



SLR.28  
1 Oct 99

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

**DETAILED INSTRUCTOR GUIDE**

LESSON TITLE

MOVING TARGET ENGAGEMENT TECHNIQUES

COURSE TITLE

SUSTAINMENT LEVEL RIFLE MARKSMANSHIP (PHASE I, II, III)



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Marine Corps Combat Development Command  
Quantico, Virginia 22134-5040

**INSTRUCTOR PREPARATION CHECKLIST**

**ESSENTIAL DATA**

LESSON DESIGNATOR	SLR.28
LESSON TITLE	Moving Target Engagement Techniques
DATE PREPARED	1 October 1999
TIME	35 min
METHOD	Lecture
LOCATION	Indoor/outdoor classroom
INSTRUCTORS REQUIRED	One Primary Marksmanship Instructor (PMI)
REFERENCE	MCRP 3-01A
TRAINING AIDS/EQUIPMENT	Slides (sSLR.28-1 - sSLR.28- 3)



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**DETAILED OUTLINE**

**MOVING TARGET ENGAGEMENT TECHNIQUES**

**INTRODUCTION**  
MIN)

(3

1. **GAIN ATTENTION.** In combat, most targets will be moving; the enemy will not present himself for a deliberate shot. He will move quickly from cover to cover, exposing himself for the shortest possible time. A moving target must be engaged quickly before it disappears. For effectiveness in combat, the Marine must engage a moving target with the same accuracy and precision as he would a stationary target under a variety of combat conditions.

2. **OVERVIEW.** This lesson will cover the determination of leads, the engagement of moving targets using the tracking method and the ambush method, and the application of the fundamentals of marksmanship for moving target engagement.

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

a. **TERMINAL LEARNING OBJECTIVE.** Given an M16A2 service rifle, sling, cartridge belt, magazines, magazine pouches, flak jacket, helmet, suspenders, ammunition, and moving targets, without the aid of references, engage moving targets with the rifle IAW MCRP 3-01A and to achieve a proficiency level IAW MCO 3574.2\_. (PVTX.11.10)

b. **ENABLING LEARNING OBJECTIVES**

1) Given an M16A2 service rifle, sling, cartridge belt, magazines, magazine pouches, flak jacket, helmet, suspenders, ammunition, and moving targets, without the aid of references, determine the lead to engage moving targets IAW MCRP 3-01A. (PVTX.11.10a)

2) Given an M16A2 service rifle, sling, cartridge belt, magazines, magazine pouches, flak jacket, helmet, suspenders, ammunition, and moving targets, without the aid of references, use the tracking method to engage moving targets IAW MCRP 3-01A. (PVTX.11.10b)



- 3) Given an M16A2 service rifle, sling, cartridge belt, magazines, magazine pouches, flak jacket, helmet, suspenders, ammunition, and moving targets, without the aid of references, use the ambush method to engage moving targets IAW MCRP 3-01A. (PVTX.11.10d)
4. METHOD. This lesson will be taught in a classroom setting using lecture.
5. EVALUATION. The Marine will be evaluated on moving target engagement via a performance checklist during the Field Firing Live Fire Exercises, SLR.31.

TRANSITION: Targets move in different ways. Techniques to engage moving targets vary with the type of movement and the situation. We will first cover the types of moving targets.

BODY (30  
MIN)

**1. (1 MIN) TYPES OF MOVING TARGETS**

- a. Steady Moving Target. This type of target moves in a consistent manner and is in continuous sight as it moves across your field of vision. A walking or running man is an example of this type of target. However, unless the enemy is completely unaware of your presence, this type of target is not likely to present itself.
- b. Stop and Go Target. This type of target will appear and disappear during its movement due to intermittent cover. It will present itself for only a short period of time before reestablishing cover. An enemy moving from one position of cover to another is an example. This enemy target is most vulnerable to your fire at the beginning and end of his rush, as he must first gain momentum; then he must slow to avoid overrunning the cover.

Confirm by questions.

TRANSITION: Once the moving target has been identified, it must be engaged. To engage a moving target, the Marine may have to aim at some point in front of the target to strike it. This is referred to as a lead. Determining the amount of lead to engage a moving target must be as precise as possible to achieve success.



## 2. (14 MIN) LEADS FOR MOVING TARGETS

a. Definition. When a shot is fired at a moving target, the target continues to move during the time of the bullet's flight. For this reason, the point of aim must be in front of the target; otherwise, the shot will fall behind it. Lead is the distance in advance of the target that is required to engage the target when it is moving.

b. Factors Affecting Lead. Factors that affect the amount of lead are the target's range, speed, and angle of movement.

1) Range. There is a time lag from the time a round is fired until the round impacts on the target. This time of flight could allow a target to move out of the bullet's path if the round were fired directly at the moving target. Time of flight increases as range to the target increases. Therefore, the lead must be increased as the distance to the target increases.

2) Speed. A greater lead will be required to engage a running man than a walking man because the running man will move a greater distance during the flight of the bullet.

3) Angle of Movement. The angle of target movement also affects the amount of lead required for target engagement. The angle of movement across your line of sight relative to the flight of the bullet determines the type (amount) of lead.

### c. Types of Leads

1) Full Lead. The target is moving straight across your line of sight with only one arm and half the body visible. This target requires a full lead because it will move the greatest distance across your line of sight during the flight of the bullet.

2) Half Lead. The target is moving obliquely across your line of sight (at about a 45-degree angle). One arm and over half of the back or chest are visible. This target requires half of a full lead because it will move across your line of sight only half as far as a target moving directly across your line of sight during the flight of the bullet.

3) No Lead. A target moving directly toward or away from you presents a full view of both arms and the entire back or chest. No lead is required. This target is engaged in the same manner as a stationary target because it is not moving across your line of sight.



Refer to slide sSLR.28-1.

d. Point of Aim Technique for Establishing Leads. To engage a moving target, a lead is established using an offset aiming technique. In the point of aim technique, predetermined points of aim sector the target vertically. Body width is considered to be 12 inches (side view of the target).

- 1) The tip of the front sight post centered on the leading edge of the target is considered one point of aim.
- 2) The trailing edge of the front sight post held on the leading edge of the target is considered two points of aim.
- 3) The same units of measure can be applied off the target for holds of additional points of aim.
- 4) To use the point of aim technique to establish a lead on a moving target at various ranges, speeds, and angles of movement, the following guidelines apply. These guidelines do not take into consideration wind or other effects of weather.

Refer to slide sSLR.28-2.

- 1) Slow Walking Target (approximately 2 - 2.5 mph). For a slow walking target moving directly across your line of sight (full lead):
  - a) At a range of 200 yards/meters or less, no lead is required.
  - b) At a range of 300 yards/meters, hold one point of aim in the direction the target is moving.
- 2) Fast Walking Target (approximately 4 mph). For a fast walking target moving directly across your line of sight (full lead):
  - a) At a range of 200 yards/meters or less, hold one point of aim in the direction the target is moving.
  - b) At a range of 300 yards/meters, hold two points of aim in the direction the target is moving.



3) Running Target (approximately 6 mph). For a target running directly across your line of sight (full lead):

a) At a range of 100 yards/meters or less, hold one point of aim in the direction the target is moving.

b) At a range of 200 yards/meters, hold two points of aim in the direction the target is moving.

4) Oblique Target. For a target moving at about a 45 degree angle across your line of sight, the lead is one half that required for a target moving directly across your line of sight.

Confirm by questions.

TRANSITION: Training in moving target engagement will provide the Marine practice in calculating leads so this skill becomes second nature. Equally important are the techniques or methods used to engage moving targets. Moving targets are the most difficult targets to engage. However, they can be engaged successfully by using either the tracking or ambush method or a combination of the two methods.

### 3. (10 MIN) METHODS FOR ENGAGING MOVING TARGETS

Refer to slide sSLR.28-3.

a. The Tracking Method. In this method, the Marine will "track" or follow the target with his front sight post while maintaining sight alignment and an aiming point on or ahead of (leading) the target until the shot is fired.

Sight picture is the aiming point in relation to the target while maintaining sight alignment (when a lead is established in moving target engagement, the sights will not be centered on the target). The tracking method is used for a target moving at a steady pace over a fairly well determined route. To perform the tracking method of moving target engagement:

1) Present the rifle to the target.

2) Swing the muzzle of the weapon through the target (from the rear of the target to the front) to the desired lead (point of aim). The point of aim may be on the target or some point in front of the target depending upon the target's range, speed, and angle of



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movement.





3) Track the target while maintaining focus on the front sight post and acquiring the desired sight picture. It may be necessary to shift the focus between the front sight post and the target while acquiring sight picture, but the focus must be on the tip of the front sight post when the shot is fired.

4) When sight picture is acquired, engage the target while maintaining the proper lead.

5) Follow through so the desired lead is maintained as the bullet exits the muzzle. Continuing to track also enables a second shot to be fired on target, if necessary.

b. The Ambush Method. The ambush method is used when it is difficult to track the target with the rifle, as in the prone, sitting, or any supported position. With this method, the rifle is aimed ahead of the target along its path, allowed to remain stationary, and fired when the target reaches a predetermined engagement point. The engagement point is determined based on the lead required to effectively engage the target. With the sights settled, the target moves into the predetermined engagement point creating the desired sight picture. The trigger is moved to the rear simultaneously with the establishment of sight picture.

Refer to slide sSLR.28-3.

- 1) To execute the ambush method:
  - a) Select an aiming point ahead of the target.
  - b) Obtain sight alignment on the aiming point.
  - c) Hold your sight alignment until the target moves into vision and the desired sight picture is established.
  - d) When sight picture is acquired, engage the target.
  - e) Follow through so the rifle sights are not disturbed as the bullet exits the muzzle.



- 2) A variation of the ambush method can be used when engaging a stop and go target:
  - a) Look for a pattern of exposure, such as every fifteen seconds, etc.
  - b) Once the pattern is determined, establish a lead by aiming at a point in front of the area you expect the target to appear. Fire the shot at the moment the target appears.

Confirm by questions.

TRANSITION: Leads and techniques such as tracking and ambush are important marksmanship principles needed to engage moving targets. However, the fundamentals of marksmanship still apply.

#### **4. (5 MIN) APPLYING THE FUNDAMENTALS OF MARKSMANSHIP TO ENGAGE MOVING TARGETS**

- a. Importance of Training in Moving Target Engagement.

The engagement of moving targets is a perishable skill that must be practiced frequently if it is to be maintained. It is also a difficult skill to acquire; the Marine must practice to develop the skill to calculate the lead and fire the shot while maintaining the proper lead. The fundamentals of marksmanship must be practiced and applied when engaging moving targets. Sight alignment, sight picture, trigger control, and follow-through all play key roles in successfully engaging moving targets. The fundamentals must be instinctively applied, allowing concentration on tracking the target and applying lead. The fundamentals must be applied simultaneous to the application of the lead.
- b. Fundamentals of Marksmanship
  - 1) Sight Alignment. Sight alignment remains unchanged for accurate engagement of a moving target. The most common error when engaging moving targets is the tendency to focus on the target rather than the tip of the front sight post.
  - 2) Sight Picture. When engaging moving targets, sight picture is the aiming point in relation to the target while maintaining sight alignment. For both the ambush and tracking methods, sight picture is changed from the normal center of mass picture, based on range, speed, and angle of movement of the target.



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It takes practice in moving target engagement to quickly establish the desired sight picture for a given lead.



a) Sight picture with one point of aim is the tip of the front sight post centered on the leading edge of the target.

b) Sight picture with two points of aim is the trailing edge of the front sight post held on the leading edge of the target.

3) Breath Control. There is no difference in breath control when engaging moving targets; the breath is held to fire the shot.

4) Trigger Control. With any target engagement, trigger control is critical to firing shots without disturbing sight alignment or sight picture. Pressure can be applied to the trigger prior to establishing sight picture, but there should be no rearward movement of the trigger until sight picture is established.

a) Interrupted trigger control is not recommended when engaging moving targets because the lead will be lost or have to be adjusted if the trigger is held to reassume the proper sight picture.

b) When using the tracking method, there is a tendency to stop tracking as trigger control is applied. This causes the shot to impact behind the moving target. Trigger control should be uninterrupted; the trigger is moved in one continuous, smooth motion to the rear.

c. Follow-through. When engaging moving targets, follow-through is applied to ensure the rifle sights are not disturbed as the bullet exits the muzzle. When using the tracking method, tracking of the target is continued while following through with the shot process so the desired lead is maintained as the bullet exits the muzzle. Continuing to track also enables a second shot to be fired on target if necessary. Concentration should be on continuing to track while applying the fundamentals. The application of the fundamentals must be instinctive so the Marine can concentrate on applying the proper lead and continuing the movement of the rifle in completion of the shot.

d. Stable Position. To engage moving targets using the tracking method, the rifle must be moved smoothly and steadily as the target moves. A stable position is necessary to steady the rifle sights while tracking. Additional rearward pressure may be applied to the pistol grip to help steady the rifle during tracking and trigger control. The elbows should not rest on any support so the target can be tracked smoothly.



Confirm by questions.

TRANSITION: Practicing marksmanship fundamentals and the specialized techniques we have discussed will result in proficiency and accuracy in engaging moving targets. Practice for these techniques will be conducted on the range during the Field Firing Live Fire Exercises.

OPPORTUNITY FOR QUESTIONS: (1  
MIN)

1. Respond to questions from class.
2. Prompt Marines with questions to the class.
  - a. **QUESTION:** What are the factors affecting the amount of lead required to engage a moving target?

**ANSWER:** Range, speed, and angle of movement of the target.

- b. **QUESTION:** When should the ambush method be used to engage moving targets?

**ANSWER:** When the target is moving at a fairly steady pace and when it is difficult to track the rifle with the target.

- c. **QUESTION:** If a target is slowly walking directly across your line of sight at a range of 300 yards/meters, where should you aim?

**ANSWER:** Two points of aim in the direction the target is moving.

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

SUMMARY: (1  
MIN)

In combat it is unlikely that a target will remain stationary. The target will be moving from cover to cover or from an open position to a covered one. Proficiency in engaging moving targets, including calculating leads and compensating for the movement of the target, is essential. Engaging moving targets



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requires concentration and adherence to the fundamentals of marksmanship. With practice, a moving target can be engaged with the same speed and accuracy as a stationary one.



SLIDES

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