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UNITED STATES MARINE CORPS
WEAPONS TRAINING BATTALION
MARINE CORPS COMBAT DEVELOPMENT COMMAND
QUANTICO, VIRGINIA 22134-5040

DETAILED INSTRUCTOR GUIDE

LESSON TITLE

FUNDAMENTALS OF RIFLE MARKSMANSHIP

COURSE TITLE

ANNUAL RIFLE TRAINING



UNITED STATES MARINE CORPS
Weapons Training Battalion
Marine Corps Combat Development Command
Quantico, Virginia 22134-5040

DETAILED OUTLINE

FUNDAMENTALS OF RIFLE MARKSMANSHIP

INTRODUCTION

(3 MIN)

1. GAIN ATTENTION. In marksmanship, there are no tricks or shortcuts. The secret of effective marksmanship is the application of the fundamentals. The fundamentals of marksmanship are applied the same whether in training or in combat. Emphasis is placed on the fundamentals from the first day of Entry Level training through Combat Marksmanship Training throughout a Marine's career. The best firing positions, equipment, and techniques are only as good as the Marine's ability to apply the fundamentals. The Marine's development of fundamentals in training will determine his effectiveness in combat.

2. OVERVIEW. This lesson will cover the fundamentals of rifle marksmanship: aiming, breath control, and trigger control.

3. INTRODUCE LEARNING OBJECTIVES. The Terminal Learning Objective and Enabling Learning Objectives pertaining to this lesson are as follows:

a. TERMINAL LEARNING OBJECTIVE. Given a service rifle/carbine, RCO, sling, magazines, cartridge belt, magazine retention device (pouches or load-bearing vest), ammunition, and a target, without the aid of references, perform the fundamentals of marksmanship while firing the rifle/carbine IAW MCRP 3-01A. (0300.M16.1010)

b. ENABLING LEARNING OBJECTIVES

1) Given a service rifle/carbine, RCO, sling, magazines, cartridge belt, magazine retention device (pouches or load-bearing vest), ammunition, and a target, without the aid of references, perform aiming while firing the rifle/carbine IAW MCRP 3-01A. (0300.M16.1010a)

2) Given a service rifle/carbine, RCO, sling, magazines, cartridge belt, magazine retention device (pouches or load-bearing vest), ammunition, and a target, without the aid of references, perform trigger control while firing the rifle/carbine IAW MCRP 3-01A. (0300.M16.1010b)



3) Given a service rifle/carbine, RCO, sling, magazines, cartridge belt, magazine retention device (pouches or load-bearing vest), ammunition, and a target, without the aid of references, perform breath control while firing the rifle/carbine IAW MCRP 3-01A. (0300.M16.1010c)

4. METHOD. This lesson will be taught in a classroom setting using lecture.

5. EVALUATION. The Marine will be evaluated on this material during Table 1 firing.

TRANSITION: The ability to maintain a full field of view is essential for accurate shooting. Improper eye relief or the lack of a proper position of the eye piece will cause scope shadow. This will result in improper shot placement. In sighting and aiming, the rifle is aimed so the bullet will hit the target when fired. For this to happen, the head, eye, and scope must be in alignment.

BODY

(35 MIN)

1. (17 MIN) AIMING

a. Sight Alignment and Sight Picture

1) Sight Alignment. As Marines, there are some terms with sight alignment that we are familiar with, such as "a clear front sight post centered both vertically and horizontally in the rear sight aperture." When utilizing the RCO we can relate some of these terms from aiming our iron sights to aiming our RCO. With the RCO your "front sight post" is your Bullet Drop Compensator, and your "rear sight aperture" would be the rear ocular of the scope. To obtain correct sight alignment you need to obtain a *full field of view*. A full field of view is achieved by adjusting your head position behind the scope so that your aiming reticule is clear within the perfectly circular rear ocular. If you have done this incorrectly you will have what is called scope shadow. Scope shadow appears as a shadow on any side of your field of view. You must adjust the position of you eye in relation to the ocular lens until there is no shadow and a full field of view is achieved.

2) Aiming. Aiming is applying correct sight alignment to a target while maintaining a full field of view.

3) Full Field of View. A full field of view is where there is no scope shadow visible in the ocular lens; or if there is scope shadow it is consistent all the way around the ocular lens.



3) Sight Picture. Sight picture is the placement of the reticule with the proper hold in relation to your target while maintaining a full field of view. The focus of your aiming eye needs to remain fully on the reticule. Error in full field of view due to scope shadow will result in a corresponding error in shot placement. This error will be magnified as distance to the target increases.

a) The bullet drop compensator has several different reference points for aiming. The BDC has been designed to work specifically with the service rifle / carbine. The following is a guide for proper reference points when using the RCO:

1. 100M Tip of Chevron
2. 200M Crotch of the Chevron
3. 300M Tip of Red Aiming Post
4. 500M Reference point between the 4 and 6

b) When zeroed properly the POA/POI at the designated distance will be center mass of the target. Because the BDC is calibrated for the correct trajectory, your POA is your POI at each distance.

c) Using the identified reference points will assist in adjusting holds based on range to the target but does not compensate for the effects of weather. That will be discussed during the Effects of Weather period of instruction.

d) Due to differences in recoil resistance, the jump angle of the rifle, and an overall perception of full field of view and reticule placement, a shooter may have differences in aiming points from position to position. This difference must be compensated for by adjusting ones hold on the target, or aiming point, whether it be for the difference in elevation, windage, or both.

4) Relationship Between the Eye and the RCO. The human eye can focus clearly on only one object at a time. For accurate shooting, it is important to focus on the reticule of the BDC throughout the aiming process.

a) While exhaling and bringing the reticule to the target, your primary focus should be on the reticule while maintaining a full field of view.

b) During firing, your peripheral vision will include the rear ocular and the target.

c) An inexperienced shooter may have difficulty accepting that the final focus must be on the



reticule with the target appearing slightly indistinct.

b. Stock Weld and Eye Relief

1) Stock Weld. Stock weld is the point of firm contact between your cheek and the stock of the rifle. Your head should be as erect as possible to enable the aiming eye to look straight through the ocular lens of the RCO. Depending on the type of mounting system used for the RCO, a shooter may not be able to place as much contact of the cheek on the stock as when firing with iron sights.

a) To properly establish stock weld a shooter should lower the bottom portion of the jaw to the meaty portion of the cheek until a full field of view is established through the optic. This may not be a familiar placement of the cheek, but must be maintained in order to ensure accurate and consistent shot placement.

1) Scope shadow is caused when improper stock weld is achieved. If concentration on achieving a full field of view is maintained throughout the aiming process then there should not be a presence of scope shadow, or there should be consistent scope shadow.

2) If scope shadow is present when the shot is fired, the error in shot placement will be increased as the distance to the target increases.

b) If the position of the shooter's head causes him to look across the bridge of his nose or out from under his eyebrow, the eye will be strained. The eye functions best in its natural forward position. Eye strain will produce involuntary eye movements which reduce the reliability of vision. This will affect your shooting performance.

c) Changing the placement of your cheek up or down on the stock from shot to shot may affect shot placement and the battlesight zero (BZO) on the rifle due to the error created in not establishing a full field of view or eliminating scope shadow. (BZO will be discussed in a subsequent lesson.)

2) Eye Relief. Eye relief is the distance between the ocular lens and the aiming eye.

a) Optimal eye relief is 1.5 inches from the rear ocular. Every shooter is different. The distance



between the aiming eye and the rear ocular will ultimately depend on how long the shooter's neck is and the position of the rifle stock in his shoulder. Every effort should be made to accommodate the 1.5 inches of relief. The ability to move the RCO on the rail system can help accommodate the optimal eye relief of 1.5 inches. The shooter should annotate where he mounts the RCO on the rail and be consistent with its placement as well as the torque applied to the mounting screws.

b) If your eye is too close to the ocular lens the shooter may be struck by the RCO during recoil and the field of view may blacken. Moving your eye back from the ocular lens will allow sufficient light to enter the ocular and make acquiring the full field of view easier.

c) However, if your eye is too far from the ocular lens, it will be difficult to acquire full field of view of the target and to maintain a precise aiming point.

d) While eye relief varies from one position to another, it is important to strive for that optimal 1.5 inches of eye relief for all shots fired from a particular position.

c. Wearing of Glasses. Wearing glasses can alter the perception of the reticule and the image of the target. If wearing glasses, it is critical to look through the optic center of the lens and to be consistent with the wear of the glasses or contact lenses. Avoid switching from one prescription to the other or one type of corrective system to the other, ie. glasses to contacts.

d. Magnification. The AN/PVQ-31A/B is designed with a 4 power magnification. This magnification can cause many perceived differences compared to firing with iron sights.

1) The amount of movement seen through a magnified scope will appear to be dramatically more than when firing with iron sights from similar positions and ranges to the target. This must be compensated by focusing on the reticule and assuming correct natural point of aim.

2) The level of concentration on the reticule and full field of view can be considerably compromised due to the clarity of the appearance of the target. Discipline must be maintained throughout the firing process by focusing on the maintaining the full field of view and primary focus on the reticule.

3) Common errors in firing with optics are snapping the



trigger, staring at the target, muzzling the reticule to the target, and an overall absence of the fundamentals of marksmanship. These can all be alleviated by keeping primary focus on the reticule while maintaining a full field of view in coordination with proper trigger control.

Confirm by questions.

TRANSITION: Breath control is also critical in the aiming process. If breathing while trying to aim, the rise and fall of your chest will cause the rifle to move vertically. Normal breathing will not interfere with aiming, but to complete the process of aiming, breath control must be practiced.

2. (3 MIN) BREATH CONTROL

a. Natural Respiratory Pause

1) A respiratory cycle (inhaling and exhaling) lasts about four or five seconds. Between respiratory cycles there is a natural pause of two to three seconds. This is the natural respiratory pause. During the respiratory pause, breathing muscles are relaxed and the rifle sights settle at their natural point of aim. The shooter should fire at this point.

2) Some Marines can extend this natural pause up to ten seconds to fire a shot. The pause should last as long as the Marine feels comfortable with it. It really depends on physical condition and lung capacity. A shooter holding his breath longer than is comfortable results in a lack of oxygen. This causes his vision to deteriorate and affects his ability to focus on the sights.

b. Technique for Breath Control During Slow Fire

1) Assume a firing position.

2) Stop breathing at your natural respiratory pause and make final adjustments to your natural point of aim.

3) Breathe naturally until your full field of view is obtained and your reticule settles.

4) Take a slightly deeper breath.

5) Exhale and stop breathing at the natural respiratory



pause.

6) Fire the shot, during the natural respiratory pause.

c. Techniques for Breath Control During Rapid Fire. There are two techniques for breath control during rapid fire:

1) Breathing Between Shots. In this method the Marine breathes after each shot is fired. This establishes a rhythm for shooting.

a) Assume a firing position.

b) Stop breathing at your natural respiratory pause.

c) Fire the shot during the natural respiratory pause.

d) Repeat steps b) and c) until all five shots have been fired.

2) Holding the Breath

a) Assume a firing position.

b) Take a deep breath filling the lungs with oxygen.

c) Hold your breath and apply pressure to the trigger.

d) Fire the shots.

d. Error in Breath Control with Optics. Failing to allow the reticule to move in its natural vertical path.

1) A shooter may have a tendency to attempt to hold the reticule in place while breathing instead of allowing the reticule to move naturally during the breathing cycle. This occurs mostly due to the ability to see the target more clearly and shooters desire to aim at what he intends to shoot.

Confirm by questions.

TRANSITION: During the natural respiratory pause a precise aiming point must be achieved and the trigger must be pulled without disturbing the aiming process. Firing the rifle without disturbing a perfect aim is the most important fundamental after



the aiming process. Not hitting where you aim is usually caused by your aim being disturbed just before or as the bullet leaves the barrel. Most bad shots are caused by the shooter upsetting his field of view or reticule placement on the target by pressing the trigger incorrectly. Trigger control and follow-through must be employed to shoot accurately.

3. (13 MIN) TRIGGER CONTROL

a. Definition. Trigger control is the skillful manipulation of the trigger that causes the rifle to fire, while maintaining a full field of view and correct reticule placement on the target.

b. Grip and Placement of the Trigger Finger

1) Firm Grip of the Hand on the Pistol Grip. A firm grip is essential for good trigger control. Establish a grip before starting the application of trigger control and maintain it through the shot's duration. Establish a firm grip on the rifle as follows:

a) Place the "V" formed between the thumb and index finger on the pistol grip directly behind the trigger.

b) Place the fingers and thumb around the pistol grip in a location that allows the trigger finger to rest naturally on the trigger.

c) The grip should be firm enough to allow manipulation of the trigger, without disturbing the sights.

2) Trigger Finger Placement. A shooter must understand correct trigger finger placement before he masters trigger control.

a) A shooter's trigger finger should contact the trigger naturally. He should not make any special effort to place a certain portion of his finger on the trigger. Placement of his finger on the trigger depends greatly on the size of the shooter's hand and the manner in which the pistol grip is gripped.

b) Placement is correct, when it allows trigger movement straight to the rear, without disturbing the aiming process.

c. Techniques of Trigger Control

1) Uninterrupted Trigger Control. The preferred method of trigger control is uninterrupted. After obtaining a



full field of view and reticule placement, the Marine applies smooth, continuous pressure rearward, until the shot is fired.

a) Apply pressure to the trigger, while maintaining focus on the reticule. It should appear sharply focused and distinct.

b) Maintain complete concentration on the reticule until the shot is fired.

2) Interrupted Trigger Control. In interrupted trigger control, the trigger is moved to the rear, until an error is detected in the aiming process. When this occurs, rearward pressure is stopped until full field of view and reticule placement is achieved. When the full field of view is obtained and the reticule settles, the rearward pressure is continued until the shot is fired.

a) This method of trigger control is used in extremely windy conditions when the weapon will not settle. It forces the Marine to pause until the reticule returns to his aiming point.

b) A shooter should not force his rifle by steering it into an aiming point. Let the rifle move naturally toward and away from the aiming point on the target. If the rifle is moving toward the target, continuously apply trigger pressure. If the rifle is moving away from the target or aiming point, hold trigger pressure until the rifle starts drifting back toward the aiming point. Then, he should apply pressure to the trigger. If the shot breaks as the reticule is moving toward the aiming point, the shot will normally be inside a shooter's call.

d. Timing of Trigger Control

1) Controlling the trigger is a mental process. Everyone has probably heard or read that trigger control is such a subconscious process that a surprise shot is fired. This is a good way to develop trigger control.

2) A shooter must develop trigger control so that the shooter fires the shot at the moment the reticule settles on his aiming point. It should be a subconscious effort not to disturb the aiming process. The skilled shooter knows when the weapon will fire and manipulates the trigger, so that the shot is fired when he is at his aiming point.

e. Factors Affecting Trigger Control. There are many factors that determine how precisely the trigger can be controlled. Awareness of how these factors affect a



shooter's ability to control the trigger helps him perfect trigger control.

1) Grip. Failure to have a firm grip causes the trigger to feel inconsistent from shot to shot. As pressure is applied to the trigger, there is a tendency to tighten the grip on the pistol grip. If the grip is firmly established prior to applying trigger pressure, trigger control is consistent from shot to shot.

2) Trigger Finger Contact with the Trigger. A shooter should keep the middle trigger finger clear of the pistol grip. If his finger touches the side of the pistol grip, it causes pressure to be applied at a slight angle rather than straight to the rear. Side pressure applied no matter how slight, tends to pull the reticule off of the aiming point.

f. Fault Checking Trigger Control. An advantage to using optics is the refined ability of a shooter to fault check his trigger control. While conducting dry fire exercises a shooter can practice his trigger control while maintaining a full field of view and primary focus on the reticule. If there is any movement of the reticule during the manipulation of the trigger, the shooter is not practicing proper trigger control. The error is not as easily identified when conducting dry fire practice with iron sights. Any adjustments to trigger control through grip or finger placement can be done prior to training on a live fire range.

Confirm by questions.

TRANSITION: Trigger control enables the shooter to maintain a full field of view and reticule placement while taking a shot. It is a difficult skill to acquire and shooters must achieve it to avoid errors such as flinching, bucking, and jerking. In addition, stability of hold has a direct result on trigger control and shooting performance. The consistent application of the fundamentals of marksmanship depends on follow-through.

4. (2 MIN) FOLLOW-THROUGH

Follow-through is the continued application of the fundamentals until the round has exited the rifle barrel. Care should be taken not to shift your position, move your head, or let the muzzle of the rifle drop until the bullet has left the barrel. This is important so the direction of your shot will not be disturbed. Proper follow-through reduces the likelihood of



errors.

Confirm by questions.

TRANSITION: Mastering the fundamentals of marksmanship and applying follow-through are critical elements to achieving proficiency and success on the battlefield.

OPPORTUNITY FOR QUESTIONS:

(1 MIN)

1. Respond to questions from the class.
2. Prompt Marines with questions to the class.
 - a. **QUESTION:** What are the three fundamentals of marksmanship?

ANSWER: Aiming, breath control, and trigger control.

- b. **QUESTION:** Where should the shooter's eye be focused when he is aiming and shooting?

ANSWER: On the reticule of the BDC.

- c. **QUESTION:** What is follow-through?

ANSWER: The continued application of the fundamentals until the round has left the barrel.

INSTRUCTOR'S NOTE: Ask Marines as many questions as necessary to ensure they fully understand the material presented in this lesson.

SUMMARY:

(1 MIN)

All marksmanship training is geared toward the end result of firing accurately. Basic marksmanship fundamentals are taught first, and all other marksmanship training then supports or reinforces these fundamentals. Rounds will not be accurate if the shooter does not continually practice the marksmanship fundamentals of aiming, breath control, and trigger control. The most skilled shooters in the world got to the top by concentration and careful application of these fundamentals. Even though experienced shooters hone their skills, refine techniques, and add variations, their success is rooted in the proper application of the fundamentals of marksmanship.



SLIDES

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