

**UNITED STATES MARINE CORPS**  
School of Infantry  
Training Command  
PSC Box 20161  
Camp Lejeune, NC 28542-0161

MM1303  
25 Feb 04

**STUDENT OUTLINE**

**M64A1 MORTAR SIGHT UNIT**

**LEARNING OBJECTIVES**

**a. Terminal Learning Objective. None.**

**b. Enabling Learning Objective**

(1) Given a list of choices, identify the characteristics of a M64A1 mortar sight unit in accordance with FM 23-90. (41TR.03.02a)

(2) Give a list of choices and a diagram of a M64A1 mortar sight unit, identify the nomenclature of a M64A1 mortar sight unit accordance with FM 23-90. (41TR.03.02b)

(3) Given a M64A1 mortar sight unit and a deflection, adjust the M64A1 sight unit for deflection without error. (41TR.03.02c)

(4) Given a M64A1 mortar sight unit and an elevation, adjust the M64A1 sight unit for elevation without error. (41TR.03.02d)

**1. M64A1 Mortar Sight Unit Characteristics**

a. M64A1 sight unit. The sight unit is the device on which the gunner sets deflection and elevation to hit targets by using the elevation level vial and cross level vial to level his sight picture on his aiming point. The mortar is laid for deflection and elevation when all bubbles are level and the vertical hairline is on the left edge of the aiming posts.

(1) Deflection causes the sight telescope to move left or right.

(2) Elevation causes the sight body to move up or down.

b. The sight unit consists of a 1.5 power elbow telescope with tritium-illuminated graduated cross reticule and a telescope mount with tritium-back lighted level vials, and translucent plastic scales. The telescope mount includes a 6400-mil azimuth mechanism with one set of coarse and fine deflection scales. A similar mechanism is provided for elevation but is limited to travel to readings from 800 mils to 1600 mils on coarse and fine elevation scales. 0800 mils equal 45 degrees up. 1600 mils equals 90 degrees (straight up).

(1) Weight is 2.5 pounds.

(2) Field of view is 17 or (302 mils).

## 2. M64A1 Mortar Sight Unit Nomenclature

a. Fine Azimuth (Deflection) Scale. Indicates from 0 to 100 mils in 1-mil increments.

b. Fine Elevation Scale. Indicates from 0 to 100 mils in 1 mil increments.

c. Elevation Locking Knob. Unlocks or locks elevation mechanism and scales.

d. Elevation Vial. Indicates level condition of sight unit (up and down).

e. Azimuth (Deflection) Knob. Rotates deflection mechanism and scales

f. Latching Lever. Locks the sight unit to the mortar.

g. Coarse Elevation Scale. Indicates from 700 to 1600 mils in 100 mil increments.

h. Cross-Level Vial. Indicates level condition of sight unit (side to side).

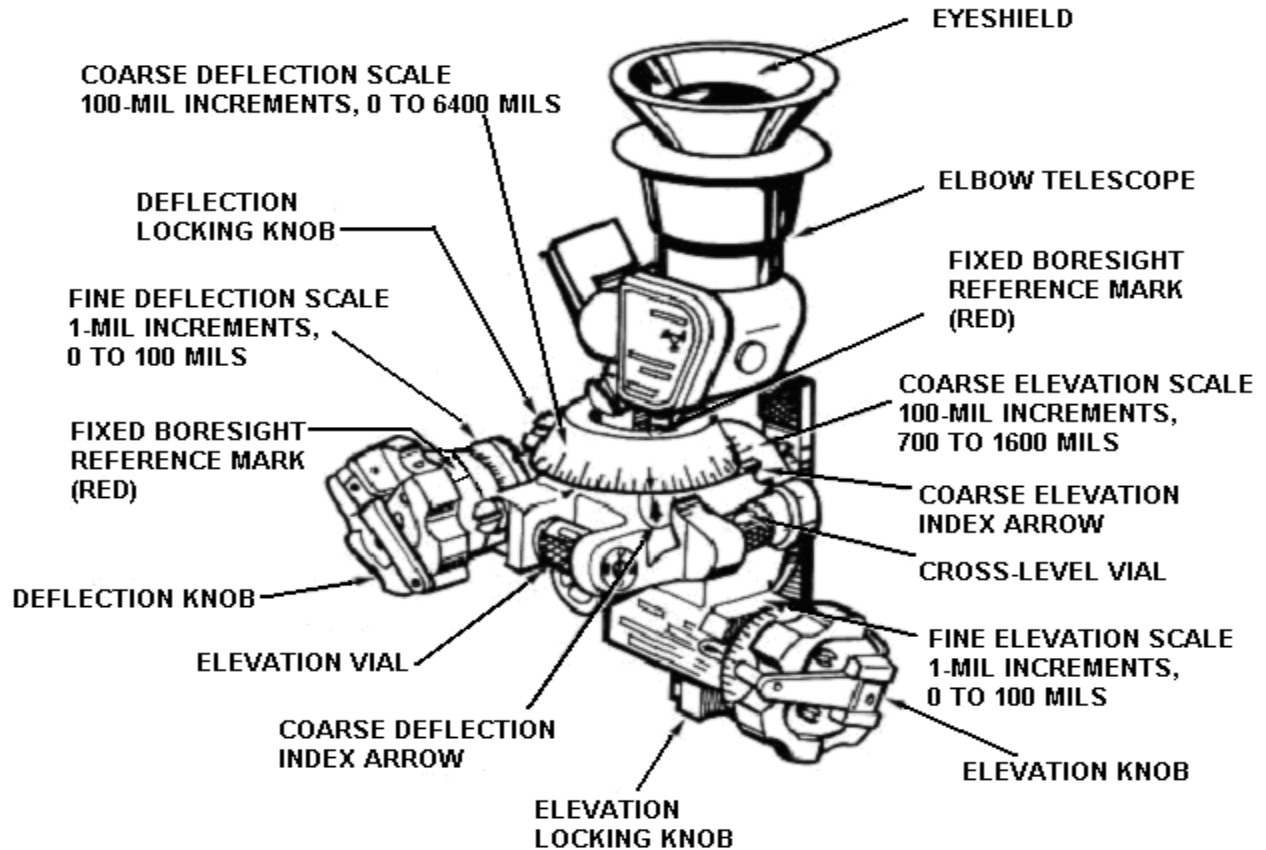
i. Elevation Knob. Rotates elevation mechanism and scale.

j. Coarse Azimuth (Deflection) Scale. Indicates from 0 to 6400 mils in 100 mil increments.

k. Locking Lever. Locks holder assembly and clamping mechanism in upright position. (Adjusts the angle of sight).

l. Holder Assembly. Used to adjust and hold elbow telescope on M64A1 body.

m. Azimuth (Deflection) Locking Knob. Unlocks or locks deflection mechanism and scales.



### 3. Tritium Gas

a. Tritium Gas Precautions. Radioactive contamination may occur if vials containing tritium gas are broken. If a breakage occurs, or if illumination is not present, notify your squad leader and request that they report the situation to the Nuclear, Biological, and Chemical Officer.

b. There are ten items on the sight unit that are radioactively illuminated. Check the ten items listed below in a darkened area. If they are damaged or not illuminated, notify your squad leader. The ten items of the sight that contain tritium gas and are illuminated are:

- (1) Telescope.
- (2) Coarse elevation scale.
- (3) Coarse elevation index arrow.
- (4) Cross-level vial.
- (5) Fine elevation index arrow.
- (6) Fine elevation scale.
- (7) Coarse deflection index arrow.
- (8) Elevation vial.

(9) Fine deflection scale.

(10) Coarse deflection scale.

**4. Placing Deflection and Elevation Data on the M64A1 Mortar Sight Unit.**

Fire commands for a mortar are issued in mils of deflection and elevation. The deflection and elevation from the fire command is derived from basic calculations of what an observe sees. Deflection and elevation are set on the sight by performing the following:

a. Deflection is placed on the sight by rotating the deflection control knob and watching your deflection scales. Deflection is always given in four digits.

b. The first two digits of deflection are placed on the course deflection scale.

c. The second two digits of deflection are placed on the fine deflection scale.

d. Elevation is placed on the sight by rotating the elevation control knob and watching the elevation scales.

(1) The first two digits of elevation are placed on the course elevation scale.

(2) The second two digits of elevation are placed on the fine elevation scale.

**REFERENCES:** TM 08206A-10/1A, Operator's Manual for Lightweight Company Mortar, 60mm, M224 pages 0005 00-5 through 0005 00-8 and FM 23-90, Mortars pages 2-22 through 2-25.