reattach the firing mechanism to the breach and then handed cannoneer #2 the firing mechanism. Cannoneer #2 proceeded to seat it into the PFM.

- **Improper breach maintenance.** The incorrect installation of the firing mechanism (rotated 180 degrees) was the cause of the initial misfire. The morning of the incident, the gun was conducting breach maintenance. The installation of the firing mechanism into the PFM is one of the primary duties of cannoneer #2. However, this did not happen. Cannoneer #2 was fixing aiming stakes while the recorder reassembled the breach. This resulted in the incorrect installation of the firing mechanism, which caused the initial misfire.

LESSONS LEARNED

- Proper use of Personal Protective Equipment (PPE) is believed to be a lifesaving act by cannoneer #2. The damage done to the PPE is evidence that the mishap would have been fatal had the Marine not been wearing it correctly.
- The M51 Firing Mechanism is designed such that it can be installed incorrectly to the howitzer and can also function by being rotated in a clockwise or counter-clockwise direction. These capabilities about the firing mechanism are not currently part of any period of instruction for artillerymen.
- Adhering to established misfire procedures is integral to safely executing artillery operations.
- The Five Pre-Fire Checks for the artillery section chief do not currently address inspecting the Firing Mechanism for proper installation prior to firing.
- The technical manuals do not specifically define “attempt to fire.”
- As a result of this mishap, a Safety of Use Message was released on 041523Z FEB 14 and directs that all units and personnel be instructed on the hazard and proper operation of the M777A2 howitzer as related to the M51 Firing Mechanism. Specifically, the M51 Firing Mechanism shall not be installed, removed, or reoriented on a loaded howitzer.