RIFLE MARKSMANSHIP
OVERVIEW

◊ **Zeroing The Service Rifle**
  - Elements of Zeroing
  - Types of Zeros
  - Sighting Systems
  - Windage & Elevations Rules
  - Target Dimensions
  - Zero Changing Factors

◊ **Effects of Weather**
  - Mental and Physical
  - Wind Classification
  - Determining Wind Velocity
  - Determine Wind Adjustments
  - Recording in Data Book
  - Effects of Light Conditions
  - Effects of Temperature
  - Effects of Precipitation

◊ **Intro to Sling and Shooting Positions**
  - Loop Sling
  - Factors of Precision Shooting
  - Kneeling / Prone / Sitting and Standing Positions

◊ **Fundamentals of Rifle Marksmanship**
  - Aiming
  - Breath and Trigger Control
  - Follow Through and Recovery
LEARNING OBJECTIVES

Please Read Your

Terminal Learning Objectives

And

Enabling Learning Objectives
QUESTIONS
ZEROING THE SERVICE RIFLE

GROUPING/BZO TARGET
36 YARDS

ISS

STZ

ZERO NAME RANK UNIT

18 15 12 09 06 03 00 03 06 09 12 15 18

CLICKS

CLICKS

CLICKS
ELEMENTS OF ZEROING

- The Marine Corps Role in Urban Warfare:

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

- TRUE ZERO (RCO) (IDEAL CONDITIONS)
- ZERO (RCO) (WITH WIND)
- BATTLE SIGHT ZERO (RCO)
SIGHTING SYSTEMS

○ RCO Optic Elevation Adjuster:
  • 1 CLICK MOVES STRIKE OF BULLET 1” AT 300 YARDS/METERS.

○ RCO Optic Windage Adjuster:
  • 1 CLICK MOVES STRIKE OF BULLET 1” AT 300 YARDS/METERS.
WINDAGE AND ELEVATION RULES

- ZEROING EXERCISE:
  - SHOOT FIRST GROUP
  - MARK GROUP
  - TRIANGULATE GROUP
  - ADJUST SIGHTS

  - SHOOT SECOND GROUP
  - MARK GROUP
  - TRAINGULATE GROUP
  - ADJUST SIGHTS

- SHOOT LAST GROUP
- CONFIRM GROUP
- RECORD SETTINGS
TARGET DIMENSIONS

- For Known Distance Course:

“Able” Target

“Dog” Target

“B-Modified” Target
FACTORS THAT CAUSE A WEAPON’S ZERO TO CHANGE

- Maintenance
- Ammunition
- Ground Elevation
- Climate
- Uniform
- Temperature
QUESTIONS
EFFECTS OF WEATHER
Mental & Physical
WIND CLASSIFICATION

- Wind Deflection of Bullet:

![Diagram showing wind deflection of a bullet]

POINT OF BULLET STRIKE WITH NO WIND

POINT OF BULLET STRIKE WITH WIND

FIRING LINE
WIND VELOCITY

OBSERVATION METHOD

Under 3 mph - The wind can hardly be felt on the face, but the presence of a slight wind can be detected by drifting smoke.
3 to 5 mph - Wind can be felt lightly on the face.
5 to 8 mph - Wind keeps tree leaves in constant motion.
8 to 12 mph - Wind will raise dust and loose paper.
12 to 15 mph - Wind will cause small trees to sway.
15 to 25 mph - Wind will cause large trees to sway.
THE FLAG METHOD

WIND

WIND VELOCITY FORMULA

\[
\text{ANGLE OF FLAG} = \frac{\text{MPH}}{4}
\]

\[
\frac{40^\circ}{4} = 10 \text{ MPH}
\]
The values in the above table reflect the windage points of aim that should be used when the surrounding terrain does not reduce the effect wind has on the flight of the bullet. While conducting marksmanship training on known-distance ranges, these values must be adjusted in order to compensate for the wind-reducing effects of the side-berms and/or trees. The figures in the following pages have been adjusted accordingly.
Recording in Data Book

200 YARD SLOW-FIRE SITTING

BEFORE FIRING

VALUE
5mph 10mph 15mph 20mph 25mph
FULL 2 5 7 9 11
HALF 1 2 3 4 5

+ WIND =

PLOT

BEFORE FIRING

200 YARD SLOW-FIRE

FIREING

EXAMPLE

SIGHT PICTURE

HOLDS IN INCHES

VALUE
5mph 10mph 15mph 20mph 25mph
FULL 2 5 7 9 11
HALF 1 2 3 4 5

WEATHER DATA

LIGHT
☑ OVERCAST
☒ PARTLY CLOUDY
☐ CLEAR

PRECIP
☒ DRY ☐ LT RAIN
☐ MIST ☐ HVY RAIN

DURING FIRING

CALL

1 2 3

HOLD

4 5 EX

ALL

HOLD

SIGHT PICTURE

ADJUSTMENT

(WITHOUT WIND)

AFTER FIRING

18 0 6 12 18

18 0 6 12

6 12 18 18

6 12 18 18

INCHES

X

18 18

4

REMARKS

Some clouds, sun out of 2:00 low in the sky, temp cool.
Anticipated shot 4. Poor NPA on shot 5.
EFFECTS OF LIGHT CONDITIONS

- Bright Light
- Overcast
- Scattered Clouds
- Haze
- Moving Clouds
EFFECTS OF TEMPERATURE

- Extreme Heat
- Extreme Cold
EFFECTS OF PRECIPITATION

- Students, Rifle and Bullet
QUESTIONS
SHOOTING POSITIONS AND USE
OF THE SLING
THE LOOP SLING

- PURPOSE
- DONNING
- SLING ADJUSTMENT
- SLING TENSION
3 ELEMENTS OF A GOOD SHOOTING POSITION WITH A LOOP SLING

- BONE SUPPORT

- MUSCULAR CONTROL

- NATURAL POINT OF AIM
7 COMMON FACTORS OF PRECISION SHOOTING POSITIONS

1. Forward hand relaxed and elbow close to the weapon (providing vertical bone support)
2. Butt of weapon high in pocket of shoulder
3. High firm pistol grip
4. Placement of rear elbow
5. Stock weld and eye relief
6. Breathing
7. Muscular control
7 COMMON FACTORS (Continued)

1. FORWARD HAND/ELBOW
2. HIGH FIRM PISTOL GRIP
3. STOCKWELD/EYE RELIEF
4. BUTTSTOCK HIGH IN POCKET OF THE SHOULDER

5. DOMINATE ELBOW
6. BREATH CONTROL
7. MUSCULAR RELAXATION
QUESTIONS
THE KNEELING POSITION

REQUIREMENTS

• The weak side foot, strong side knee and foot will support the body’s weight.

• The buttocks will be clear of the ground, but may rest on the strong side foot.

• Both hands, the sling, and one shoulder will support the rifle.

• The arm supporting the rifle will rest on the knee or just inside the knee.

• The strong side elbow will not be supported.

• The magazine will be allowed to touch the clothing or the arm supporting the rifle, and may be gripped along the sides but the bottom of the magazine may not be used to support the weapon.
THE KNEELING POSITION

CONSIDERATIONS

• Moving forward into position
• Dropping back into position
3 KNEELING POSITIONS

LOW

MEDIUM

HIGH
KNEELING POSITION ANALYSIS

- FORWARD HAND
- SUPPORT ELBOW
- MUZZLE ELEVATION
- RIFLE BUTT IN POCKET OF SHOULDER
- GRIP OF THE FIRING HAND
- FIRING ELBOW
- STOCK WELD
- BREATHING
- MUSCULAR TENSION
THE PRONE POSITION

- OPEN LEG PRONE (STRAIGHT LEG) POSITION
  OR
- COCKED LEG POSITION
THE PRONE POSITION

- OPEN LEG PRONE (STRAIGHT LEG) POSITION
THE PRONE POSITION

- COCKED LEG POSITION
QUESTIONS
THE SITTING POSITION
REQUIREMENTS FOR THE SITTING POSITION

• The buttocks and feet or ankles will support the body's weight. No other portion of the body will touch the ground.

• Both hands, the sling, and one shoulder will support rifle.

• The arms may rest on the legs at any point above the ankles.

• d. The magazine will be allowed to touch the clothing or the arm supporting the rifle, and may be gripped along the sides but the bottom of the magazine may not be used to support the weapon.
3 SITTING POSITIONS

• OPEN LEG
• CROSSED ANKLE
• CROSSED LEG
SITTING POSITION ANALYSIS

- FORWARD HAND
- RIFLE BUTT IN POCKET OF SHOULDER
- GRIP OF FIRING HAND
- FIRING ELBOW
- STOCK WELD
- BREATHING
- MUSCULAR TENSION
QUESTIONS
THE STANDING POSITION
REQUIREMENTS FOR THE STANDING POSITION

• Standing erect on both feet will support the body's weight.

• No other portion of the body will touch the ground.

• Both hands and one shoulder will support the rifle.

• The rifle sling will be adjusted to the parade configuration for web slings.

• The forward arm may rest against the body or on the cartridge belt and any attached equipment.

• The magazine will be allowed to touch the clothing or the arm supporting the rifle, and may be gripped along the sides but the bottom of the magazine may not be used to support the weapon.
DETAILED POSITION ANALYSIS

- Stand straight and erect
- Feet should be shoulder width apart
- Face 45-90 degrees towards your strong side
- The butt or toe of the stock should be in the pocket of firing shoulder
- Relaxed firing elbow
- Grip of firing hand should be high on the pistol grip.
- Your head should be as erect as possible
- Non-firing hand is under and around the rail cover/heat shield close to the receiver
- Forearm and wrist are straight
- Non-firing elbow is placed so that it rests across your rib cage
STANDING POSITION
(Forward Hand Grips)

THE PINCH

THE “L” THUMB
QUESTIONS
FUNDAMENTALS OF RIFLE MARKSMANSHIP
CORRECT SIGHT ALIGNMENT

**AIMING**

**CORRECT SIGHT ALIGNMENT**

FULL FIELD OF VIEW. The aiming eye aligned to the ocular lens so that no scope shadow is present. Proper stockweld and eye relief are the means for achieving correct sight alignment.

**CORRECT SIGHT PICTURE**

The full field of view while maintaining the desired aiming point (reticle) and hold (placement of aiming point on the target).

Improper eye relief and/or improper sight alignment will cause scope shadow and will result in improper shot placement.

- **Improper Eye Relief**
- **Improper Sight Alignment**
  - Bullet will strike right
  - Bullet will strike left
  - Bullet will strike low
  - Bullet will strike high
STOCKWELD / EYE RELIEF
BREATH CONTROL

RESPIRATORY CYCLE

NATURAL RESPIRATORY PAUSE

RESPIRATORY CYCLE

LUNG CAPACITY
TRIGGER CONTROL

- Trigger Control is the skillful manipulation of the trigger that causes the rifle to fire without disturbing sight alignment or sight picture.

- There are two techniques of Trigger Control:

  UNINTERRUPTED TRIGGER CONTROL  
  &  
  INTERRUPTED TRIGGER CONTROL
TRIGGER CONTROL

INTERRUPTED AND UNINTERRUPTED TRIGGER CONTROL

PRESSURE

TIME
QUESTIONS
SUMMARY

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BACKUP SLIDES
!!! PAY ATTENTION !!!