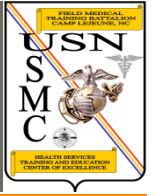




# ZEROING THE SERVICE RIFLE





# OVERVIEW



- Elements of Zeroing
- Types of Zeroes
- Sighting System
- Windage / Elevation
- Grouping Exercise



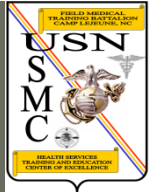
# ZEROING THE SERVICE RIFLE



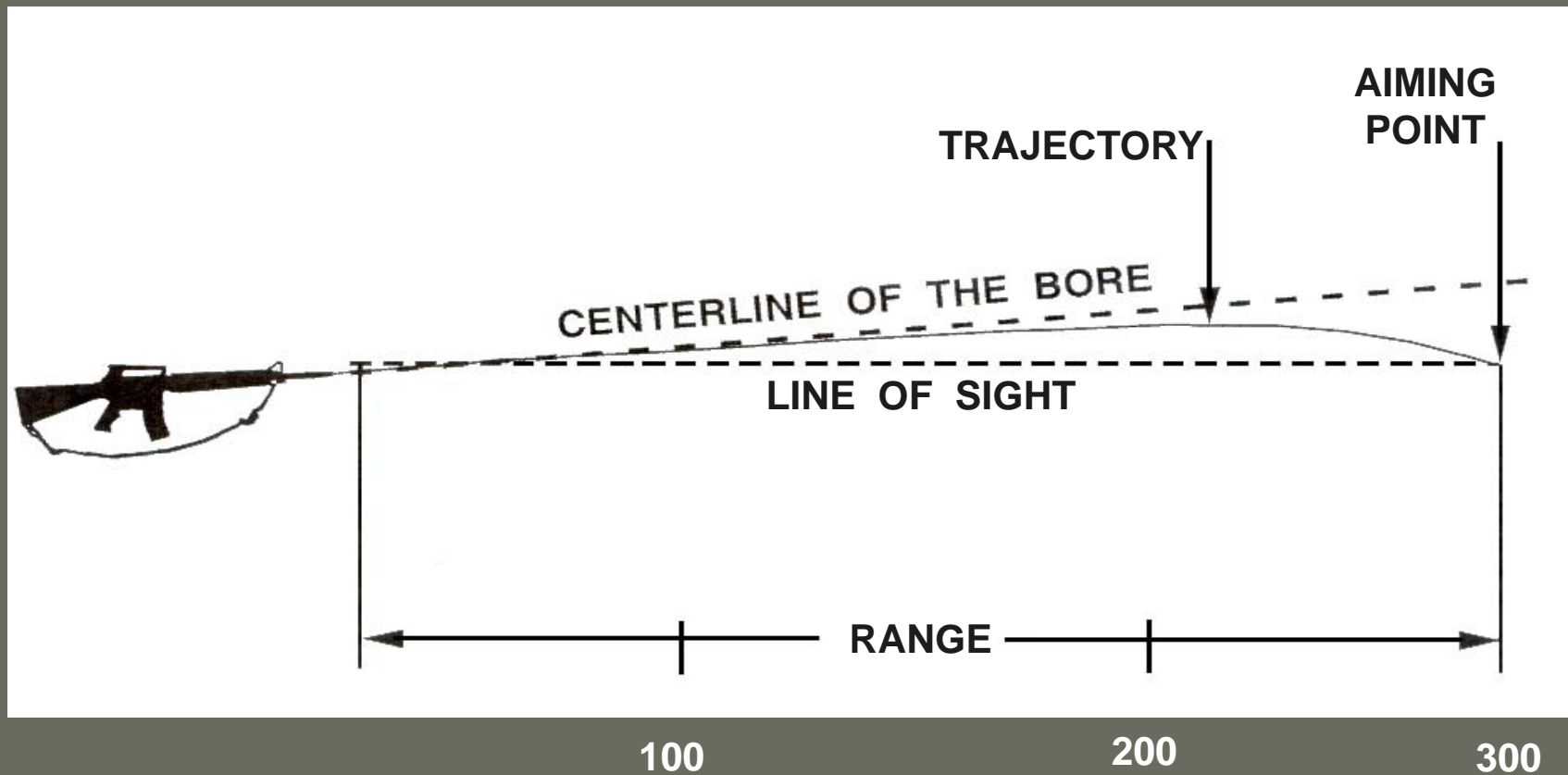
## LEARNING OBJECTIVES



# ELEMENTS OF ZEROING



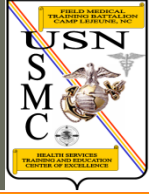
**NOTE:** The bullet will rise approximately 7 1/2 inches above the line of sight between 0 and 300 yards / meters.







# TYPES OF ZEROS



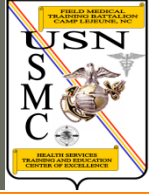
**-ZERO**

**-TRUE ZERO**

**-BATTLE SIGHT ZERO (BZO)**



# TYPES OF ZEROS



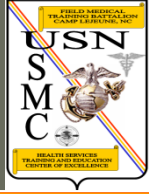
## ZERO

Elevation and windage settings required to place a single shot, or the center of a shot group, in a:

- predesignated location on a target
- at a specific range
- from a specific firing position
- under specific weather conditions



# TYPES OF ZEROS



## TRUE ZERO

A true zero is the elevation and windage settings required to place a single shot, or the center of a shot group, in a:

- predesignated location on a target at a specific range
- from a specific firing position
- under ideal weather conditions (i.e., no wind).



# TYPES OF ZEROS



## BATTLE SIGHT ZERO (BZO)

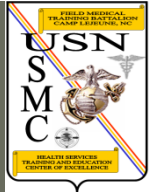
Elevation and windage settings required to place a single shot, or the center of a shot group, in the center of a target at 300 yards/meters, under ideal weather conditions (i.e., no wind)

- Setting on rifle for combat
- BZO setting will enable engagement of point targets from 0 – 300 yards/meters in a no wind condition





# RIFLE SIGHTING SYSTEM



## Consists of:

- Front sight post
- Rear sight apertures with windage knob
- Rear sight elevation knob

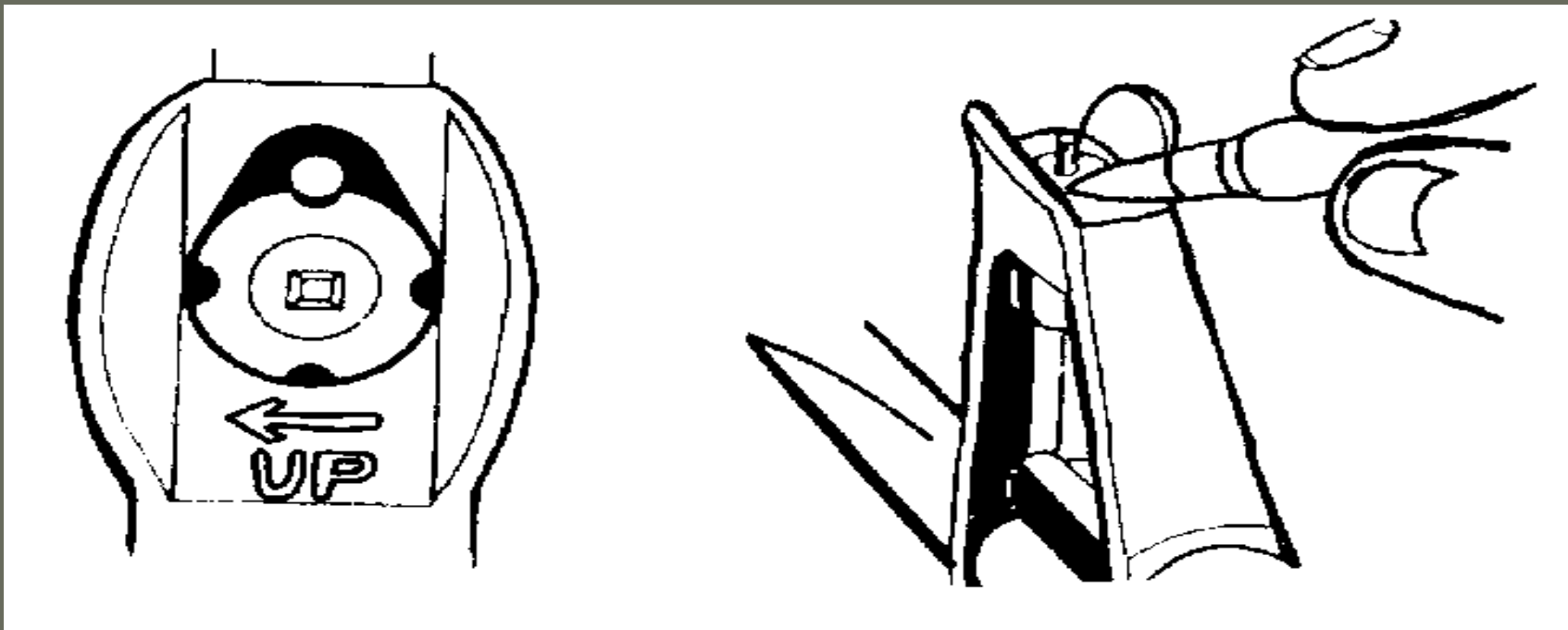
Moving each of these sights one graduation or notch is referred to as moving one "click" on the sight system.



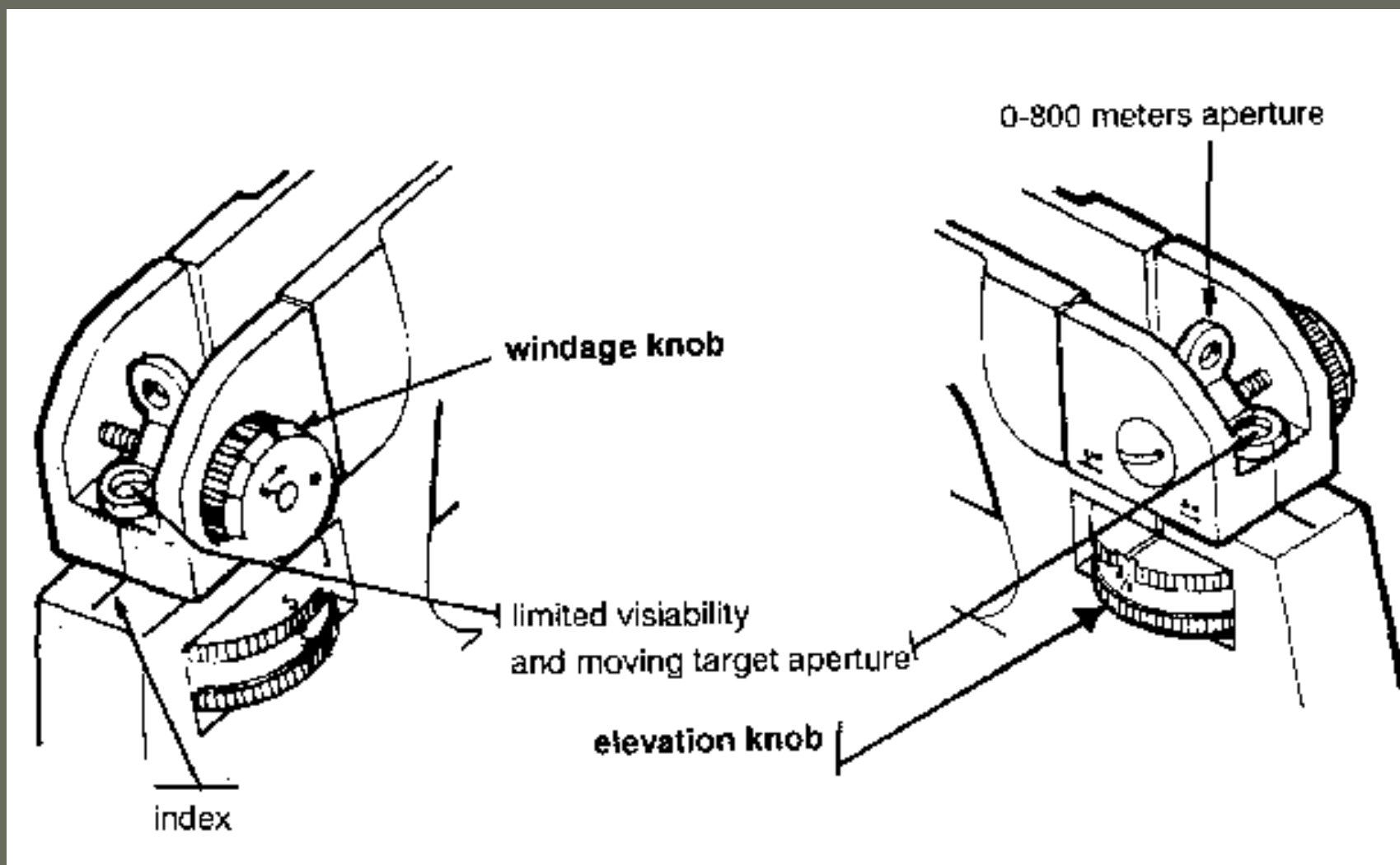
# RIFLE SIGHTING SYSTEM

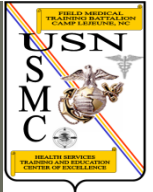


**FRONT SIGHT:** Consists of a square, rotating sight post with a four-position, spring-loaded detent. The front sight post is moved up or down when zeroing the rifle for elevation. Depress the detent and rotate the post to adjust for elevation up or down.



# REAR SIGHT







# WINDAGE AND ELEVATION RULES



**DEFINITION:** The windage and elevation rules define how far the strike of the bullet will move on the target for each click of the front/rear sight elevation or rear sight windage knob for each 100 yards of range to the target.



# WINDAGE AND ELEVATION RULES

## SIGHT

ONE "CLICK" MOVES STRIKE  
OF BULLET (AT 100 YARDS):

FRONT  
SIGHT POST

1 1 / 4 INCHES

1 1 / 4 INCHES

REAR SIGHT  
ELEVATION KNOB

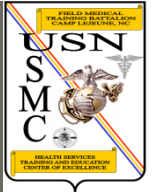
1 INCH

1 / 2 INCH

REAR SIGHT  
WINDAGE KNOB

1 / 2 INCH

1 / 2 INCH





# GROUPING EXERCISE



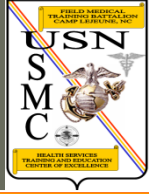
When a rifle is zeroed at 300 yards, the bullet will cross the line of sight twice. The bullet will cross the line of sight first on its upward path of the trajectory at 36 yards, and again farther down range at 300

That is why there is an alternate method for zeroing the rifle at 36 yards when a 300-yard range is not available.





# GROUPING EXERCISE



Establishing Initial Sight Settings: To begin the zeroing process the rifle sights are placed on a known BZO previously established or on initial sight settings.



# GROUPING EXERCISE



## Steps for Zeroing the Rifle:

- Fire a 5 round shot group
- Mark the target
- Plot the group
- Circle the shot group
- Locate the center of the group and make the necessary elevation and windage adjustments



# GROUPING EXERCISE



## Steps for Zeroing the Rifle:

- Fire 2nd 5 round shot group
- Mark the target
- Plot the group
- Circle the shot group
- Locate the center of the group and make the necessary elevation and windage adjustments

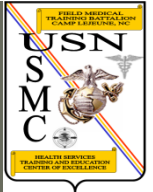


# GROUPING EXERCISE



## Steps for Zeroing the Rifle:

- Fire 3d 5 round shot group to confirm the sight adjustments that were made
- Once confirmed adjustments are determined for the wind (if present) and taken off the sight settings. This setting becomes the zero setting for the rifle, and must be recorded in the data book.



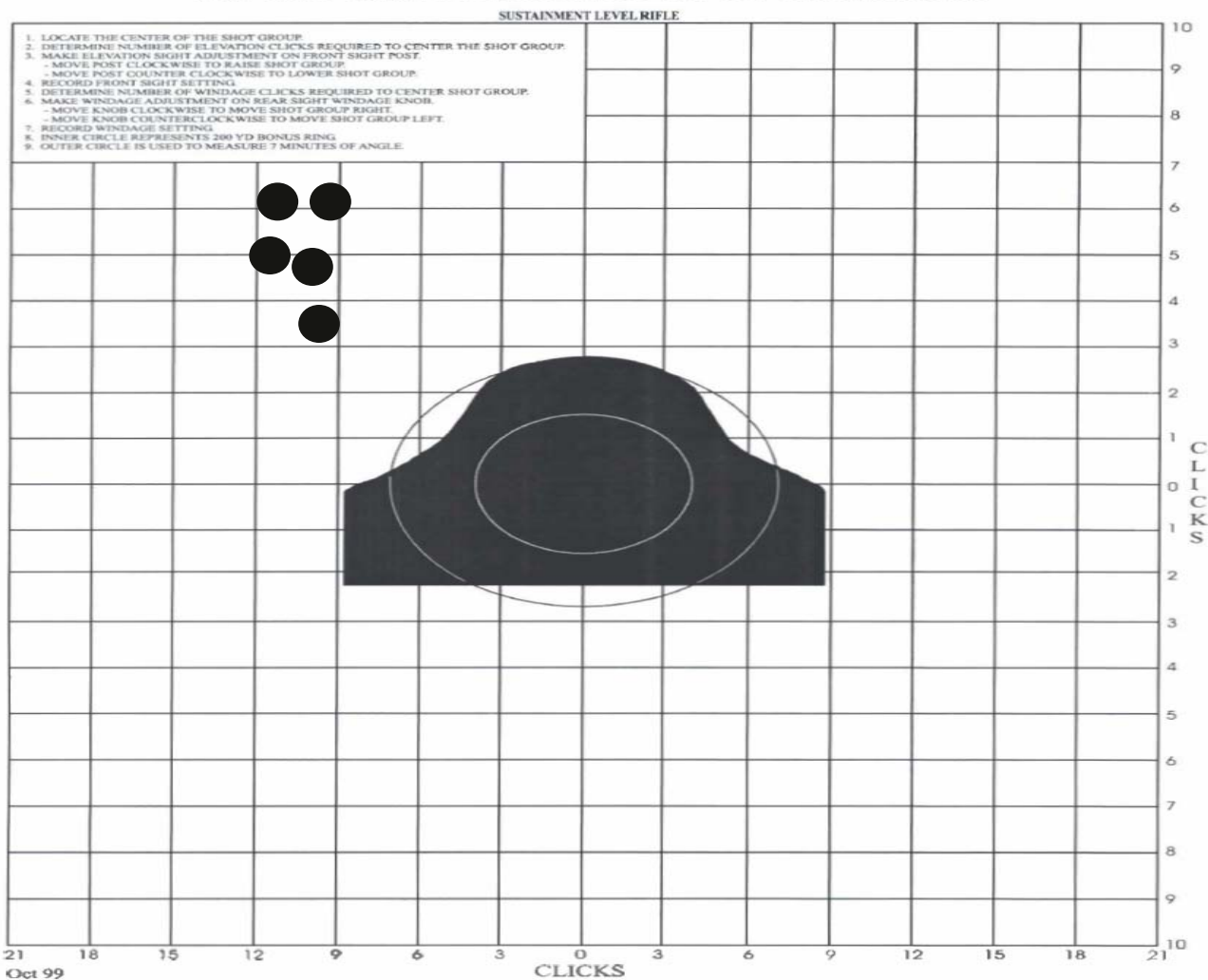


# DEMONSTRATION



## SHOT GROUP 1

### 36 YD GROUPING / BZO TARGET



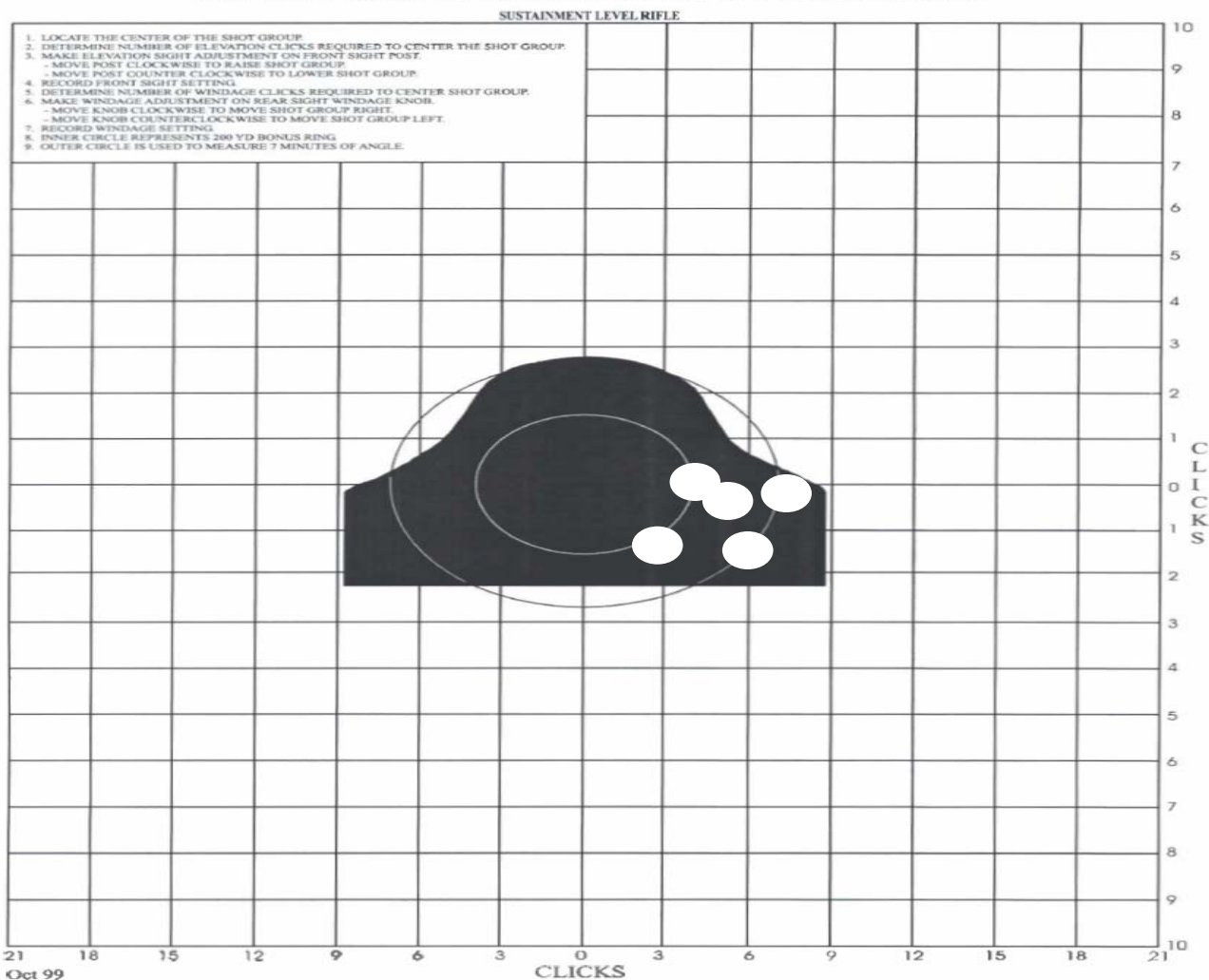


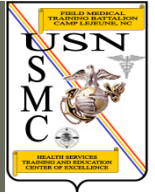
# DEMONSTRATION



## SHOT GROUP 2

### 36 YD GROUPING / BZO TARGET



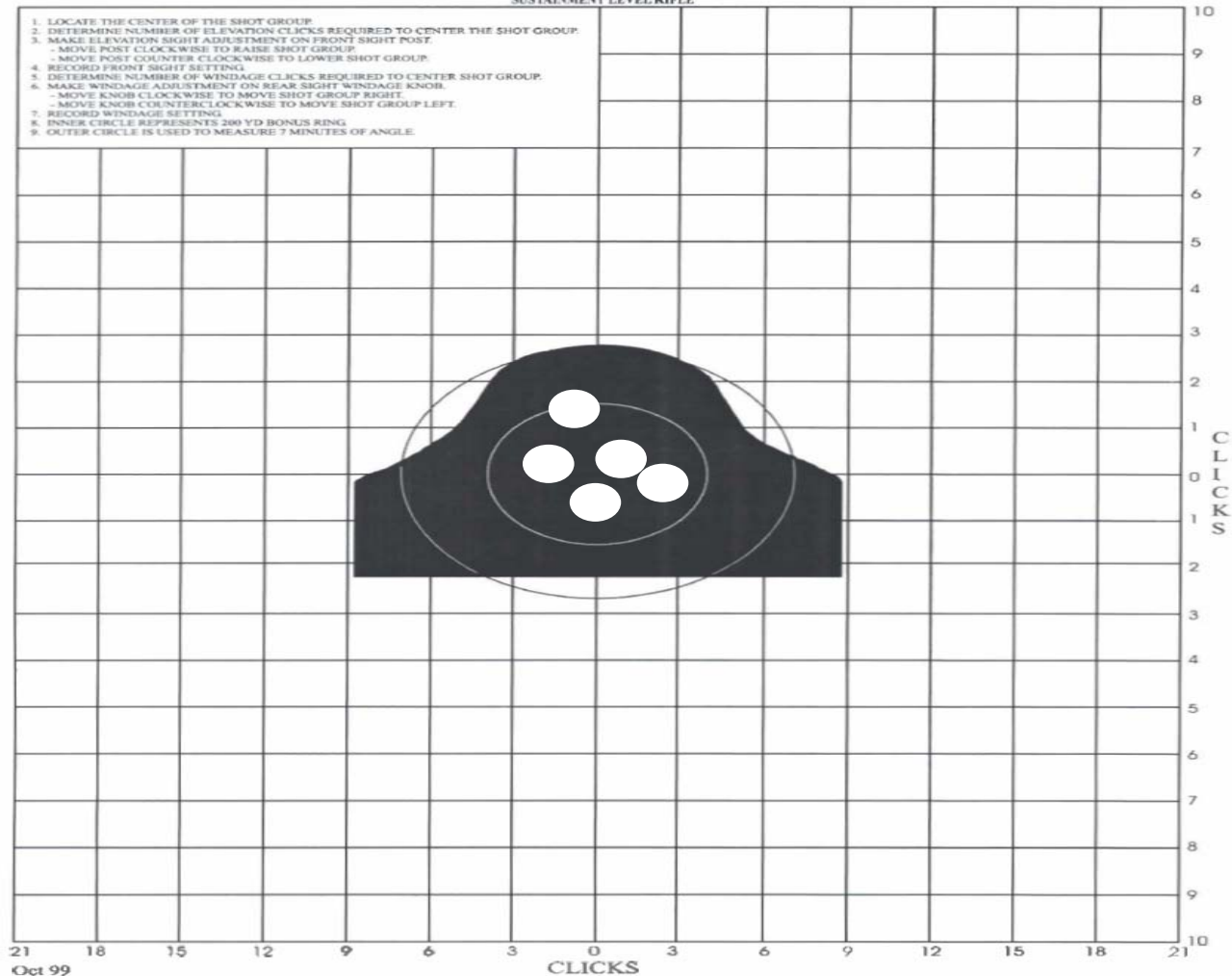


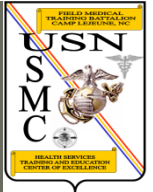
## SHOT GROUP 3

## 36 YD GROUPING / BZO TARGET

### SUSTAINMENT LEVEL RIFLE

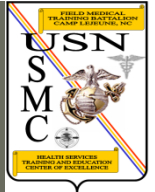
1. LOCATE THE CENTER OF THE SHOT GROUP
2. DETERMINE NUMBER OF ELEVATION CLICKS REQUIRED TO CENTER THE SHOT GROUP
3. MAKE ELEVATION ADJUSTMENT ON FRONT SIGHT POST
  - MOVE POST CLOCKWISE TO RAISE SHOT GROUP
  - MOVE POST COUNTERCLOCKWISE TO LOWER SHOT GROUP
4. RECORD FRONT SIGHT SETTING
5. DETERMINE NUMBER OF WINDAGE CLICKS REQUIRED TO CENTER SHOT GROUP
6. MAKE WINDAGE ADJUSTMENT ON REAR SIGHT WINDAGE KNOB
  - MOVE KNOB CLOCKWISE TO MOVE SHOT GROUP RIGHT
  - MOVE KNOB COUNTERCLOCKWISE TO MOVE SHOT GROUP LEFT
7. RECORD WINDAGE SETTING
8. INNER CIRCLE REPRESENTS 200 YD BONUS RING
9. OUTER CIRCLE IS USED TO MEASURE 7 MINUTES OF ANGLE







# ZEROING THE SERVICE RIFLE



FMST WP8