

Adjusting the M1917 Front Sight Height – i.e., Relationship of Distance to Height

Question:

How much do I need to change the height of my front sight on an M1917 (or other rifle sight), given that the firearm shoots high or low (above or below) the target bull's-eye?

Hypothesis:

There is a linear relationship linking the distances between:

1. The FRONT and REAR sight distance, and
2. The CHANGE in HEIGHT needed for the front sight of the rifle and the actual location of the bullet, above or below the bull's-eye on the target downrange.

Practice:

“A” = the distance from the rear sight to the front sight, or visa versa. Units are in inches and approximate.

1. On an M1917 that distance between rear and front sights is approximately 31.75 inches.
2. FYI: On an O3A3 that distance between rear and front sights is approximately 27.625 inches.
3. On an M1 Garand that distance between rear and front sights is approximately 27.875 inches. Note that on the M1 Garand, the rear sight elevation can be changed very easily; one “click” to the rear sight adjustment, at 100 yards, raises or lowers the strike of the bullet on the target approximately 1 inch.

“B” = the distance from the barrel of the rifle to the target. Example: 100 yards (3600 inches), 200 yards (7200 inches), etc. Units are in inches.

“C” = the CHANGE in height required in the front (or rear) sight. Units are in inches.

“D” = the height ABOVE or BELOW the bull's-eye of the target. Units are in inches.

Actual Relationship:

“A” is to “B”, as “C” is to “D”. Therefore, the formula is as follows:

$$\frac{A}{B} = \frac{C}{D}$$

Restated: “A” x “D” = “B” x “C” OR “C” = (“A” x “D”) / “B”

Therefore:

Example 1: Using my O3A3, I shoot a 3-shot group 8-inches above the bulls-eye at 100 yards. Remember, “C” = (“A” x “D”) / “B”. “C” = (27.625” x 8”) / 3600”. “C” = 0.061 inches. Therefore, you must **INCREASE** front sight height by 0.061 inches.

Example 2: Using my O3A3, I shoot a 3-shot group 5-inches above the bulls-eye at 200-yards. Remember, “C” = (“A” x “D”) / “B”. “C” = (27.625” x 5”) / 7200”. “C” = 0.020 inches. Therefore, you must **INCREASE** front sight height by 0.020 inches.

Example 3: Using my M1917, I shoot a 3-shot group 6-inches below the bulls-eye at 100-yards. Remember, “C” = (“A” x “D”) / “B”. “C” = (31.75” x 6”) / 3600”. “C” = 0.053 inches. Therefore, you must **LOWER** front sight height (i.e. get a **shorter front sight** or file it down) by 0.053 inches.

Example 4: Using my M1917, I shoot a 3-shot group 6-inches above the bulls-eye at 100-yards. Remember, “C” = (“A” x “D”) / “B”. “C” = (31.75” x 6”) / 3600”. “C” = 0.053 inches. Therefore, you must **INCREASE** front sight height (i.e. get a **longer front sight**) by 0.053 inches.