



Machine Gun Marksmanship

Marksmanship with machine guns uses the same concepts of Shot Process and Functional Elements as all small arms.

Stability

We'll start with Stability. Stabilizing the machine gun or automatic rifle to provide a consistent base to fire from and maintain through the shot process until the recoil pulse has ceased.

A firm grasp, solid cheek-to-stock weld, natural point of aim on target, at shooter-gun angle that is straight and inline to the target, all set into a position that naturally returns back to target after each recoil pulse are the key concepts. Binding against the tripod, or bipod legs, or mount, or other support needs to be firm but holding too hard can worsen the results.

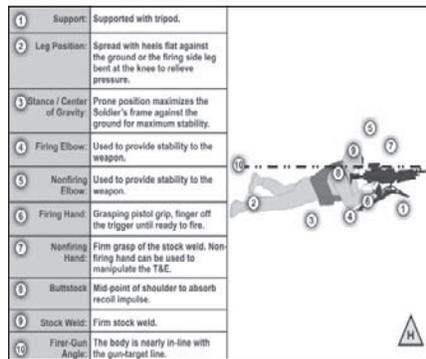
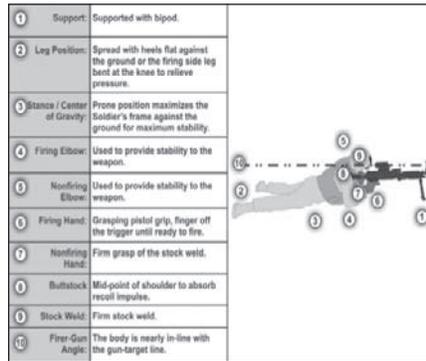
A good check series is, first, check natural point of aim by closing the eyes after aligning on a target and then re-checking alignment after opening the eyes. Make position adjustments until the sights want to remain on target.

Second, repeat this procedure but inhale and exhale while keeping the eyes closed. Finally, have an experienced or peer coach push and release the front sight housing several times with closed eyes to simulate recoil pulse. In all cases, the sights will remain aligned on target after rechecking if the position is aligned and the hold is good.

Aim

Aim is the continuous process of orienting the weapon correctly, aligning the sights, aligning on the target, and the appropriate lead and elevation (hold) during a target engagement.

Sight alignment works the same as all other small arms. For example, focus on the front sight with irons. Sight picture is best described as



center base, or just above a 6 o'clock hold. No, this is not because of wrong claims that machine guns rise during a burst. If a burst of shots string continuously upward then Stability is very poor as the position and hold have been compromised. Anyone claiming a machine gun climbs in recoil during a burst doesn't understand how to control a machine gun and should remain quiet about such matters. A well-controlled cone of fire should be roughly circular and the highest shot in the burst likely isn't the last one fired.

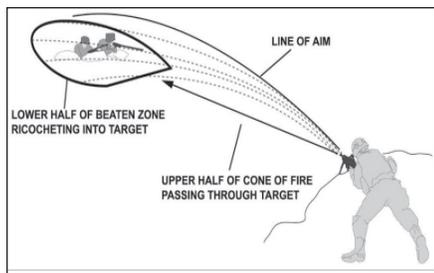
When watching a good gunner, the machine gun moves rearward due to

Right: Aim center base helps place the burst on target, especially when firing at targets with depth. Contrary to popular myth, it is NOT because the "gun climbs in recoil."

the recoil impulse, rocking against the bipod's (or other) point of support and the gunner's position naturally allows the weapon to return back to the position's start point prior to the next round in the burst being fired. There is no indication of continuing muzzle climb from shot-to-shot in the burst because the gun is returning back each time, rather like an artillery piece recuperating after discharge. A cone of fire on a target that shows stringing up due to climbing indicates a Stability and Control problem from a poor position and poor shooting.

The real reason for using a center base aim is to better place the beaten zone for maximum target effect. Unlike training ranges which normally used two dimensional targets, targets in the real world have depth. Shooting a cone of fire with a proper center base hold centers the beaten zone on top of the target area. Shots lower in the cone of fire strike in front of the target area. This makes it easier for the assistant gunner to locate and adjust from a fired burst, it places low shots directly in front of the target's view and better convinces them to be suppressed, plus any low shots are more likely to ricochet up into the target





Above: *The real reason for using a center base aim is to better place the beaten zone for maximum target effect. Unlike training ranges which normally used two dimensional targets, targets in the real world have depth.*

area. In a properly-center beaten zone, high shots will tend to be caught by target itself. This adds up to a more effective placement of all shots in a burst.

Control

Control entails all the conscious actions of the Soldier before, during, and after the shot

process that the Soldier specifically is in control of. The first of which is trigger control. This includes whether, when, and how to engage. It incorporates the Soldier as a function of safety, as well as the ultimate responsibility of firing the weapon.

With fully-automatic weapons, control as includes modulating the number of shots in a burst, be it three rounds for an automatic rifle, seven for a machine gun, or any other number. This should never compromise stability or aim. Unskilled personnel throwing their finger off the trigger to abruptly end the burst, the so-called “thousand degree trigger”, may dis-

rupt their shot process and scatter rounds away from the target area.

The final, ultimate goal with machine gun marksmanship is to produce a centered circular cone of fire of the correct number of rounds wanted. This should be no bigger than four mils. The paster used at 10 meters (1,000 cm) is 4 centimeters wide, which is 4 mils at that distance. The cone of fire must be centered just above the point of aim and no bigger than that. Any failure to accomplish this indicates a failure to apply a proper shot process and functional elements with the machine gun or automatic rifle. Good gunners can have that cone of fire approach two mils in diameter.

Machine Gun Qualification

OBJECTIVES: The objective of machine gun marksmanship training is to produce gunners who can fire an accurate initial burst, adjust fire, and develop speed.

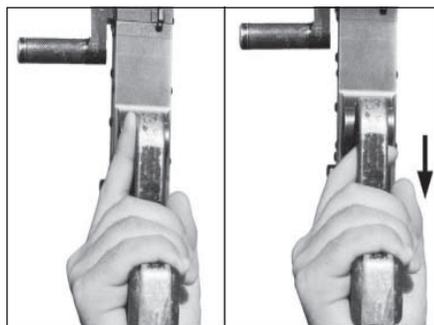
FIRE AN ACCURATE INITIAL BURST: Obtaining an accurate initial burst of fire on the target requires good marksmanship and is essential to gunnery. The crew (either gunner or assistant gunner) estimates the range to the target, sets the sights, and applies marksmanship skills to achieve an accurate initial burst of fire.

No, you don’t “just walk it in”. Machine guns demand as much attention to zero as any weapon you intend to hit targets with. Failure to use the sights and get a solid zero confirmed at distance means that every nearly engagement starts with a miss, wasting ammunition and time, and giving the gun’s position away before having strikes to register the gun and adjust fire from. It also means that any data

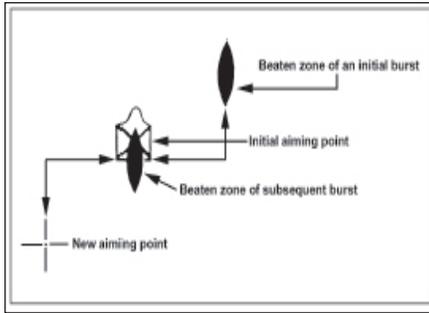
on the bottom half of a range card is useless because T&E data is dependent on confirming the lay of the machine gun is correct, which you can’t do if the zero is so far off that you’re unable to regularly hit known distance targets with the first burst. This is doubly true with a Soldier so low skilled and unknowledgeable about machine guns that he foolishly believes that machine guns don’t need to be zeroed.

ADJUST FIRE: The assistant gunner observes the location of the beaten zone from the initial burst, giving the gunner a correction as needed. Corrections must be a bold stated with the direction and specific amount of adjustment given in mils. The gunner puts this correction on the Traverse and Elevation mechanism and fires another burst. Repeat as needed. The assistant gunner must be proficient in observing the strike of rounds and giving positive corrections. In a training environment, the A-gunner must give a definite adjustment in mils and the gunner must follow. This helps both learn how much adjustment effects changes at distance. Optics and binoculars with a mil reticle help this greatly. The assistant gunner’s proficiency helps the gunner re-ly the machine gun back on target.

DEVELOP SPEED: Speed is essential to good marksmanship also. Practicing dry-fire and live-fire exercises increases the gunner’s speed. Novice gunners fumble their T&E and often have to move in the wrong direction to remember what the controls do while proficient gunners can spin and move the control their gun smoothly where it needs to go. This work can and should be done away from the range. Aiming and T&E exercises can be done with any mark on a wall. Set at a known distance, such as 10 meters, makes it easy to scale aiming marks into mil-sized increments. Remember, one mil is one thousandth the distance to the target. 10 meters is 1,000 centimeters, so one mil is one centimeter at that distance.



Left: *Machine gun trigger control must cause no additional movement to the gun, just like every other type of weapon. A good gunner can modulate the trigger to fire an exact number of rounds in a burst on demand while retaining a good circular cone of fire.*



Above: Gunnery requires learning to fire an accurate initial burst, adjust fire, and develop speed in doing it.



Above: A good gunner can produce a centered, circular cone of fire no larger than four mils. The pasters on 10 meter target are four centimeters wide, which is four mils at that distance.

APPLY GUNNERY: The 10 meter and Transition qualification courses test basic machine gun proficiency concerning marksmanship. The 10 meter target uses a series of pasters representing target areas NOT individual targets or silhouettes. These target areas are a simple way to learn engaging an area beyond a single, fixed target, demanding the gunner traverse and/or search across an area, thus moving the grazing fires or beaten zones across a frontage.

The pasters are NOT individual targets. The individual and groups of pasters represent a target area that the cone of fire should fit inside of.

Merely hitting the paster is NOT the only goal. At 10 meters, a 4 cm paster is 4 mils wide. An E-type silhouette target 19 inches wide is 4 mils wide at 121.7 meters. Do the math. A mil is one thousandth of the radius of a circle. 19 inches divided by four is 4.75. 4.75 inches is a thousandth of 4,750 inches. 4,750 inches is 121.79 meters.

Merely hitting a silhouette at 122 meters from a bipod or tripod position is not a challenge. Keeping all (or most) of the rounds from a single burst is.

Training Circular 3-22.249 and 3-22.240 specifically states this. With the machine gun qualifications, the manual directs that the gunner using the traverse and search technique, engages pasters, either B5 and B6 or B7 and B8, firing a 5- to 7-round burst at each." For the automatic rifle qualifi-

cation the instructions are specifically to fire a three-round burst for each paster. Not to fire as many short bursts as you like in any order until you've finally expended all ammo but to start on one end of the target area and systematically place a single, accurately-fired burst at each paster representing a section of the entire target area, and then traverse and/or search to the adjoining target area as represented by the next paster, and fire a single burst there, repeating until done.

That means for pasters 5 and 6, which has five pasters in it, the gunner or automatic rifleman should fire exactly five bursts and for 7 and 8 with eight pasters there should be exactly eight bursts. No more and no less.

The gunner or automatic rifleman should be stopped after firing the pre-determined number of bursts EVEN IF TIME AND AMMUNITION REMAIN. If there is ammunition left after firing five or eight bursts, the shooter should NOT shoot it because

it means they didn't fire the correct number of rounds per burst, meaning they failed to perform the task correctly. Specifically, they screwed up the trigger control portion of the Control functional element. Likewise, they should be stopped after the time limit expires, even if ammunition remains. In both cases, put salt and pepper on those rounds, pal, because you just ate them. Failing to cease fire after firing the correct number of bursts or after time expires is supposed to result in a penalty to the score. I realize many units don't enforce this because most Soldiers don't bother read and understand this standard. Doing it correctly is more difficult but that is how these courses are intended. Again, each paster is the same width as an E-type silhouette less than 122 meters away. Merely hitting it is not the challenge.

Likewise, each target engagement during the transition course is limited to two bursts. If the target is not hit after two bursts, it is lost and should not be engaged for another burst EVEN IF AMMUNITION AND TIME REMAIN. These courses are far too easy with too much time and extra allowed ammunition to merely keep shooting and make a third attempt. Many units fail to enforce this standard due to ignorance and low skills. A gunner or automatic rifleman failing to fire a full burst and hit gets a second burst the make a hit. If the target fails to fall on the second burst, that target should be scored a miss because the crew failed to fire an accurate initial burst and adjust fire as needed. Using more than two total bursts, regardless of how few rounds are fired, is a failure. The purpose is to create crews that can engage targets and make correct adjustments with confidence, not to make multiple guesses, sling out a bunch of random shots, and hope they eventually get lucky. Read the Training Circulars to verify this.

Doing it right is harder but will create better gunners. **USARCMF**

