

Chapter 6

Field Expedient Battlesight Zero

Battlesight zero (BZO) is the elevation and windage setting established at 300 yards that enables a Marine to engage point targets from 0-300 yards under ideal weather conditions. If a 300-yard range is not available, a field expedient BZO can be established at a reduced range of 36 yards.

6001. Establishing a Field Expedient BZO at 36 Yards/30 Meters

If a rifle is zeroed for 300 yards, the bullet crosses the line of sight twice. It first crosses the line of sight on its upward path of trajectory at 36 yards, and again farther down range at 300 yards. Since a bullet crosses the line of sight at 36 yards and again at 300 yards when a rifle is zeroed, a rifle's zero may be established at a distance of 36 yards and the same zero will be effective at 300 yards. It is critical that a Marine fires tightly grouped shots directly on the point of aim when establishing a BZO at 36 yards because any error in shot placement at 36 yards will magnify as the bullet travels down range.

Note

If a zero at 300 meters is desirable, the distance to zero the rifle for a field expedient BZO is 30 meters.

To establish a field expedient BZO at 36 yards or 30 meters, a Marine performs steps 1-11. Appendix A provides reproducible copies of BZO targets (36 yards and 30 meters).

- Step 1 Place a target 36 yards from the muzzle of the rifle.
- Step 2 Set rear sight elevation at 8/3.

Once the rear sight elevation knob is set to 8/3, do not move the rear sight elevation knob. Changes in elevation for battlesight zeroing are made to the front sight post.

- Step 3 Set the rear sight windage knob to the initial sight setting (index line centered).
- Step 4 Set the front sight post to the initial sight setting (base of the front sight post is flush with the front sight housing).
- Step 5 Ensure the unmarked rear sight aperture (small aperture) is up.
- Step 6 Fire a 3-shot group at the sustained rate of fire (12-15 rounds per minute).
- Step 7 Make required elevation and windage adjustments to center the shot group on the point of aim (use the front sight post to make all elevation adjustments).
- Step 8 Fire a second 3-shot group.
- Step 9 Repeat step 7 to center the shot group in the target aiming black.
- Step 10 Fire a 4-shot group to confirm the BZO.
- Step 11 Make final windage and elevation adjustments as necessary.

Once the shot group is in the center of the aiming black, the rifle has a field expedient BZO. This is also the BZO for 300 yards/meters. The front and rear sight settings are recorded and stored in the buttstock of the rifle.

- The operational climate has changed (i.e., moving from an arid climate to a tropical climate).

Note

A Marine should confirm his BZO when his unit is disengaged from enemy contact. If a 300-yard/meter range is not available, zeroing can be accomplished using the 36-yard/30-meter field expedient method. If using this method to obtain a BZO, a Marine should fire from the prone position while using a hasty sling.

6002. Confirming a Field Expedient BZO

It is essential that a Marine maintain a BZO on his rifle. To confirm a BZO, a Marine may begin by using the previously established BZO sight settings rather than placing the sights at the initial sight setting. A Marine should reconfirm his BZOs if—

- Corrective maintenance has been performed on the rifle.
- There has been an extreme change in temperature (i.e., 20 degrees or more).

Figure 6-1. Trajectory and Point of Aim/Point of Impact.

- There has been a drastic change in ground elevation.
- The uniform has changed. For example, a BZO was obtained without a flak jacket and the prescribed fighting uniform is with a flak jacket.

6003. Effect of Trajectory on Point of Aim/Point of Impact

If the rifle is properly zeroed for 300 yards/meters, the trajectory (path of the bullet) will rise approximately 7 1/2 inches above the line of sight at a distance of approximately 175 yards/meters. At other distances, the strike of the bullet will be less than 7 1/2 inches above the point of aim. Only at 36 yards/30 meters and 300 yards/meters does the point of impact coincide with the point of aim. If only a portion of the target is visible (e.g., the head of an enemy soldier), the trajectory of the bullet may have to be taken into consideration when firing at a distance other than 300 yards/meters. If a Marine does not consider trajectory, he may shoot over the top of the target if the target is small and at a distance other than 300 yards/meters. See figure 6-1.