

## **M-16 WEAPONS QUALIFICATION, 25 METER ALTERNATE COURSE**

### **RIFLE RANGE SAFETY BRIEFING**

1. Explain the far right and far left safety limits. Shooters never fire or point their rifles outside the limits of these limits.
2. When not on the firing line, the selector lever is on SAFE, the bolt is locked to the rear, magazine is out and the dust cover is open (Demonstrated).
3. Shooters will always point the muzzle of the rifle downrange whenever on the firing line. The firing trigger is not placed within the trigger housing area (Demonstrated).
4. Lock the bolt to the rear and place the rifle on SAFE on the firing line.
5. Smoke only in the designated smoking area, west of the chain link fence beyond the sunshade.
6. You will not eat or drink on the firing line when the line is hot. You may drink only when the firing line is clear unless you are behind the ammunition table. Drink water often to prevent heat injuries.
7. Never touch your rifle while personnel are downrange or in front of the firing line.
8. Load the magazine into the rifle only on the command of the tower.
9. Never fire without wearing hearing protection or when within 25 meters of the firing line.
10. Before leaving the firing line, the armorer must rod each weapon.
11. Consider the rifle loaded at all times, even in the break areas. Never point the rifle at anyone.
12. Left-handed Shooters will fire the M16A1 with left-handed brass deflectors attached to the rifle.
13. Anyone observing an unsafe act will immediately call CEASE FIRE, place his rifle on SAFE, place it on a sandbag in front of his firing point and then give both the vocal alarm and visual signal of cease fire (Demonstrated and have soldiers demonstrated).
14. Upon completion of firing and after the firing line has been cleared, Shooters and coaches will police and return all brass and live ammunition to the ammunition table while their rifles are placed on the sandbag in front of their firing point.
15. No one will leave the range until he has been inspected for ammunition and brass.
16. Are there any questions concerning these range safety procedures?

**(SET UP FLIP CHART TO SHOW TRAINING AIDS)**

# **ZERO AN M16A2 RIFLE**

## **TRAINING AND EVALUATION**

1. **The M16A2 rifle has two adjustable sights** – front and rear. Elevation adjustment are made using the front sight, and elevation changes and windage adjustments are made using the rear sight.
2. **The sight systems.**
  - a. The rear sight has an elevation knob with range indicator form 300 to 800 meters and two apertures for range. One aperture is marked 0-2 for short range from 0-200 meters and an unmarked aperture for normal range from 300 to 800 meters.
    - (1) The 0-2 (large) aperture is used for short range.  
The aperture is used only when the rear sight is all the way down. The 8/3 (300 meters) mark on the elevation knob is aligned with the index mark on the left side of the receiver.
    - (2) The unmarked (small) aperture is used for normal range. This aperture is used for most firing situations. It is used in conjunction with the elevation knob for 300- to 800-meter targets.
  - b. The rear sight also consists of a windage knob on the right side of the sight (figure 109).
    - (1) Each click of the windage knob will move the strike of the round form 1/8 inch (.3 centimeters) at 25 meters to 4 inches (10 centimeters) at 800 meters.
    - (2) A windage scale is on the rear of the sight and the windage knob pointer is on the windage knob.
  - c. The front sight consists of a rotating sight post with a spring loaded detent The front sight is moved up or down when zeroing the rear sight.
    - (1) Once the rear sight is zeroed, the front sight post should not be moved.
    - (2) Each notch on the front sight will move the strike of the bullet 3/8 inch (0.9 centimeters) to 2 ¾ inches (7 centimeters) at 200 meters.
3. **Sight adjustments**
  - a. Rear sight.
    - (1) To adjust windage or move the strike of the round, turn the windage knob counterclockwise to move the strike to the left and clockwise to move the strike to the right.
    - (2) To adjust elevation, turn the elevation knob until the desired range is indexed at the index mark on the left side of the sight.
  - b. Front sight. To adjust elevation, depress the detent and rotate the sight post. To raise the strike of the round, rotate the sight post in the direction of the arrow marked UP. Reverse the direction of rotation to lower the strike.
4. **Zero the rifle.** The following steps will establish a zero at 25 meters, your M16A2 rifle sights will be set with a 300-meter battle sight zero.
  - a. Establish mechanical zero on the rifle.
    - (1) Align the windage indicator mark on the 0-2 aperture with the center line of the windage scale (the unmarked aperture is up).

- (2) Rotate the elevation knob down until the range scale 8/3 (300 meters) mark is aligned with the mark on the left side of the receiver.
- (3) Rotate the front sight post up or down as required until the base of the front sight post is flush with the top of the sight post well.

b. Zero at 25 meters.

- (1) After setting the front and rear sights to mechanical zero, the elevation knob is rotated up (clockwise) one click past the 8/3 (300 meter) mark. The elevation knob will remain in this position until the battle sight zeroing has been completed.

**Note: Any change in elevation required during the zeroing procedures will be made using the front sight post only.**

- (2) Carefully aim and fire each shot of a three-round shot group at the circle of the silhouette.
- (3) If your shot group is not within the circle on the silhouette, use the squares on the target to determine the required clicks to move your next shot group into the circle.

**Note: The squares are numbered around the edges of the target to equal the number of clicks required to move the shot group to the circle.**

- (4) To raise your next shot group, rotate the front sight post **UP** (clockwise). To lower your next shot group, rotate the front sight post **down** (counterclockwise). Once click will move the strike of the round one square on the target.
- (5) To move the shot group to the left, turn the windage knob counterclockwise. To move the shot group to the right, turn the windage knob clockwise. Three clicks of the windage knob will move the strike of the round one square on the target.
- (6) Continue to fire three-round shot groups and make corrections until you have a tight shot group in the circle on the silhouette.
- (7) If your shot group is within the circle, your rifle is now “calibrated”.
- (8) To place your **300-meter zero on the rifle**, you must rotate the elevation knob one click counterclockwise. The 8/3 (300 meters) mark on the elevation knob should now be aligned with the index mark on the left side of the sight.

**NOTES:**           **1. There are clicks between the range numbers as you turn the elevation knob. Use these clicks if you need more elevation past a certain range number to hit a target.**

**2. The unmarked aperture is automatically zeroed to 200 meters. Use the 0-2 aperture when shooting at night or at close range; for example, in an urban environment or in dense jungle.**

5. Sight setting. Your rifle sights should be kept set to a combat zero of 300 meters. If you are told to engage a target at a longer range; for example, 500 meters:

a. Rotate the elevation knob so that the desired range mark is aligned with the index mark on the left side of the sight.

b. Engage the target.

c. When the engagement is over, return the sight to the 300-meter setting.

**NOTE: When the rifle has been zeroed to 300 meters, all other ranges on the elevation knob are also zeroed.**

**CONDUCT OF ZERO ON A 25-METER RANGE**

Using the “L” sight, the soldiers will fire a three-round shot group at the 25 meter zero target. The firing line will be cleared and all Shooters, coaches, and Block NCOs will move downrange to examine the shot groups. Each firer will connect the bullet holes with a pencil line and mark the holes with the number “1”. With the coach and Block NCO, the firer will examine the shot group for the size placement and fundamental errors. If the shot group is on the paper target **NO SIGHT CHANGES SHOULD BE MADE AT THIS TIME.**

The Shooters, coaches and Block NCOs will return to the firing line and fire a second three-round shot group. Again, the Shooters, coaches and Block NCOs will clear the firing line and move downrange to examine the second shot group. Each firer will connect the second set of bullet holes and mark them with the number “2”. He then determines, along with the coach and Block NCO, if any sight changes are needed. To make a sight change, both shot groups should be in the same location and no larger than 4 cm. All sight changes should be recorded on the target.

After the sight changes are made, two more three-round shot groups are fired, using the same procedure to confirm the zero. The shot groups must be centered within the zero circle. Upon completion of zero the firer will begin the Record Fire phase of weapons qualification. If a shooter is satisfied with his zero, prior to expending 18 rounds, he should be encouraged to practice firing his remaining zero rounds from the prone unsupported position.

AT THIS TIME WILL ALL SHOOTERS PLEASE FILE PAST THE AMMUNITION TABLE AND RECEIVE 58 LOOSE ROUNDS OF 5.56 AMMUNITION AND TWO MAGAZINES. UPON RECEIVING YOUR AMMUNITION MOVE TO YOUR FIRING POINT AND AWAIT FURTHER INSTRUCTIONS. REMAIN STANDING BEHIND YOUR FIRING POINT AND DO NOT HANDLE YOUR WEAPON.

HAVE ALL SHOOTERS RECIEVED YOUR TWO MAGAZINES AND 58 LOOSE ROUNDS OF AMMUNITION?

COACHES, POINT OUT THE LIMITS OF YOUR LANE.

**ZEROING SEQUENCE FOR TWO THREE ROUND SHOT GROUPS.**

SHOOTERS, AT THIS TIME INSERT THREE ROUNDS INTO EACH MAGAZINE.

SHOOTERS, ASSUME A GOOD PRONE SUPPORTED POSITION.

IS THERE ANYONE DOWN-RANGE? IS THERE ANYONE DOWN-RANGE? IS THERE ANYONE DOWN-RANGE?

SHOOTERS, LOCK AND LOAD ONE MAGAZINE OF THREE-ROUNDS.

READY ON THE RIGHT?

READY AT THE CENTER?

READY ON THE LEFT?

THE FIRING LINE IS READY?

SHOOTERS, PLACE YOUR SELECTOR LEVER ON SEMI-AUTOMATIC.

SHOOTERS, COMMENCE FIRE. A whistle, buzzer or horn or other loud audible signal is sounded to begin the exercise and sounded again to cease fire.

The following commands will be given after all firing has been completed.

CEASE-FIRE. SHOOTERS, CLEAR YOUR WEAPONS, MAGAZINES OUT, WEAPONS ON SAFE, LOCK YOUR BOLTS TO THE REAR, DUST COVER OPEN, PLACE YOUR WEAPONS ON THE SANDBAG IN FRONT OF YOUR FIRING POINT.

IS THE FIRING LINE CLEAR ON THE RIGHT?

IS THE FIRING LINE CLEAR AT THE CENTER?

IS THE FIRING LINE CLEAR ON THE LEFT?

THE FIRING LINE IS CLEAR. SHOOTERS, COACHES AND BLOCK NCOs MOVE DOWN RANGE TO EXAMINE THE TARGETS.

After all soldiers have returned to the firing line the following commands are given:

SHOOTERS, THE FIRING LINE IS NO LONGER CLEAR YOU MAY HANDLE YOUR WEAPONS AND MAKE NECESSARY SIGHT CHANGES.

Note: Sight changes are made starting with the second shot group.

SHOOTERS, ASSUME A GOOD PRONE SUPPORTED POSITION.

IS THERE ANYONE DOWN-RANGE? IS THERE ANYONE DOWN-RANGE? IS THERE ANYONE DOWN-RANGE?

SHOOTERS, LOCK AND LOAD ONE MAGAZINE OF THREE-ROUNDS.

IS THE LINE READY?

READY ON THE RIGHT?

READY ON THE LEFT?

THE FIRING LINE IS READY?

SHOOTERS, PLACE YOUR SELECTOR LEVER ON SEMI-AUTOMATIC.

SHOOTERS, COMMENCE FIRE. A whistle, buzzer or horn or other loud audible signal is sounded to begin the exercise and sounded again to cease fire.

The following commands will be given after all firing has been completed.

CEASE-FIRE. SHOOTERS, CLEAR YOUR WEAPONS, MAGAZINES OUT, WEAPONS ON SAFE, LOCK YOUR BOLTS TO THE REAR, DUST COVER OPEN, PLACE YOUR WEAPONS ON THE SANDBAG IN FRONT OF YOUR FIRING POINT.

IS THE FIRING LINE CLEAR ON THE RIGHT?

IS THE FIRING LINE CLEAR AT THE CENTER?

IS THE FIRING LINE CLEAR ON THE LEFT?

THE FIRING LINE IS CLEAR. SHOOTERS, COACHES AND BLOCK NCOs MOVE DOWN RANGE TO EXAMINE THE TARGETS. DETERMINE WHAT SIGHT CHANGES ARE NECESSARY AND RETURN TO YOUR FIRING POINT BUT DO NOT HANDLE YOUR WEAPONS UNTIL YOU HAVE RECEIVED PERMISSION FROM THE TOWER.

After all soldiers have returned to the firing line the following commands are given:

SHOOTERS, THE FIRING LINE IS NO LONGER CLEAR YOU MAY HANDLE YOUR WEAPONS AND MAKE NECESSARY SIGHT CHANGES.

Repeat the zero sequence until the 18 rounds for zero have been expended.

### **CONDUCT OF RECORD FIRE**

Shooters will engage each of the 10 scaled silhouettes with one round from the first magazine. They perform a rapid magazine change and engage each scaled silhouette again with one round from the second magazine. Fire commands are given from the chief range NCO or tower operator.

The following commands will be given:

SHOOTERS, INSERT 10 ROUNDS IN EACH MAGAZINE. THIS IS TABLE 1, FIRED FROM THE PRONE SUPPORTED POSITION, 2 MAGAZINES OF 10 ROUNDS EACH, 120 SECONDS.

SHOOTERS, ASSUME A GOOD PRONE SUPPORTED POSITION.

IS THERE ANYONE DOWN-RANGE? IS THERE ANYONE DOWN-RANGE? IS THERE ANYONE DOWN-RANGE?

THE FIRING LINE IS NO LONGER CLEAR.

SHOOTERS, LOCK AND LOAD ONE MAGAZINE OF TEN ROUNDS.

LOAD YOUR SECOND MAGAZINE OF TEN ROUNDS AT YOUR OWN COMMAND.

IS THE LINE READY?

READY ON THE RIGHT?

READY ON THE LEFT?

THE FIRING LINE IS READY?

SHOOTERS, PLACE YOUR SELECTOR LEVER ON SEMI-AUTOMATIC.

SHOOTERS, COMMENCE FIRE. A whistle, buzzer or horn or other loud audible signal is sounded to begin the exercise and sounded again to cease fire.

CEASE FIRE, CEASE FIRE, CEASE FIRE. (Given at the same time as the signal).

ARE THERE ANY ALIBIS?

Allowable alibis are allotted six seconds for each unfired round. An allotted alibi is a malfunction of the rifle or ammunition - it is not associated with firer error. Rounds not expended during the allotted time do not constitute an alibi and are counted as misses. The firing line safety crew notes the number of alibi rounds to be fired

and time each alibi firer. If a rifle continues to malfunction, the armorer removes it from the firing line for inspection and repair.

Cross fires are not allowable alibis for the cross-firing soldier. The recipient of the cross-fired rounds refires the table. The cross-firer is awarded misses for those shots on the wrong target, and he may be allowed to refire the course. Regardless of his total hits during refire, he can only be rated as a marksman with a score of 26. The recipient is not penalized. If there are alibis, the chief range officer repeats the fire commands; otherwise, he continues the exercise.

CLEAR ALL WEAPONS.

IS THE FIRING LINE CLEAR ON THE RIGHT?

IS THE FIRING LINE CLEAR ON THE LEFT?

THE FIRING LINE IS CLEAR. SHOOTERS, COACHES AND BLOCK NCOs MOVE DOWN RANGE, SCORE AND REPAIR OR REPLACE YOUR TARGET.

Upon returning from down-range the following commands are given:

SHOOTERS, INSERT 10 ROUNDS IN EACH MAGAZINE. THIS IS TABLE 2, FIRED FROM THE PRONE UNSUPPORTED POSITION, 2 MAGAZINES OF 10 ROUNDS EACH, 120 SECONDS.

SHOOTERS, ASSUME A GOOD PRONE NON-SUPPORTED POSITION.

IS THERE ANYONE DOWN-RANGE? IS THERE ANYONE DOWN-RANGE? IS THERE ANYONE DOWN-RANGE?

THE FIRING LINE IS NO LONGER CLEAR.

SHOOTERS, LOCK AND LOAD ONE MAGAZINE OF TEN ROUNDS.

LOAD YOUR SECOND MAGAZINE OF TEN ROUNDS AT YOUR OWN COMMAND.

IS THE LINE READY?

READY ON THE RIGHT?

READY ON THE LEFT?

THE FIRING LINE IS READY?

SHOOTERS, PLACE YOUR SELECTOR LEVER ON SEMI-AUTOMATIC.

SHOOTERS, COMMENCE FIRE. A whistle, buzzer or horn or other loud audible signal is sounded to begin the exercise and sounded again to cease fire.

CEASE FIRE, CEASE FIRE, CEASE FIRE. (Given at the same time as the signal).

ARE THERE ANY ALIBIS?

(NOTE: The fire commands and alibi procedures are the same as in Table 1.)

CLEAR ALL WEAPONS.

CLEAR ON THE RIGHT?

CLEAR ON THE LEFT?

THE FIRING LINE IS CLEAR.

SHOOTERS, COACHES AND BLOCK NCOs MOVE DOWN RANGE, SCORE AND REPLACE YOUR TARGET.

Upon returning from down-range the following commands are given:

SHOOTERS AND COACHES POLICE ALL BRASS. After all brass has been policed. SHOOTERS REMOVE YOUR WEAPONS FROM THE SAND BAG AND MOVE TO YOUR LEFT WITH THE WEAPON ON SAFE AND THE BOLT TO THE REAR. ARMORER MUST CHECK ALL WEAPONS TO ENSURE THEY ARE CLEARED. STACK YOUR WEAPONS BEHIND THE AMMUNITION TABLE AND RETURN TO THE FIRING LINE TO ACT AS COACHES.

COACHES RETRIEVE YOUR WEAPONS AND HOLDING THEM MUZZLE UP AND DOWN RANGE PLACE THEM ON THE SAND BAG IN FRONT OF YOUR FIRING POINT. YOU WILL BE THE NEXT RELAY TO FIRE. AFTER YOU HAVE PLACED YOUR WEAPON ON THE SAND BAG MOVE TO THE AMMUNITION TABLE AND SECURE 58 LOOSE 5.56 ROUNDS AND TWO MAGAZINES.



## QUALIFICATION STANDARDS

The chief range NCO briefs all soldiers on the proper scoring procedures. The Block NCO

- Perform as scorers
- Informs the chief range NCO of cross-fires.
- Informs the chief range NCO of allowable alibis.
- Accurately counts hits and misses. A hit is any bullet hole that is either completely within or touches some part of the scaled silhouette. If a bullet hole does not touch some part of the scaled silhouette, it is counted as a miss. Ricochets are counted as hits or misses.
- Count only two hits for each silhouette for score in each table.
- Complete the scorecard.
- Assist the firer with target repair.
- Total, sign and returns the completed scorecard to the chief range NCO.

Qualification ratings for the alternate course as follows:

- EXPERT: Hits 38 to 40 targets
- SHARPSHOOTER: Hits 33 to 37 targets
- MARKSMAN: Hits 26 to 32 targets
- UNQUALIFIED: Hits 25 and below
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This course is fired IAW DA Form 5790-R (Record Firing Scorecard-Scaled Target Alternate Course)