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## Chapter VII

### CONFIRMATION OF THE RIFLE'S ZERO AND BRINGING IT TO A NORMAL ZERO

#### General instructions

76. Rifles that are in units should always be brought to a normal zero.

Confirmation of the rifle's zero is accomplished:

- upon the weapon's issuance to the unit;
- after repair or replacement of components that might change its zero;
- upon observation during firing of abnormal deviation of bullets.

In a combat situation, confirmation of a rifle's zero is conducted periodically at every opportunity.

77. The rifle must be carefully inspected and observed deficiencies corrected before confirmation of its zero.

78. Confirmation of a rifle's zero and bringing it to a normal zero are accomplished under the supervision of the company (battery, platoon) commander at a firing range in calm weather, in a covered range, or on a portion of a range that is sheltered from the wind, under normal illumination.

Immediate supervisors, up to brigade-level command, are required to monitor for the precise observation of the regulations of zero confirmation and bringing rifles to a normal zero.

79. A unit's best shooters, selected by the unit commander, conduct the firing for zero confirmation and for bringing rifles to zero.

The riflemen to whom the rifles are assigned, their squad commanders, and a master armorer with required tools should be present during the zero confirmation process.

80. Zero confirmation and bringing a rifle to a normal zero are accomplished by firing conventional ball ammunition. The cartridges should all be from the same lot. The range of firing is 100 meters, with the rear sight set at 3. The position for firing is prone with a rest. The rifle is fired without the bayonet-knife affixed. Rifles that have compensators are brought to a normal zero with their compensators, which then are not removed for subsequent firing.

81. Firing is conducted in single shots at a confirmation target (or at a black rectangle 35 cm in height and 25 cm in width) that is attached to a white background of 1 meter height and 0.5 meters width. The middle lower edge of the confirmation target (black rectangle) serves as the aimpoint. It should be approximately at eye level to the firer. The normal position of the mean point of impact (MPI) is marked with chalk or colored pencil on a perpendicular line at a distance of 25 cm above the aimpoint. This point is called the control point (CP). The center of the circle is used for the control point on a confirmation target.

### Confirmation of zero

82. Four semi-automatic shots are fired to confirm zero, each one carefully aimed in the same manner at the midpoint of the lower edge of the black rectangle. Upon completion of the firing, the commander who is supervising the confirmation process examines the target panel and determines the accuracy and position of the mean point of impact by the position of the bullet holes. Soldiers and sergeants who are conducting the firing are not permitted to approach the targets.

83. The shot group is considered normal if all four bullet holes or three (with one flyer) will fit in a circle of 15 cm diameter. If this criteria is not met the firing is repeated. Upon a second unsatisfactory firing result the rifle is sent to a weapons repair facility to eliminate the cause of bullet dispersion.

If the shot group meets the requirement, the commander determines the mean point of impact and its position relative to the control point.

84. For determination of the mean point of impact of four bullet holes:

- join the two closest holes with a straight line and divide the distance between these holes in half;
- join this midpoint with a third hole and divide the distance between them into three equal parts;
- join the segment mark closest to the first two bullet holes to the fourth bullet hole, and divide this line into four equal segments.

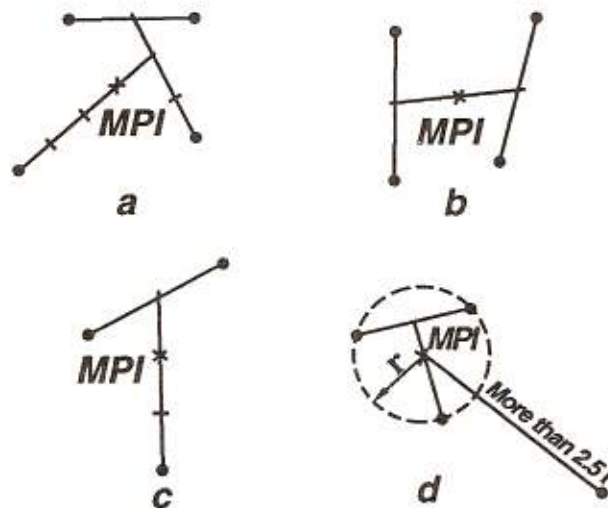


Figure 47. Determination of the mean point of impact:

a, b - with four bullet holes      c - with three bullet holes      d - determination of a flyer

The point that is at the third segment mark from the fourth bullet hole is the mean point of impact of four bullet holes (Figure 47a).

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One can also determine the mean point of impact in the following manner: join the bullet holes in pairs, then join the midpoints of both lines and divide this third line in half. This segment mark is the mean point of impact (Figure 47b).

85. If all four bullet holes do not fit in a circle of 15 cm diameter, then it is permitted to determine the mean point of impact using the three most accurately positioned bullet holes under the condition that the fourth hole deviates from the mean point of impact of the other three bullets by more than 2.5 radii of the circle that contains these three holes (Figure 47d).

86. To determine the mean point of impact of three holes, one must:

- join the two closest bullet holes with a straight line and divide the distance between them in half;
- join this midpoint with the third hole and divide the distance between them into three equal parts.

The point closest to the first two holes will be the mean point of impact (Figure 47c).

87. With a normal zero, the mean point of impact should coincide with the control point, or deviate from it in any direction by not more than 5 cm, that is, it should not extend beyond the boundaries of the small circle of the firing target.

88. A rifle whose zero is found to be abnormal during confirmation is brought to a normal zero in accordance with paragraph 89.

#### **Bringing the rifle to a normal zero**

89. If during the firing of single shots the mean point of impact deviates from the control point in any direction by more than 5 cm, the position of the front sight is changed appropriately. If the mean point of impact is below the control point, screw the front sight in. If the mean point of impact is above the control point, screw the front sight out. If the mean point of impact is to the left of the control point, move the slider to the left. If the mean point of impact is to the right of the control point, move the slider to the right.

A 1-millimeter lateral displacement of the front sight will move the mean point of impact 26 cm at 100 meters. One complete revolution of the front sight will move the mean point of impact 20 cm in elevation at 100 meters.

A second firing is conducted to confirm the correctness of the sight changes.

90. After the rifle is brought to a normal zero, the old scribe mark on the front sight slider is deleted, and a new mark is put in its place.

The final result of firing during this process of bringing the rifle to a normal zero is recorded in the logbook of qualitative condition.