



## Army Marksmanship History

### Decades of Decline: A review of the history of marksmanship training in the U.S. Army.

*by Sgt. 1st Class John M. Buol Jr.*

The history of Army marksmanship training demonstrates a failed de-evolution that has left Soldiers less skilled with their small arms than ever.

Formal Army small arms training has steadily declined and worsened over the decades and this article will demonstrate how. That this fact has not has not drawn wide-spread concern throughout the Department of Army demonstrates the general lack of knowledge common among Soldiers and a lack of interest by leadership to address it.

#### History

The first formal requirements to small arms training in the United States began with Baron Friedrich Wilhelm von Steuben and his Drill Manual approved 29 March, 1779. Upon General George Washington's recommendation, Congress appointed Steuben as a Major General and the Inspector General of the Continental Army. Steuben promptly formed a model company of soldiers and trained them to march, use the bayonet, and execute orders quickly on the battlefield.

It's critical to understand Baron Friedrich Wilhelm von Steuben's approach and the drills in his "blue book" had nothing to do with current Drill and Ceremony. This approach used to be a relevant, useful, real-world skillset ideal for then-current equipment and tactics. It was not a self-serving exercise in discipline for its own sake or to look good. Unfortunately, D&C has since devolved into a parade ground exercise with no practical value.

When the Industrial Revolution made mass-issued rifled small arms possible in the mid 1800s, militaries began developing various Small Arms School Corps and Schools of Musketry to teach their effective use. Medieval Archery Law common throughout feudal England and Europe were established due to no other individual ranged weapon of the day being superior to a longbow

and acknowledging that serious, ongoing practice was required to exploit the capability. In the hands a skilled archer, a longbow was a superior weapon capable of dominating a battlefield; in untrained hands it is an expensive stick.

Firearms replaced the the bow due being easier to train *musketeers than archers.*

*<https://www.technologyreview.com/2011/01/12/89319/the-puzzling-evolution-of-guns-versus-bows/>*

*At the Battle of Agincourt in 1415, an English army of 6000 soldiers led by Henry V, defeated a French army of 36,000.*

*One crucial element in this victory was the longbow. Henry deployed some 5000 longbowmen, whereas the French used mainly crossbows, which have a much shorter range. Largely because of this, the French lost as many as 10,000 soldiers to England's 112.*

*But despite the clear utility of the longbow as a weapon of war, it soon became obsolete as firearms evolved. Within 200 years of Agincourt, it had fallen out of military use almost entirely.*

*And yet in China, weaponry evolved in an entirely different way. Here, firearms were used much earlier. In 1232, the Mongol army used firearms as armour piercing weapons during the siege of Pien in China (now known as Khai-Fun Fu). And firearms may have been in use much earlier. One picture dating from the C10th shows a demon wielding a gun of sorts.*

*And yet Chinese armies still used bows some 800 years later. How come?*

*Timo Nieminen, a physicist at the University of Queensland in Brisbane, describes the evolution of the*

#### In This Issue

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- Magic Bullets
- Peer Coaching
- Diagnosing Shooting Performance

#### Call For Articles

All information, articles, and ideas helpful to improving small arms training, qualification, and competition for Army Reserve Soldiers are welcome. Submit anything you'd like included in **Army Reserve Marksman** to the editor: [john.m.buol.mil@mail.mil](mailto:john.m.buol.mil@mail.mil)

Asian composite war bow, a device he describes as “the best bow available before the advent of modern materials and the modern compound bow”. In the process, he throws some light on this question, explaining why the bow was much harder to make obsolete in China.

Both East and Western designs were much more accurate than early firearms, particularly over longer distances. They had a much higher rate of fire. And they required fewer materials and logistics to manufacture and supply. Surely any military commander would have preferred them over firearms.

Well, yes. Except for one big disadvantage: bows require a high degree of skill to use proficiently.

Nieminen points out that while Chinese armies had a huge pool of skilled archers to pick from, European armies did not. The Europeans therefore trained their soldiers to use firearms, which could be done relatively quickly.

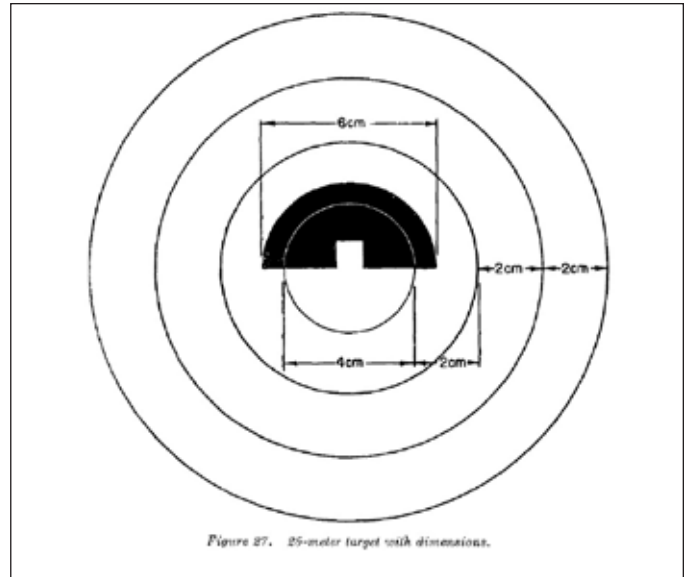
And for that reason, firearms quickly eclipsed the bow in Europe. “Economic and social factors, especially the training of musketeers as opposed to archers, were more important factors influencing the replacement of the bow by the gun than pure military “effectiveness,” says Nieminen.

Similar to the factors leading to the adoption of the long-bow, in the days before wireless communication, internal combustion engines, and aircraft, a rifle was a superior weapon capable of dominating a battlefield but only by a marksman; in untrained hands it is an expensive club.

The National Match Course, Excellence In Competition, Department of Civilian Marksmanship, National Board for the Promotion of Rifle Practice, and other programs were the late-19th/early-20th century equivalent of an Archery Mandate. Up until the Korean War era, Soldiers received a pay bonus for earning high rifle qualification scores. Of course, the Army qualification back then was the National Match Course, a scored bullseye course more stringent than modern Soldiers are accustomed to.

Reports from World War II and Korea noted that while small arms training did a good job in teaching shooting, it didn’t necessarily teach field use of small arms. Competition shooting included events such as Skirmisher Matches but Soldiers lacking such experience didn’t participate. The Army’s answer was Trainfire and the first report about it was published in 1955.

**TRAINFIRE I** : A new course in basic rifle marksmanship. Author: Howard H McFann; John A Hammes;



**Above:** This 25-meter training target from the first version of Trainfire in the 1950s is a modified bullseye and purposely provides a well-defined aimpoint, just as the current A8 zero target released in 2016 does.

John E Taylor; George Washington University. Human Resources Research Office.; United States. Department of the Army.; George Washington University, Human Resources Research Office, 1955. Series: HumRRO Technical Report, 22.

The idea was to create a more field-relevant training approach. FM 23-71, published 1957, noted:

26. Record Firing

a. Record firing is conducted on a Record Firing Range. The purpose of record firing is to test the soldier’s ability to detect and hit single combat-type targets in their natural surroundings at unknown

- ranges. The course achieves combat realism by -
- (1) Using camouflage to represent enemy cover and concealment.
  - (2) Leaving natural cover and terrain undisturbed when placing targets.
  - (3) Using olive drab, pop-up silhouette targets.
  - (4) Exposing targets briefly, irregularly, and at unknown ranges.
  - (5) Requiring the soldier to fire from a supported position (foxhole) and unsupported positions of his own choosing.
  - (6) Requiring the soldier to wear his combat pack and steel helmet.

b. The course requires the soldier to engage 32 pop-up targets at ranges 50 to 350 meters from the foxhole position. This is accomplished by firing at 8 targets in each of



**Above:** Trainfire was initially intended to teach field shooting from cover, realistic shooting positions, and while moving at realistic, obscured targets.



Figure 9. Kneeling supported position.

4 lanes. It also requires the soldier to engage 24 pop-up targets from an unsupported position of his choice as he moves forward slowly. The soldier has a total of 56 targets exposed to him.

At first, Trainfire did not eliminate established marksmanship training and Shot Process development procedures. Soldiers would learn in a manner similar as

before with field shooting added in. Of course, learning an effective, if abbreviated, Shot Process approach with additional field shooting from multiple shooting positions and the use of cover while advancing forward and engaging targets in a Move Out phase demanded time and resources to learn. Non-shooters will always demand to strip away training resources. Given they're incapable of understanding value in skill development that doesn't at least somewhat mimic "real world" conditions, such skill building components are the first to face budget restrictions. Why learn how to effectively group and call shots when we only want to learn "combat shooting"? This is why plot sheets and related exercises were eventually discarded but every Soldier is compelled to wear a helmet on zero ranges.

It was also during this time that equipment alternatives to marksmanship were sought. As wireless communication, artillery recuperators, air-dropped munitions, and atomic/nuclear weapons were invented, the role of the rifle seemed to wane. Why bother enforcing good individual marksmanship when many were predicting that future wars would be fought primarily with missiles and nukes? Programs such as the Special Purpose Individual Weapon (SPIW), Project SALVO, Future Rifle Program sought to eliminate the need for individual marksmanship skill by making new weapons that could be effective without requiring much personal skill or experience. The idea was by using new ammunition either launching flechettes (light, tiny darts) or multi-bullet cartridges (du-

19	CALL TARGET	HIT TARGET	20	CALL TARGET	HIT TARGET	21	CALL TARGET	HIT TARGET
POSITION	EL. W. D.	POSITION	EL. W. D.	POSITION	EL. W. D.	POSITION	EL. W. D.	POSITION
22	CALL TARGET	HIT TARGET	23	CALL TARGET	HIT TARGET	24	CALL TARGET	HIT TARGET
POSITION	EL. W. D.	POSITION	EL. W. D.	POSITION	EL. W. D.	POSITION	EL. W. D.	POSITION
25	CALL TARGET	HIT TARGET	26	CALL TARGET	HIT TARGET	27	CALL TARGET	HIT TARGET
POSITION	EL. W. D.	POSITION	EL. W. D.	POSITION	EL. W. D.	POSITION	EL. W. D.	POSITION
28	CALL TARGET	HIT TARGET	29	CALL TARGET	HIT TARGET	30	CALL TARGET	HIT TARGET
POSITION	EL. W. D.	POSITION	EL. W. D.	POSITION	EL. W. D.	POSITION	EL. W. D.	POSITION
31	CALL TARGET	HIT TARGET	32	CALL TARGET	HIT TARGET	33	CALL TARGET	HIT TARGET
POSITION	EL. W. D.	POSITION	EL. W. D.	POSITION	EL. W. D.	POSITION	EL. W. D.	POSITION
						BATTLESIGHT ZEROING		
						1st GROUP	2nd GROUP	
						EL. W. D.	EL. W. D.	
						3rd GROUP	4th GROUP	
						EL. W. D.	EL. W. D.	
						5th GROUP	6th GROUP	
						EL. W. D.	EL. W. D.	
						NAME HIGGINS, SAM A.		
						UNIT Co. B. 82nd Air		
						ASN 64 3004 692		
						RIFLE NO. 100745		
						250 METER		
						BATTLESIGHT ZERO		
						EL. W. D.	EL. W. D.	

Figure 12. Firing data card.

**Left:** Initial training in the original Trainfire program in the 1950s utilized Shot Process development concepts in use with the previous National Match Course based training. This has been removed as training devolved in the interim.

plex or triplex ammunition with two or three bullets per round) that sheer volume of fire would increase hit rates without needing training to improve skill. It was a modernized attempt to supplant Archery Mandate, replacing marksmen and rifles with an easier-to-train option. SPIW weapons were never adopted because they didn't work and failed to magically provide high hit rates to low-skill shooters. The ultimate conclusion of Project SALVO was to adopt the Armalite AR-15 (patent then owned by Colt) as the M16 series.

**Trainfire 1980**

Trainfire would see a significant change in the late 1970s and not for the better. A completely minimalized approach was wanted. "Everybody knew" that individual small arms use against the Soviet Union wouldn't be significant. Effort to use scored precision targets, feedback ranges, and field shooting was eliminated. Teaching basic ballistics and sight/angular measurement was replaced with a simplified zero approach. Flip your M16A1 rear sight to "L", aim center of the little silhouette (which was scaled to appear the same as the qualification target) and fire. Count squares and turn the sight that many clicks.

**Below:** The information above the chart (Figure 3-2) states how the new training approach yielded better training. Note, this was an Orwellian "higher standard" as it disregarded the more difficult challenge of the previous Trainfire course. Some to the exposure times were sped up a little but the average engagement distance was also reduced and all shooting was done from prone or prone/foxhole supported after allowing Soldiers to get into position before running targets. No other shooting positions were used or taught, the Move Out phase was completely removed, and Soldiers began every table in position, aimed in and ready to go, with the exact number of rounds loaded, and a friendly reminder from the tower to "rotate your selector switch from safe to semi and watch your lane" lest anyone forget to take off their safety.



**Above:** One of the goals of the Special Purpose Individual Weapon (SPIW) and Project SALVO was to improve hit rate without improving training by greatly increasing volume of fire. This was never issued because it didn't work.

A little cartoon in each corner showed which sight and direction needed to be turned. Flip the rear sight back when done. No attempt to explain the reasons for any of this to Soldiers was offered or deemed necessary.

The information above the chart (Figure 3-2, below) illustrated here states how this then-new training approach supposedly yielded better training. Note, this was an Orwellian "higher standard" as it disregarded the more difficult challenges of the previous Trainfire course.

**Below:** The 1979-1980 revision to Trainfire stripped the teaching process down to "Four Fundamentals" and eliminated field shooting and moving, focusing only on the most stable position to make the qualification easier to pass. This made teaching easier for non-experts and quicker for students to reach minimal passing results but hindered further development.

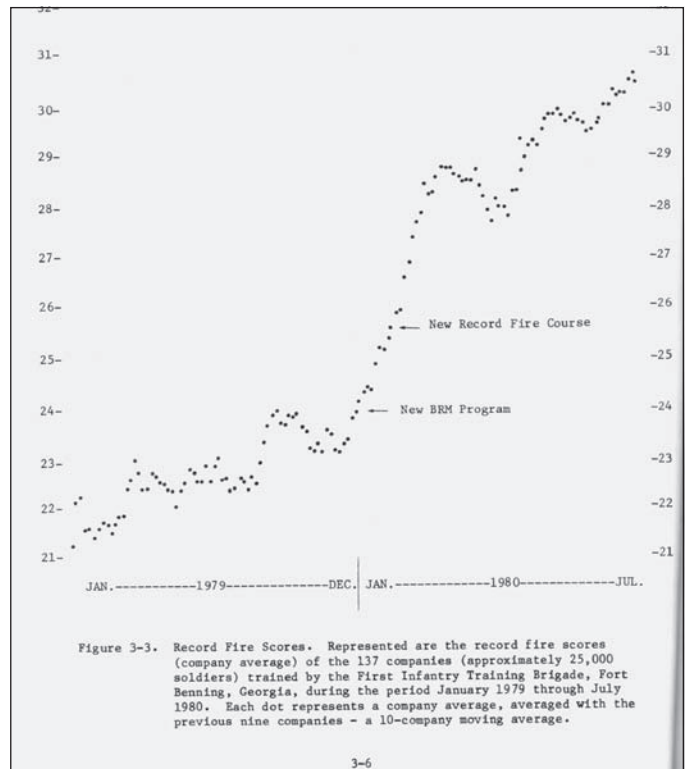
The new BRM qualification course has been revised slightly, to better represent the enemy threat. A half dozen of the 40 targets are exposed at closer ranges, and average exposure time for all targets has been reduced by 30 percent.

The information in Figure 3-2 highlights the higher standards of the new record fire course. The performance of the six companies (1188 soldiers) reflected in Figure 3-2 can be compared because they received similar instruction under the new marksmanship program.

	Average No. of Target Hits	Expert	Sharpshooter	Marksmen	Unqualified
Old Record Fire	26.3	47%	22%	30%	1%
New Record Fire	27.4	13%	29%	55%	3%

Figure 3-2. This figure shows the results of the last three companies (612 soldiers) to fire the old record fire course and the first three companies (576 soldiers) to fire the new record fire course.

3-4



Yes, some of the exposure times were sped up slightly but the average engagement distance was also reduced and all shooting was done from prone or prone/foxhole supported after allowing Soldiers to get into position before running targets. No other shooting positions were used or taught, the Move Out phase was completely removed, Soldiers began every table in position, aimed in and ready to go, loaded with exactly the correct number of rounds needed so as to eliminate the need to learn weapon manipulation, and started with a friendly reminder from the tower to “rotate your selector switch from safe to semi and watch your lane” lest anyone forgot to take off their safety.

The important thing to note is the the average score during initial testing was 27.4 out of 40. Even with a course shot entirely from the most stable positions possible, the number of “expert” qualifications dropped, however, the number of Soldiers earning a minimum passing score increased. The minimalist approach could more rapidly get more Soldiers to obtain a hit rate of over 55% on the simplified course but failed to provide insight on how to shoot better than that. Note also, this was all shot with the M16A1 and iron sights only as the M16A2 and common-issue optics did not yet exist.

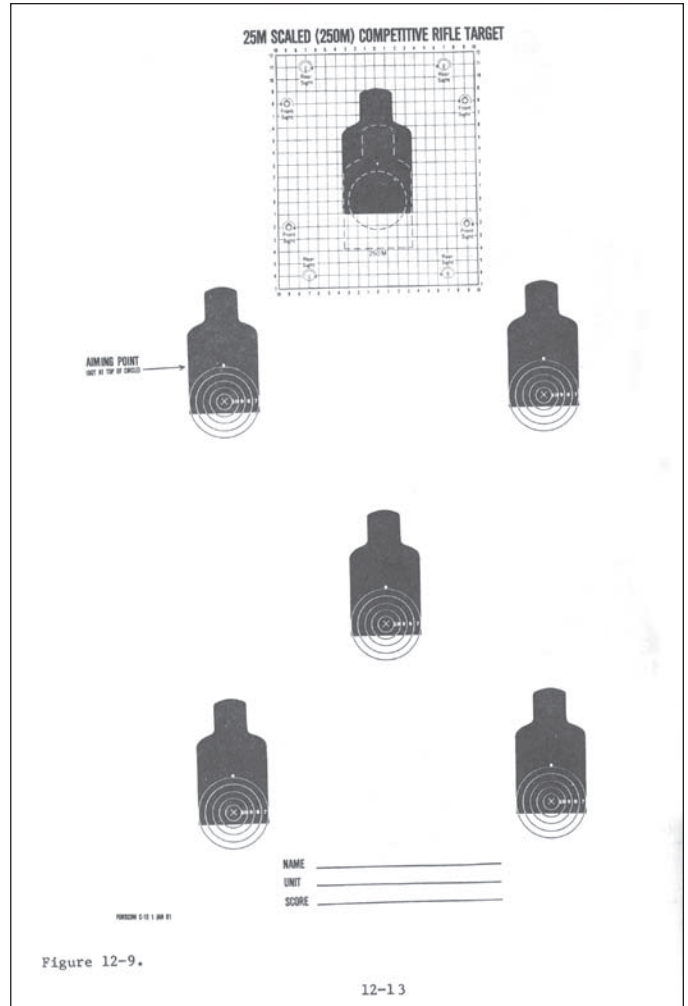
**Devo**

This simplified Trainfire would ultimately lead to a de-evolution of marksmanship training in the Army. The first thread pulled leading to this unraveling was the lack of any relevant credential or training necessary to instruct small arms in the Department of Army. Various good shooting programs have existed in the Army for many years: Small Arms Instructor/Range Operations Course by the National Guard Marksmanship Training Unit, the newer Master Marksman Trainer Course first created by the Army Marksmanship Unit, and the now-defunct Army Reserve Small Arms Instructor Academy at Camp Bullis are a few examples.

The problem is these courses are never requirements to conduct training or qualification. They’re great to attend but most units are unaware they exist and nobody is required to go. The 1980s revision of Trainfire was purposely created so that non-experts could handle it.

FC 23-11, *Unit Rifle Marksmanship Training Guide*, released August 1984, encapsulated the changes made to Trainfire and analyzed them compared to the previous version. It’s a unique Army manual in that it provided much explanation about the reasoning and the Why for these changes. Page 5-1 summarizes this:

*“The majority of soldiers entering the Army today have never fired a weapon, and very few of them have*



**Above:** The “Four Fundamentals” model in the 1980s revision of Trainfire was supposed to be built on, such as shooting exercises with score rings to increase the challenge. However, these concepts were never required so most units and Soldiers never used them.

*any meaningful marksmanship training. The soldier is provided with a weapon and ammunition combination capable of firing perhaps only 3 minutes of angle and is provided with insufficient coaching, limited time, limited ammunition, and inadequate facilities to learn shooting skills.”*

The personnel tasked with creating this version of Trainfire knew it was purposely simplified, that most Soldiers would never receive meaningful marksmanship training, and that any coaching provided would be insufficient. They formally said so in the official Army publication on the subject.

With no skill credential required, initial training is conducted by drill sergeants to “teach” marksmanship and with the reduced standard, there is little requirement to maintain. Nothing happens in actual practice

with poor training or a qualification failure. Ill-informed NCOs pretending to be instructors may drag the qualification ordeal out, throwing more ammo at a hapless, failing Soldier that they're unable to coach effectively until the range is called, but nothing happens to the Soldier or their career.

With a lack of experienced shooters involved, the program even devolved from its already-purposeful minimalism. Consider Research Report 1364, Evaluation of the Basic Rifle Marksmanship Program of Instruction published by Arthur D. Osborne and James E. Schroeder of the Army Research Institute.

In addition to zeroing at 25 meters, the course was also supposed to have firing at scaled targets on the 25-meter range that provided for skill practice in engaging silhouette targets. Scaled targets such as the Alt-C were supposed to be practice and validation courses to work on skills before leaving the 25 meter range. Then, Soldiers were supposed to shoot full-size targets at full distance on a Known Distance range. Courses that provided down-range feedback (75 and 175 meters) were to allow a check of the zero at distant targets and provides knowledge of bullet trajectory, effects of wind, effects of gravity, and effective practice in hold-off.

In time, these were eliminated. The first to go was shooting at full distance, then even the 25 meter validation exercises went. Units weren't held accountable for conducting these useful exercises and soon Soldiers became unaware they ever existed.

There is little official emphasis on conducting small arms training correctly. Army Regulation 600-8-19 (General Enlisted Promotions and Reductions) discusses promotion points based on weapon qualification scores and waiver process for those that don't qualify but there is no specific guidance about separation for this. Army retention personnel have no "flag" disbaring a Soldier from reenlistment due to small arms qualification failure nor is there a mechanism to track the last time they attempted or passed weapons qualification provided they passed initial individual weapons qualification training, such as during Initial Entry Training ("basic"). The specific dates of fitness test recency (APFT, now ACFT) and their pass/fail result along with and specific dates for body composition (height/weight and body fat) testing are mentioned many times and rigorously enforced.

Basically, any Soldier that avoids misconduct, reports to duty on time, and always passes fitness and body comp assessments will be able to reenlist. If that Soldier also happens to be minimally competent at their job (MOS) while maintaining a tidy uniform and fresh haircut,

they'll go far.

See relevant Army Regulation to confirm:  
AR601-280 Army Retention Program  
AR140-6 Army Reserve Commander's Retention  
AR140-111 US Army Reserve Reenlistment Program  
AR600-8-19 Enlisted Promotions and Reductions

The problems with drill sergeants being non-experts with small arms skill has been formally documented in Army-funded studies.

### ***Research Product 2011-07, Rifle Marksmanship Diagnostic and Training Guide***

David R. James, Northrop Grumman Corporation; Jean L. Dyer, U.S. Army Research Institute  
May 2011, Fort Benning Research Unit  
Scott E. Graham, Chief, United States Army Research Institute for the Behavioral and Social Sciences

*"From 2006 to 2010 the Initial Entry Training (IET) rifle marksmanship program went through numerous changes designed to better prepare the IET Soldier for deployment to Afghanistan or Iraq. These changes redefined parts of the Army's marksmanship doctrine and required drill sergeants to relearn techniques and procedures required to implement the new training strategies.*

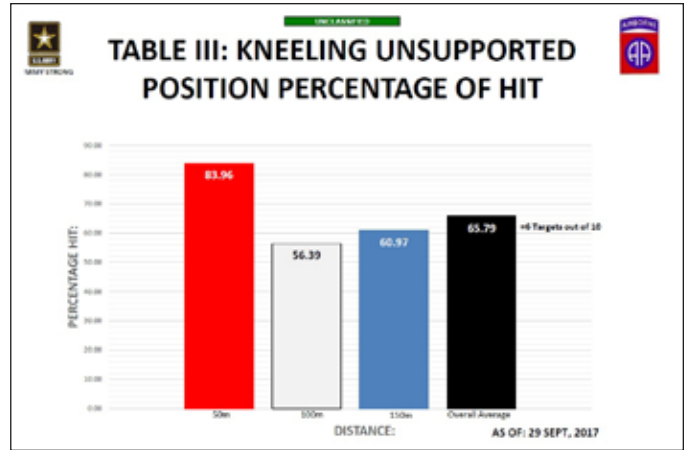
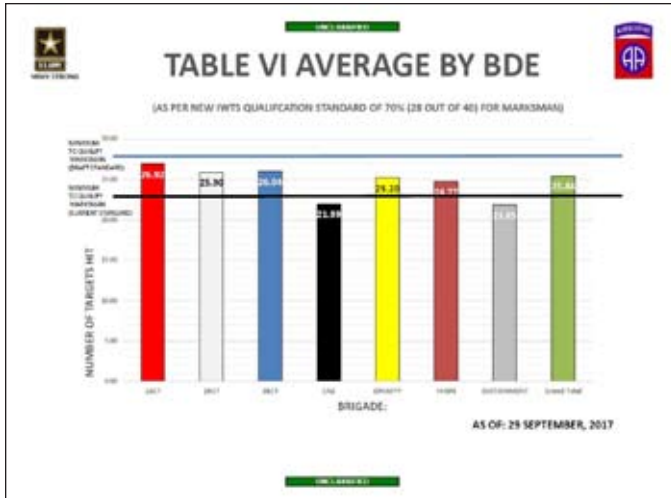
***A common theme identified was that many drill sergeants misunderstood parts of rifle marksmanship doctrine and/or inconsistently applied training techniques and procedures. One theme revealed in these efforts was that many DSs were unable to diagnose Soldiers' marksmanship problems, which led to training that did not necessarily address specific problems.***

*Drill Sergeants represent all military occupational specialties throughout the Army. Each DS has a specific level of marksmanship expertise and experience that can range from being exempt from weapons qualification in the prior unit, to qualifying twice a year and participating in multiple squad/platoon/company live fire exercises.*

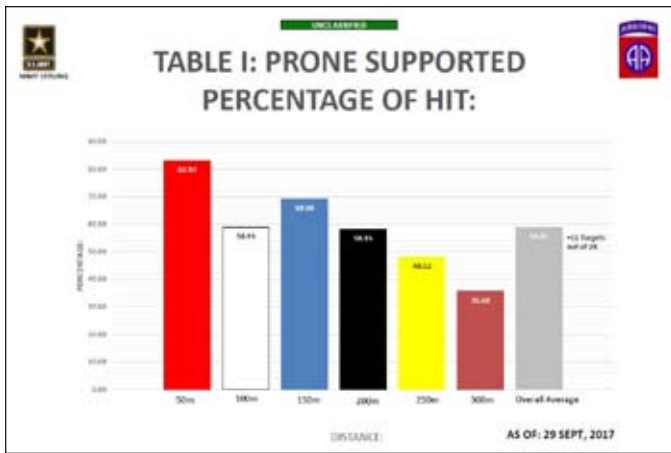
*Based on these observations, it was determined there was a need to generate a rifle marksmanship diagnostic and training guide that consolidated the tacit knowledge regarding the techniques that experienced, expert marksmanship trainers had found to be effective."*

### **Forty Years of Failure**

In the decades following the 1980s version of Train-fire, the only change to the qualification was to add a third table of fire shot from kneeling. Table two fired from prone unsupported was reduced to ten rounds and a third table shot from kneeling for ten rounds was added. The kneeling table increased the exposure times and kept the maximum engagement distance at 150 meters. Even



**Above:** The 82nd Airborne found that their Soldiers averaged a qualification score of just over 25 out of 40. Forty years of experience and equipment improvements have shown Soldier small arms skills have gotten worse.



**82nd Airborne  
FY17 Enduring Range Report  
SFC Miller, G-3 Training**

All of the 82 Brigade Combat Teams and support elements participated in shooting on the three table Trainfire course. The highest scoring Brigade Combat Team average qualification was 26.92. All of the other BCTs were worse. The CAB (Combat Aviation Brigade) and Sustainment had an average qualification score of less than 22, failing to meet the minimum standard of 23 out of 40. The average qualification score for the entire 82nd Airborne was 25.44 out of 40.

Contrast that to the first test run back in 1979 with average score was 27.4 out of 40 with everyone shooting the M16A1 and iron sights only, compared to current-issue M4s and optics. Also note the scores comparing only the first two tables. Table I (prone supported) had an overall average of 58.82% and Table II (prone unsupported) had 48.18% for a 53.5% average. Given 57.5% (23 out of 40) is the minimum passing score, this wouldn't pass! It was only due to the easier nature of Table III (65.79% hit rate) that raised the average to just over passing. For all three tables, the 82nd Airborne averaged a 57.59% qualification rate. 57.5% is the Army minimum, or 23/40.

**Summary of the report:**

- Units do not know how to, or are not conducting boresight prior to arrival at the range. This lead to at least 10 percent of Paratroopers not being on their zero target due to loose optics, not flipping up the BUIS, etc. with wasted rounds spent trying to get them onto the target.

though shot from a less stable position, the slower engagements and closer targets in the third table made the qualification easier to pass overall in practice.

The 82nd Airborne conducted and released an internal study on the marksmanship skill of their paratroopers, evaluating how well they could shoot on the Trainfire course. The study was released as the FY17 Enduring Range Report.

- At least 20 percent of Paratroopers are not zeroing their weapon in 20 rounds. This indicates that Preliminary Marksmanship Instruction and Dry-Fire drills have not been conducted prior to coming to the range.

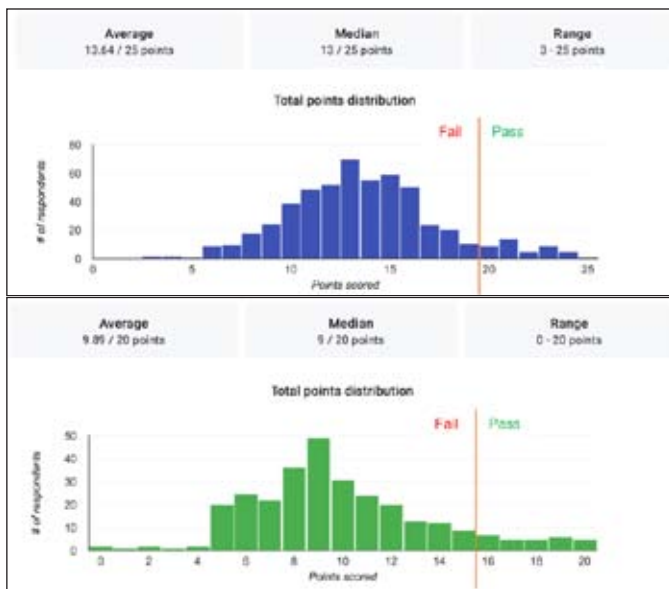
- Units are not conducting PMI with their soldiers. Simple things like weapons manipulations and changing positions rapidly are challenging for our Paratroopers to do in a timely manner. These are all things that will be being implemented in changes to the qualification the Maneuver Center of Excellence is looking at implementing.

- Paratroopers either do not have confidence in their ability to engage targets at distance, or are not engaging the targets thinking they will still qualify with those ‘extra’ rounds saved. (e.g. 300 meter target percentage of hit).

- The average ‘cold-qualification’ first iteration scores of Paratroopers on range 43 is a 25.44. This means that under new qualification standards as a part of the draft Integrated Weapons Training Strategy due to publish before the FY, the average soldier would not meet the qualification standards for Marksman.

This is not some undertrained Army Reserve combat service support “pogue” unit that never goes to the range. This report details the performance of the the 82nd Airborne Division, active duty combat arms Infantry paratroopers. Also note, they were shooting their modern

**Below:** PMI test results from the FY2016 release of TC 3-22.9. Over 88% of the tested Soldiers could not correctly answer at least 80% of the questions.



issue weapons with optics, not iron sight M16A1 as used back in 1979-1980.

**FY2016 Training Circulars**

Though many Soldiers remain unaware, in 2016 the Army started releasing a series of Training Circulars to replace previous doctrine. This was done in large part due to the failures in small arms training. Of course, this newly-improved doctrine won’t benefit the 90% that don’t read it.

From a report by SGT Ian Tashima, CANG (California National Guard) Shooting Team.

*“Based on current Soldier knowledge, only 7.6% of Soldiers who took a PMI diagnostic evaluation (foundational rifle employment knowledge found in TC 3-22.9, May 2016) were able to achieve at least 80% correct. In the last 12 months, we posted two diagnostic PMI Evaluations on the Internet to assess current understanding of foundational knowledge found in TC 3-22.9, Rifle & Carbine.*

*The performance summaries follow. Diagnostic #1 (blue chart), 541 respondents, 25 questions, 80% passing = 20 correct. Diagnostic #2 (green chart), 297 respondents, 20 questions, 80% passing = 16 correct. For these 838 respondents, the combined passing rate was 7.6%*

*“Give them a quick PMI” is heard all too often across units in the Army. No component is immune from this attitude. PMI&E classes are seen as a hindrance and time-consuming annoyance that must be tolerated, many times given short shrift in a check-the-block fashion.*

*In a decade of training Soldiers as a small arms instructor at a National Guard PTAE training site, train the trainer events, Combat Matches, and as an advisor providing developmental input to unit commanders, I’ve seen this play out all too often. Many times, it’s because many NCOs aren’t able to speak with expertise on the subject, leaders aren’t able to discern whether their NCOs are able to deliver a good block on instruction, the depth of discussion on critical topics is too shallow, the time allotted is deficient, or the breadth of subject matter taught is insufficient to cover critical knowledge needed for combative applications of the service rifle.”*

Could you do better? Links to the two online evaluations SGT Ian Tashima used:

<https://docs.google.com/forms/d/1baf-D76gGE1mMS-Y1SF1zSwjBDCfV9fCLpcsvzs09SI/edit>

[https://docs.google.com/forms/d/1bZp6Rl7JiAHTjxCejHmM14t4hVrIwsuR0sXia\\_eRYg/edit](https://docs.google.com/forms/d/1bZp6Rl7JiAHTjxCejHmM14t4hVrIwsuR0sXia_eRYg/edit)



**What about new weapons?**

More than a rifle: How a new 6.8mm round, advanced optics will make soldiers, Marines a lot deadlier: by: Todd South December 10, 2018

<https://www.militarytimes.com/news/your-army/2018/12/10/more-than-a-rifle-how-a-new-68mm-round-advanced-optics-will-make-soldiers-marines-a-lot-deadlier/>

“Experts at the Army’s Maneuver Center of Excellence are an integral part of figuring out how the new weapon will be employed in the formation and in small unit tactics. While the weapon extends ranges for the individual soldier beyond the current M4, from 300 meters to 600 meters, it does not change the fundamentals of marksmanship training.”

Army thrilled as next-gen 6.8mm squad weapons once thought ‘unachievable’ are revealed

By Douglas Ernst - The Washington Times - Wednesday, October 23, 2019

<https://www.washingtontimes.com/news/2019/oct/23/army-thrilled-as-next-gen-688mm-squad-weapons-once/>

Brig. Gen. Dave Hodne: ‘Those impossibilities are on the floor here today’

Glad this “gee, wow” equipment revealed in FY2019 will get a weapon in Soldier’s hands that lets them engage out to 300 meters and beyond, unlike Service Rifle and Service Conditions competitors that have been doing this at 500-600 meters/yards routinely with current-issue rifles/carbine chambered in 5.56 for decades. But nobody asked us.

I am old. I remember back in the mid-1990s when the M4 and the optic sights that predated the M68 Close Combat Optic were first being brought into service. Several sights were being considered along with the Aimpoint unit that eventually was adopted along with the

**Below:** *New small arms will not fix the wide-spread lack of effective training.*



M4 and ACOG. A General was quoted back then in an Army Times article about the then-new equipment in lustrous terms, stating that “...with this weapon and sight, every Soldier can shoot expert!” As if merely shooting an expert qualification, especially on the course in use back then, was some kind of notable achievement. You are forgiven for thinking that sounds exactly like Brig. Gen. Dave Hodne.

Back then, the M4 and M68 or ACOG was the clear ticket to new and amazing Soldier performance and guaranteeing everyone shooting an “expert” qualification. Note, every paratrooper in that 82nd Airborne study conducted in 2017 was shooting an optically-sighted M4, equipment that when first procured two decades prior was the sure ticket to everyone making “expert”. Oops. Now, this formerly “gee, wow” gear needs to be ditched as ineffective for the new offerings first revealed in FY2019.

Feel free to demonstrate on paper that a 6.8mm or 6.5mm cartridge, and a new rifle and/or optic is more effective and I’ll agree with you. Now find a unit with enough Soldiers that have the skill to exploit that advantage. The 82nd Airborne certainly does not and only a fool would believe typical Army Reserve units are any better. Outside of military competitive shooting programs, I’m still looking. Archery Laws and Schools of Musketry were founded for good reason but have since been abandoned.

The Department of Army published doctrinal changes to small arms training and qualification in FY2016. I write this in FY2021 and these changes still have yet to be fully implemented across the force. Our Mobile Training Team routinely finds Soldiers unaware these formal changes even exist, proving that many (most?) Soldiers don’t bother to read how training is supposed to be done.

“Any NCO with the FM” remains the weak claim by ignorant Soldiers about small arms training. How can “any NCO with the FM” conduct effective training when they aren’t even aware that all the FMs have been replaced by TCs years ago? “Any NCO with the FM” fails when they won’t bother to read it. This is especially sad because the manuals are free to download and the new qualifications were purposely designed to use existing ranges and targetry.

Note that as the Army Combat Fitness Test was rolled out Army leadership deemed it necessary to create a Grader-Instructor certification program to ensure units had formally-trained Soldiers capable of correctly implementing the test. The Equal Opportunity Leader Course

(EOLC) is a ten day training course consisting of over 60 hours of classroom Instructions and Exercises designed to train students to become Equal Opportunity Leaders (EOLs) for their units. But when the Army completely changed the doctrine teaching model to small arms training FY2016 along with new qualifications, nothing has been implemented to ensure units are even aware of the change.

Again, I am old. I remember when all manuals were available on dead trees only and there was no convenient way to confirm if that print copy was most current. Today, simply clicking on APD (Army Publishing Directorate, <https://armypubs.army.mil> ) provides instant access to every current manual and form in the Department of Army. A cheap micro SD card will hold an entire library and it can be read on a personal smart phone that most Soldiers have in their pocket. But most don't read it.

And if "any NCO with the FM" works, why can't the active duty combat-arms Soldiers in the 82nd Airborne make it work? Why did the Army Reserve feel the need to spend tens of millions of dollars to conduct Operation Cold Steel? Yet, outside the small arms world, "any NCO with the FM" is understood to be an unacceptable approach to implementing the ACFT or Equal Opportunity.

Ignoring the logistic hassle and expense, new weapons offer little advantage to personnel unskilled in their use. Like a whining child crying for a new toy, finish your chores first!

Army Leadership motivational factors:

- Self-efficacy (the confidence in one's ability to succeed at a task or reach a goal)
- Emotional inspiration
- Goal setting
- Positive reinforcement (incentives, recognition)
- Values and shared goals
- Task enjoyment
- Self-responsibility (the opportunity to be responsible for their own work and to be creative)

It's worth considering that all forms of competition purposely reinforces this. Meanwhile, most Army ranges appoint personnel to fill magazines at the ammo point because we apparently don't trust Soldiers to manage their own ammunition...

While written for leaders in field units, drill sergeants should be applying these motivational factors from the start. Modeling good leadership throughout the training period would enhance motivation, which, in turn, would

enhance learning. Too often, it is difficult to draw the linkage between the way some drill sergeants treat trainees and the self-confidence and motivation that Army Leadership espouses. Small arms training is worse because it adds in wide-spread Soldier ignorance with no attempt to correct and lack of leadership interest in doing so. Bad information and procedures get repeated because too few are willing to look up what the references say and there is no check in place to stop it. Unless and until leadership at USARC and OCAR implement a formally-enforced means to make a change, this will remain the norm. **ARM**

### Call For Articles

All information, articles, and ideas helpful to improving small arms training, qualification, and competition for Army Reserve Soldiers are welcome. Submit anything you'd like included in *Army Reserve Marksman* to the editor: [john.m.buol.mil@mail.mil](mailto:john.m.buol.mil@mail.mil)

### Army Reserve Postal Matches

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# Army Reserve Success Ladder

## Using the year-round U.S. Army Reserve Competitive Marksmanship Program to improve unit training.

*by Sgt. 1st Class John M. Buol Jr.*

Maj. Gen. William Sutton, former Chief of the Army Reserve and a Distinguished Rifleman, had been a commander during World War II where he was sometimes forced to deploy cooks, supply personnel, truck drivers, and other support personnel to defend his unit. Realizing the importance of improved marksmanship skill for all Soldiers, he and subsequent CARs established and supported the U.S. Army Reserve Competitive Marksmanship Program. Deployments throughout the first decade of the 21st century again proved the value of a competition marksmanship program when shooter-instructors from the Teams directed training on various Power Projection Platforms.

This is reinforced in Army regulation. AR 350-66 directs competitive marksmanship throughout the entire Army, providing guidance and reasons why. Chapter 7 of AR 140-1 lists specifics for the Army Reserve. While having an internationally-recognized competitive team is nice, the real value is found in helping all units and every Soldier. Unlike most sports sponsored by the Army, competition marksmanship programs provide real improvement to readiness for units and Soldiers willing to receive the benefit. Here is a step-by-step approach to having your unit's Soldiers benefit from this program in an easy and inexpensive manner.

### Rung 1: Learn Current Standards

The first step up is to pull you and your unit out of the pit of ignorance. Despite an initial release in FY2016 with multiple official release Changes in the interim, many Army personnel (especially those in the Reserve) remain unaware of the current standards. That we still hear NCO "leaders" continuing to bleat about "Four Fundamentals" indicates stunning illiteracy as they're unaware these new books exist, thus, are no better off than those that can't read.

EXORD 249-19 directs that all units are to be in compliance with this standard by October 2021 and many units aren't even aware of it. Merely coming to terms with this standard involves diving into TC 3-20.0, 3-20.40, and all Training Circulars relevant to the specific weapons requiring qualification. This constitutes thousands of pages of material! Working through the Six Tables, the first three demand comprehensive Preliminary Marksmanship Instruction, training sessions

with the simulators, dry practice, and drill practice. The zero range to calibrate (not practice) is Table IV as Soldiers are already supposed to well-practiced before qualification day.

The Reserve reality, sad as it is, is most of this won't happen. Most personnel aren't going to read any of that. For the next several years, we'll be lucky if most personnel become aware that these TCs replaced the old Four Fundamentals model and there is a new qualification.

One way to begin this process is to use Army Reserve Marksman. Starting in FY2019, the Marksmanship Program release a series of issues that provided a CliffsNotes summary of these changes. Important concepts are condensed into illustrated articles written by successful, champion-level competition shooters with many years of small arms instruction teaching tens of thousands of deploying Soldiers. This condenses thousands of pages of manuals into easy-to-read articles highlighting critical points.

### Drill

The big problem most failing Soldiers have with the new standard is the fact that the new qualification is shot as one continuous table of fire with four non-stop phases. The old qualification had separate tables with an unlimited administrative pause between each. Soldiers were able to take all the time they needed to stumble into position, fumble a new magazine into the rifle (that someone in the ammo shed probably filled for them), and be ready. Someone in the tower even reminded them to take the safety off and to pay attention for targets. Now, following a single command, the phases flow together with only seconds in between each before the targets start reappearing, ready or not, and being forced to use those issued "MRE pouches" to hold spare magazines and reload from.

Many initial qualification failures are due to Soldiers not capable of reloading and getting into position quick enough. Most Soldiers have never been forced to work through multiple shooting positions with reloads under any kind of time limit and they're simply unprepared to do so. Preparation for this can be accomplished at the Reserve Center using common tables and chairs. This video demonstrates how:

<http://youtu.be/Q71o-nGYg3c>

Set up at least one session during drill/Battle Assembly prior to range day. This can be rotated through during normal BA functions, with Soldiers reporting to the station to practice and validate. After allowing a preparation period, test that each Soldier can Reload and move into the next shooting position (Fight Up) faster than ten seconds, preferably faster than eight. A good leadership task for a motivated junior NCO is to manage this station, noting which Soldiers fail to complete, and scheduling remedial training as needed.

### More Efficient Range Day

Current Army doctrine directs six training tables. Initial zeroing at 25 meters (the start of Table IV) is supposed to be completed with five groups or less. That's because Tables I-III was the initial instruction, training, and practice that confirmed each Soldier was ready. Reserve reality is that most units won't complete this and USARC/OCAR leadership will fail to enforce it. Despite being in contradiction to the published standard, the initial 25-meter range will likely be the only practice time for most Soldiers before qualification.

### Improved Zero Range

Use optics to spot shots instead of stopping the range for each group. Using the old 25-meter zero procedure means the range will be cold at least 3-5 minutes for every one minute of shooting. Most units will be much worse. Do your walking with optics and leave the range hot! This encourages peer coaching (which the Training Circulars direct) and allows coaching and dry practice as needed. Cheap mini-binoculars (\$10-\$15) from the PX, any department store, or online retailer can easily see a .22 caliber bullet hole at 25 meters. Issue M22 or M24 binoculars are even better and have a mil reticle.

<http://youtu.be/OsVP04u4wOw>

At your 25-meter range, set up a drill station as described above to practice shooting positions, reloads, and moving around a barricade. You should have drilled this at the Reserve center before range day, so this should (hopefully...) be additional practice prior to qualification.

The Drill station should look something like this:  
<https://youtu.be/Q71o-nGYg3c>

An example of a complete training area with all Tables properly implemented by SFC Jake Probst:  
[https://youtu.be/h7GMw8GOJ\\_o](https://youtu.be/h7GMw8GOJ_o)

SFC Probst's range was strictly regimented but it needed to be. During their previous qualification, this battalion had only 33 of 320 Soldiers successfully qual-

ify. Prior to SFC Probst's intervention, almost all the Soldiers were ignorant of the new Army doctrine (or the fact that it had changed...) all the way up to the battalion leadership.

SFC Probst used current Army doctrine along with his high-level competition shooting experience to get that same battalion to an over 94% first time go rate. That is an example of good leadership and effective training, in case you've never experienced it.

### Rung 2: Postal Matches

Starting at the local, unit level, company commanders are encouraged to participate in the Army Reserve Postal Match. While the event is organized via the Internet today, the name harks back to when such events were conducted by mail. Participants compete locally and submit their results to a central authority which tabulates a grand aggregate.

Army Regulation 140-1, Chapter 7 includes directives on conducting the World-wide Chief, Army Reserve Postal Matches and Army Reserve Marksman, currently maintained by the USARCMP. Information is at <https://armyreservemarksman.info> and <https://www.usar.army.mil/ARM>, the official US Army Reserve resource for this. All Army Reserve units are encouraged to participate. Postal Matches are courses matches as shot with issue, rack-grade weapons and designed to be conducted as a part of routine qualification using existing targets and ranges.

Postal Matches also provide formal Validation of skills for the six Training Tables detailed in TC 3-20.0 and TC 3.20.40. This satisfies a training requirement, ensures readiness for qualification, and provides competition experience. All of this can be done on current Army ranges with no logistical burden.

### Mobile Training Team

A Postal Match is an easy way for units to implement a marksmanship program for their Soldiers, however, it can be extremely useful for units to enlist outside help. USARCMP Soldiers also conduct Mobile Training Team (MTT) events. One of the missions of the USARCMP is to provide, select, and supervise MTTs to conduct "Train the Trainer" clinics. This provides the Army Reserve with instructors to conduct small arms training, small arms marksmanship training in sniper weapons, Special Reaction Team (SRT), combat shotgun, crew-served weapons, and other specialized small arms training applications to assist Reserve units in maintaining mission readiness. Rather than send an entire unit away for training, MTT events bring the instructors to the unit and can be held at a local range during unit Battle

Assembly or Annual Training.

Typical MTT events include formal instruction, one-on-one range coaching, qualifications, and an Excellence In Competition (EIC) event for the unit, though MTTs can be customized for the requesting unit. MTTs are available for all issue individual and crew-served small arms.

USAR commanders can use instructors and marksmen trained by MTTs for conducting marksmanship training by request.

### **Rung 3: Excellence In Competition (Unit level)**

Units can host a local Excellence In Competition event at their local level. This requires more logistics and scheduled range time than a Postal Match, however, it can be hosted as a local, unit-only event. Small, unit-level EIC matches award “baby legs” meaning that an EIC award of four “leg” points are only eligible to shooters that have never before earned points toward a Distinguished rating. The top ten percent of shooters earning their first points at a scheduled local/unit EIC match will receive permanent orders for the Bronze EIC badge for official uniform wear. AR 670-1 has illustrations of these awards. Contact Roscoe Castle (706-545-4276, [roscoe.j.castle.civ@mail.mil](mailto:roscoe.j.castle.civ@mail.mil)) to schedule.

### **Rung 4: Beyond Unit Level**

The preceding options provide opportunity for home station training and can be a useful, inexpensive means to expose entire units to marksmanship skills that go beyond mere qualification. There are other “away game” opportunities to begin expanding and they aren’t expensive. Commanders unable to fund large numbers of personnel attending such events can use locally-hosted options as a means to determine the best and most enthusiastic subject matter experts in the unit.

Consider creating a unit-level shooting program, comprised of personnel that host your unit Postal Match and/or EIC. The unit-run events along with qualification results identifies your best shooters. Every commander can authorize these personnel to RST some drill/BA time to attend local organized shooting events at no additional expense to the unit.

Those personnel participating in the most events and performing the best should be the go-to Soldiers for further training opportunities. Details on events that go beyond common basic and unit-level training are detailed in the USARCOMP Course of Fire Book and Rulebook available at <https://usar.army.mil/ARM>

### **Local Matches**

Civilian and military organizations routinely host matches open to shooters in their local area. The National Guard Marksmanship Training Unit manages State-level Guard shooting events open to Reserve shooters by invitation. Civilian shooting events take many forms. Find matches local to you and go!

<https://ngmtc.wordpress.com/>  
<https://thecmp.org/competitions/>  
<https://competitions.nra.org/>  
<https://uspsa.org/>  
<http://funshoot.org/>  
<https://www.nssf.org/shooting/where-to-shoot/>

### **ARSAC and All Army**

Some of the best Service Conditions events in the United States is the All Army Small Arms Championships held by the Army Marksmanship Unit at Fort Benning and the Army Reserve Small Arms Championship. These matches require shooters to use as-issued rifles, pistols, helmets, and field gear. Courses require run downs (formerly known as “skirmishing”) prior to shooting the event, all done under a prescribed time limit. There are also practical matches scored using various time-based scoring procedures. The equipment needed for this event is already in your unit arm’s room, competitors registering in advance will be provided ammunition, and Fort Benning has inexpensive or free lodging available. Arrangements can be made in advance for Soldiers to borrow weapons or equipment if needed.

<https://armyreservemarksman.info/2018-all-army-results>

<https://armyreservemarksman.info/2016-all-army-small-arms-championship/>

### **Small Arms Firing School**

Competition shooting was promoted from the mid-1800s as a means to encourage improved skills with weapons. During the early 20th century, laws were enacted to formalize these events and provide support. Title 36 of the U.S. Code, Subtitle II Part B, Chapter 407, Subchapter II, Section 40725-40727 directs the conduct of the National Matches that have been held at Ohio National Guard Camp Perry since 1907. This includes the Small Arms Firing School, conducted by military shooting team members of every branch. SAFS begins with instruction followed by shooting with Team members providing one-on-one coaching. All shooting is done on Known Distance targets with pit service offering full feedback of every shot fired. The event culminates in an Excellence In Competition. Best of all, registrants do not need any equipment or ammunition as everything

is provided.

SAFS overview with video:

<https://armyreservemarksman.info/small-arms-firing-school>

<https://armyreservemarksman.info/small-arms-firing-school-photo-album>

### Rung 5: Join the Team

Reservists motivated to shoot and compete year-round are encouraged to try out for the USARCMP. Members are assigned to Army Reserve units and they attend and host competitions and MTT missions as an additional duty. For those with current competition experience, visit our website and apply.

Application Process:

1. Host a Postal Match for your unit
2. Attend Reserve shooting event or try out by invitation
3. Compete in local events. Report scores and earned Classifications
4. Submit application

<https://armyreservemarksman.info/how-to-earn-a-slot-on-a-shooting-team>

<https://www.usar.army.mil/Commands/Functional/ARMU/Resources/AboutJoin/ARM>

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# Sustainable Range Program

If you're at work or can use your CAC at home, I go to <https://srp.army.mil> (ignore the warning because the DOD uses self-signed certificates for encryption) and register. From there, you will need to look at the Range Safety tab. In that section, you will find many useful tools and courses. For example, you could register for the Range Operations Professional Development (ROPD) courseware.

Consider registering for the Intermediate Range Safety Course - which is part of the ROPD. They have a traveling class that rotates across CONUS and OCONUS locations giving the Range Safety Course with Surface Danger Zones (SDZ), how to draw them for all munitions types, and all the information of AR and DA Pam 385-63. It is taught by the team that writes them. Also on there is a link to order as many of those as you'd like.

For your own education, I would also recommend you request access to the ARRM, Army Range Requirements Module. That will tell you for every Army installation on the globe, what facilities they have, and of those facilities in the Army's family of range facilities, how many they have excess and shortages, based on the tenant unit's load. That includes every live fire training event for every unit, and determines how much funding (TBUD, or "training budget") is provided to the installation annually to support training. It is a useful tool to understand what you're supposed to have supported by Range Operations, and what they are short. You could find out things like "how many Known Distance ranges are there in the Army?" Or, "how many automated record fire ranges are there in California?"

Wow... that is more learning in a couple paragraphs than you probably received at your last drill. [ARM](#)

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# Magic Bullets

*by Sgt. 1st Class John M. Buol Jr.*

Every American Soldier has the need and the right to develop competence with their issue small arms. If our commanders can compel us to enter a combat situation, the least he can provide us is enough skill so we hopefully perform well enough to come out of it alive. Anything less is irresponsible and unethical.

Small arms marksmanship has been studied formally for well over a century. At the end of the American Civil War, several Union commanders looked deeply into this. They realized how close the Confederacy came to winning, despite the crushing odds and raw numbers against them. The simple fact was the average Confederate troop could shoot, while the average Union troop could not. Union troops had little or no effective marksmanship training and almost no ammunition was allocated for practice (sound familiar?).

Major General Ambrose Burnside, Brigadier General George Wood Wingate, and Lieutenant Colonel William Conant Church sought to fix this and formed an organization that would provide a forum for all Americans, because all Soldiers come from the general populace. After a few years, the organization moved and Camp Perry, Ohio became the site of one of the largest annual national shooting tournaments. Adjutant General Ammon Critchfield of the Ohio National Guard personally surveyed the facility. For decades Ohio Guardsmen hosted the events. Even today the rifle and pistol matches at Perry are based on old military range exercises, so-called “conventional” shooting. Up until the 1960s, the United States military was the biggest promoter of shooting tournaments and competitors in the country. Congress even passed a law requiring shooting matches to be held every year (Title 10 of the United States Code in 1903, now under Title 36). President Theodore Roosevelt referred to this organization and its activities as America’s third line of defense. In case you’re wondering, the name of the organization is the “National Rifle Association” and this was their emphasis back when they used to care about marksmanship and shooters.

## Back to Basics

The basic principle that Burnside, Wingate and Church realized is pretty basic: Practice! If you want to improve you want to learn from the best and must have the opportunity to practice what you learn. Nineteenth century military commanders realized this. In the two World Wars that followed the United States would earn the title “Nation of Riflemen.” The results speak for them-

selves.

Repetition is the mother of all skill. Talk to anyone who is genuinely talented in their chosen field of endeavor and you’ll find someone who has done it a lot, and for a long time. A world-class programmer has hacked a lot of code. A world-class basketball player has shot a lot of hoops. And the world-class shottist has pulled a lot of triggers.

Right now, you’re probably thinking I should be writing for Duh magazine. “I already knew that much. What can I do about it?” The first step is to shatter your notion that the only place to learn shooting is the range. I’d go so far as to say that practice off the range is more important. Think of shooting live ammo as a test. You learn what you can and can’t do. If you want to improve

If you wanted to improve your score on the ACFT, you wouldn’t give yourself that test everyday. Instead you would review the results of a recent test (not more than a few weeks old) to assess where you’re at. What part of the test had the lowest score? Fix that! I’ve seen Soldiers hit 90% of their targets from prone supported go on to only hit 25% while unsupported. It doesn’t take a brain surgeon to realize what part needs work.

## The Thousands Rule

It can take thousands of repetitions of a manual skill before it is ingrained enough to be used dependably on demand. The student won’t have achieved true mastery but will have developed enough skill to perform without much conscious thought. In other words, they can free their mind to concentrate on the task at hand and let the subconscious “auto-pilot” handle the rest. A Soldier with sufficient marksmanship skill can leave his mind is free to scan his sector, select targets, and react to commands from the squad leader. How effective would this Soldier be fumbling with the safety, having to think twice about the proper way to insert a magazine to reload, and unconfident of his ability to hit targets quickly?

The problem with this rule is that it applies to all training. That is both the good and bad news. You’ve heard the old adage “practice make perfect”? Well, in truth, the adage should read, “practice makes permanent.” If the student is practicing poor form or develops bad habits, more practice will hinder improvement. So even if you could heap gobs of ammo and range time on them, a student who hasn’t been taught to do it right will never improve.



A struggling student is encouraged to keep shooting “until you get it right.” This is a lazy or incompetent instructor acknowledging they aren’t skilled enough to offer help but unwilling to admit to it. Sometimes the “instructor” can get away with this. If the student’s lackluster skills are close enough to the minimum passing score they might luck out and accidentally flinch an extra shot into a target, therefore being deemed “qualified” and managing to keep the unit’s paperwork clean for another year or two. The fact that the student didn’t really learn to shoot any better isn’t a consideration. In fact, the student may be worse off for it.

### **Pavlov’s Dirty Dog**

Imagine going out to qualify and a range officer attaches some electrodes to your body. Some high-ranking official is conducting an experiment and you are given strict orders not to remove the equipment. You adjust natural point of aim on target, confirm sight alignment, and start pressing the trigger. Just as the shot breaks, you receive a shock. The jolt isn’t enough to burn or cause permanent damage, but it is uncomfortable. In fact, every time you pull the trigger you receive a shock. Would it be safe to assume that your score would likely be a bit off par that day? Let’s say this experiment extends for several years so that every time you pull the trigger on a live round, you get a jolt. In what state would your marksmanship skills be in after a few years of this?

In a way, this experiment actually is being conducted. When you pull the trigger and shoot live ammo you do receive a jolt. The weapon will make a loud, obnoxious blast. And because you are using the sights, the weapon is up close at your face and eyes. The recoil causes the piece to jump up and back. It happens every time and a shooter who hasn’t been properly trained to deal with it will be conditioned.

Don’t believe that most Soldiers (and most humans that shoot guns for any reason, for that matter) have unintentionally been subjected to a negative shock experiment? The next time you are on the range, slip a dummy round in someone’s magazine and watch what happens. When the dummy is chambered, the shooter pulling the trigger believes there is a live round and will react as if it was about to discharge. But, if the shooter has been conditioned by “shock treatment” they will react by blinking their eyes and/or twitching their weapon or body. Their subconscious has developed a learned reflex. Like Pavlov’s dog, they will be conditioned to react anytime they believe the stimulus will occur, even when it doesn’t.

Over the years, I have tested many shooters in the manner described above. With the exception of skilled competitive shooters, every one of them displayed signs of “Pavlov-

ian shock treatment” and flinched on the dummy round. I am convinced that if the U.S. Army could find a way to greatly reduce this one marksmanship issue, qualification problems would be largely eliminated and almost every Soldier would post passing scores on their first try with ease every time.

### **Free, for an Unlimited Time**

What if I told you that a training method does exist that would solve this problem? Not only has it been tested and found effective for decades, the training can be done at no cost, consumes no resources and can be done anywhere. It is called dry fire. Firing simulated shots with no ammo duplicates the shooting experience, except the noise and recoil. That means the “shock treatment” is eliminated in practice.

How effective is dry fire, really? A fellow by the name of Lanny Bassham was assigned to Ft. Sam Houston from 1976-1978. He was a competitive rifleman, shooting the difficult International Rifle discipline. However, the closest range available to him was over 250 miles away. During those two years he was only able to shoot on a range six times total. The only practice regimen available to him was dry fire. Yet, in 1978 Bassham made the US International team and went on to win the World Championships.

OK, you’re probably thinking, “That’s great for a highly skilled marksman. Bassham won the Silver and Gold medals for rifle shooting in the 1972 and 1976 Olympics, respectively. Can this help the marksmanship of a more novice shooter?” Yes! In fact, a motivated novice will realize even faster gains in skill.

I once conducted a dry fire test on a novice handgunner. The shooter hadn’t touched a pistol in over two years and his only previous experience was a few months of practice in order to prepare for a local Steel Challenge match. By his own admission, his skills never progressed beyond the novice stage. After one range session to correct any glaring flaws and establish a baseline, I created a daily dry-fire practice regimen for him to follow. The entire series of drills took about 15 minutes and could be done in any room of his apartment. He received no additional instruction or assistance and was forbidden from shooting any live ammo during this period. One month later I conducted the same live fire test. He doubled his group shooting accuracy at 25 yards and increased his speed by 33 percent on the timed drills. While we were both pleased with the results, neither of us was surprised at the progress. A few seconds of work with a calculator revealed that this shooter had “fired” a couple thousand rounds over the course of the month in careful, controlled practice and could execute his skills at a higher level with confidence.

**Death before Drear**

Despite the fabulous advantages, dry fire has a few flaws. For one, it is boring, or at least it can be. A more important flaw is the lack of an indelible mark. It's pretty hard to argue with a bullet hole in the paper, but dry fire doesn't leave anything tangible for a coach to analyze. Dry fire does provide feedback, but the shooter has to be particular enough to learn from it. For a Soldier who isn't interested in becoming a better marksman, "snapping in" is a one-way trip to Dullsville. What we need is a way to combine the benefits of dry fire while providing visible feedback. This would allow the student to practice anywhere at no cost while avoiding the negative results of live ammo, and provide feedback for both the shooter and instructor. It just so happens such a system exists.

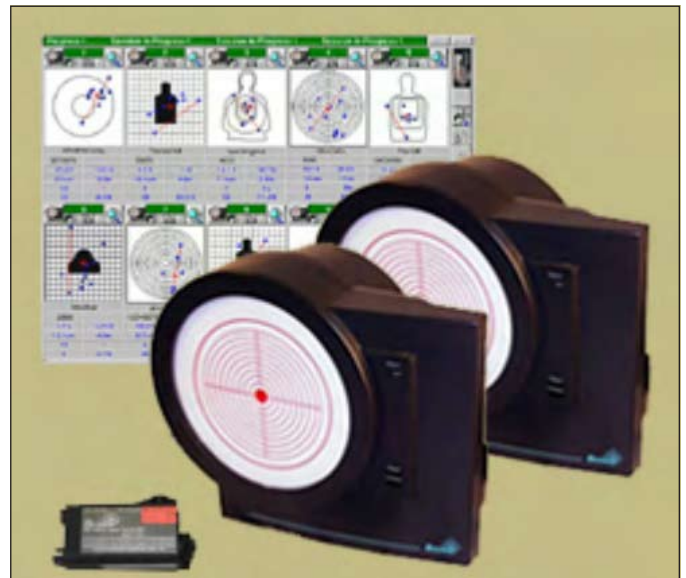
**Magic Bullets**

The Laser Marksmanship Training System (LMTS) was a complete marksmanship training tool. Its only significant flaw was the whole-scale ignorance and complete failure to use it. The original plan, fully detailed in then-current official Army doctrine, was for every Army Reserve UIC to have a Sustainment Kit allowing for training and testing of about a quarter to a third of the unit's personnel during every Battle Assembly (drill) period. Individual Soldiers need only spend 5-10 minutes per session to refresh and validate skills via organized exercises. Perpetual bolos and those needing additional help and practice can do this during a pre- or post-BA session, like a remedial PT program for ACFT (or APFT) failures.

The active Army went full ahead on Engagement Skills Trainer. For active duty units in garrison, this makes sense. The EST has many more features and is set up like a range, with units scheduling EST via RFMSS or similar. This is unrealistic for Reserve component units. EST is prohibitively expensive for a Reserve center, mak-

ing it difficult to schedule even for units lucky enough to be local to an active duty post that has one. Worse, most units won't schedule the dedicated session time necessary even if EST was local; they simply don't have the time. An inexpensive system owned by the unit, locally stored, and that can be set up in minutes is far better for Reserve Soldiers (and everyone else) even if it doesn't have all the same "gee, wow!" features. The unit can continue normally-scheduled Reserve activities and rotate through a simulator station as available as a part of the drill weekend.

This wide-spread failure to benefit Army Reserve Soldiers with a marksmanship training resource (again...) need not hinder motivated individuals. Since the original LMTS program, small simulators have become increasingly available and cheaper. Prices for new laser-based simulators have dropped and many can be used with a single smart device/tablet with a weapon-mounted laser emitter.



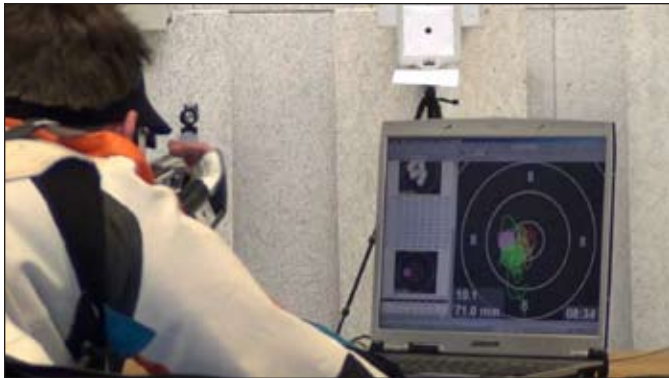
Movement-based devices, like the MantisX, don't even require an external target. Attach a sensor device to the weapon's Picatinny rail (or attach an accessory rail to a magazine), launch the app on any Bluetooth-capable smart device, select a training exercise, and go. The sensor device will fit in a pocket with your phone; the complete kit is about the same cost as a pair of boots.

All of these simulators are completely safe. There is no residue, fumes, or projectiles; only pulses of invisible, eye-safe laser beams. Electronic targets record the "hits" from the laser pulses. These targets are easy to set up and run on common A/C current, AA batteries, or a USB recharge.





This provides a huge training benefit. Small simulators have no recoil or noise. Thus, students avoid the negative conditioning that can occur in live fire. The system can be set up indoors or out. Any clear space or room will suffice. And because the “ammo” and targets are electronically powered, units have an unlimited supply.



Truth be known, these systems are little more than glorified dry fire programs. But, as we’ve found, dry fire alone can win Olympic championships. A motivated, disciplined marksman will progress just fine with plain old-fashioned dry fire. The fact is a marksman fitting this description is the exception among the common Soldier. And it is the rank and file Soldiers that need the most help. This system provides the tools to provide that help in virtually unlimited quantities. The proven ideas of Church, Wingate and Burnside can allow us to earn back the title “Nation of Riflemen.” **ARM**

### Call For Articles

All information, articles, and ideas helpful to improving small arms training, qualification, and competition for Army Reserve Soldiers are welcome. Submit anything you'd like included in *Army Reserve Marksman* to the editor: [john.m.buol.mil@mail.mil](mailto:john.m.buol.mil@mail.mil)

### Army Reserve Postal Matches

All units are eligible to be a part of the World-wide Chief, Army Reserve Postal Matches and all Soldiers and encouraged to participate. Host during the conduct of routine qualification at no expense to the unit or to Soldiers. Learn more at <https://www.usar.army.mil/ARM>

# Diagnostic Tool Box

by Sgt. 1st Class John M. Buol Jr.

While there aren't any book answers in diagnosing shooting problems, the marksmanship instructor does have an array of tools available to make his job easier.

## Improved Zero Range

The standard approach to conducting a 25-meter range (having everyone shoot one group, call the line cold, walking to the target to observe) wastes huge amounts of time. Even in a best-case scenario with a well-organized unit, the range is shut down for 3-5 minutes for every minute of shooting time. Most units are even less efficient than this.

Provide an optic (cheap \$10-\$15 mini-binoculars will suffice) along with a staple gun and a stack of zero targets on each firing point. All shooters must have a peer coach (battle buddy). Staple up a large panel of zero targets, as many as the target stand will hold. Conduct the range in block times of 10-15 minutes with the peer coaches observing targets with optics rather than stopping the range to walk down range. After several groups, switch to a fresh target as needed. Call the line cold about four times per hour to staple up a new batch of zero targets.

Conducting your range in this manner allows for a host of training exercises and diagnostics as each firing point is run independently as needed. The old, inefficient 25-meter procedure makes conduct of these useful exercises difficult or impossible.

## Ball-and-Dummy

A very common problem among novice shooters is flinching, or the tendency to anticipate and react to recoil and not realize it. A dummy round inserted in the magazine, without the shooter being aware of its position, will graphically demonstrate this to the shooter first hand. It is acceptable for the shooter to know there is a dummy round in their magazine provided they don't know its exact position. The 'click' has to come when the shooter is expecting a 'bang.'

## Skip Loading

The Ball-and-Dummy exercise provides a graphic, first-hand demonstration of anticipation (flinching) error. It does little to actually fix the problem. To cure flinching the shooter has to reprogram their reflexes. Shooting a bunch of ammunition, continuing to flinch, with the occasional dummy round and the urging of an instructor to "stop that" doesn't accomplish this.

When a flinch or recoil anticipation is diagnosed, Skip Loading should be employed. Load a magazine with a

random mix of dummy and live ammunition at a ratio of 4:1 or more. Mix 8-10 dummy rounds with two live rounds, load a magazine and have the soldier continue the Grouping exercise. The soldier has no way of knowing whether the next trigger pull will 'click' or 'bang.' Most of the shots are dry so flinching is not encouraged, but there is enough live ammo to make the shooting "real."

This is a highly effective exercise but nearly impossible to use during typical 25 meter range activity as commonly done in the Army. Using the Improved Zero Range procedure is ideal.

## Shot Calling

Good shooters routinely call their shots. It is a necessary discipline to refining the Shot Process and learning how to shoot better. A good way to learn this is making it a formal exercise. After firing a shot or group, plot the called location(s) before looking at the target. Then, observe the target and plot the actual shot locations. This works best using an optic, such as on an Improved Zero Range.


## Trigger Monitor

A consistent, smooth trigger press straight to the rear is essential. This can be monitored with the instructor placing their index finger on the trigger and having the shooter press their finger. The instructor can feel exactly what the shooter is doing.

## Sight Alignment/Picture Consistency

A quick way to diagnose proper sight alignment and picture is to have the shooter draw what they see. Don't have the shooter tell what they see (or think they see), rather, ask the shooter, "Draw a picture of exactly what you are seeing through your sights. The Target Box exercise (bracing the weapon in a vice or cradle) is a more formal way to evaluate this by measuring how consistently the shooter can acquire a sight picture. The rifle is immobilized into a box, pointed at another immobilized box covered with a sheet of paper. The shooter looks through the sights and directs an assistant with a target paddle, having him move the paddle until the sight picture is perfect. The shooter marks the shots and the group is measured, showing how consistent the sight picture is.

## Modified Silhouette

Some shooters may have a problem finding center of mass, especially on the vertical plane. Place a white paster, centered vertically and with the top edge placed on the target's horizontal center. The shooter is provided a clear index of exactly where center of mass should be. The A8 zero target eliminates the need for this. 

# Peer Coaching Protocol

by SFC Jake Probst

## ***Watch the shooter, not the target during firing!***

- Stand or kneel at the shooter's non-dominant side.
- Do NOT mechanically zero, unless the shooter is not even hitting paper.
- Use your observations of the shooter as they fire to help them analyze their shot group.
- Mark and number each 5-shot group (Group 1, G2, etc). Ignore obvious fliers that are well outside the group.
- Standard is that shots are within 4 cm circle - Final group should be 1.5 boxes low for the M68 CCO. Ask SFC Probst if you have questions about why.
- **Remember: the shooter focuses on creating tight groups, regardless of its location, THEN adjusts the sights to bring the group to the center of the target.**




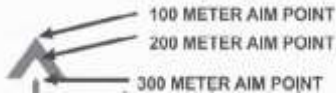
### Watch for:

- Body position - legs, feet, angle of the body, firing & non-firing elbow locations
- Weapon/Body Relationship - Cheek to stock weld, Weapon cant, Buttstock Placement
- Changes in natural point of aim - (NPA Process - close eyes, relax body, deep breath, open eyes, still center on target?) If not, move pelvis, not elbows!
- Any changes in shooter approach/shot process between shots
- Non-firing hand placement, Firing hand position (Should be high on the pistol grip)
- Consistent firing finger placement (Not necessarily the tip of the finger)
- Trigger finger follow through (Should be a slight delay before hearing a "click" of the sear resetting)
- Gear obstructions - Helmet placement, eye protection placement on face, OTV not properly situated
- Anticipation of the shot (Flinching) - Recoil should be minimal with a good firing position.

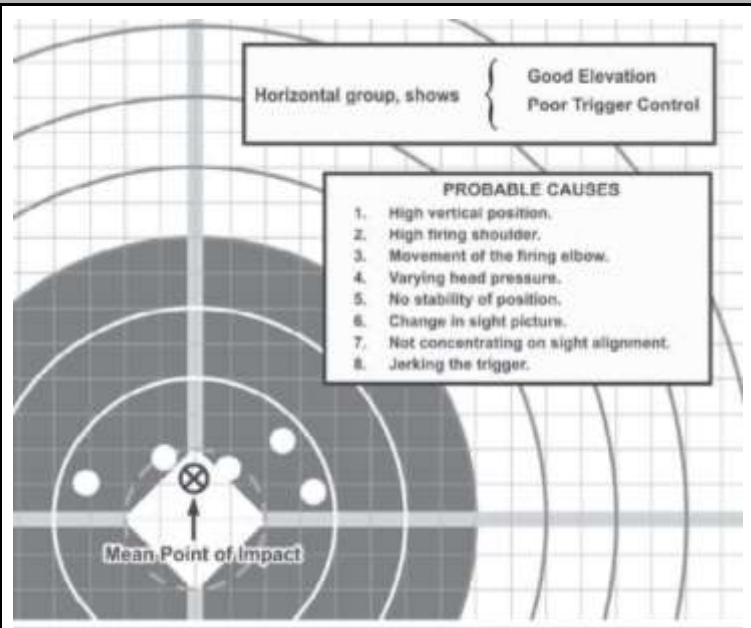
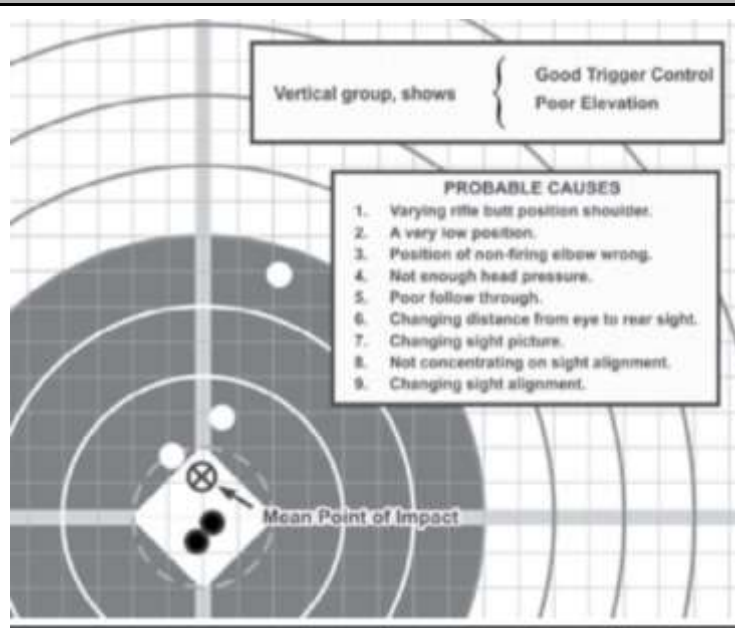
### **Questions to ask:**

- Call your shots. **"Where did that shot break?"** Center, right, left, high, low
  - This is different from where the shot impacted, do NOT tell them where it impacted, the shooter is just making tight groups by consistently and effectively applying the shot process.
- **"Talk to me about what your sight picture looked like. Where was the reticle or aiming dot on the target when the shot broke?"**
- **"I noticed \_\_\_\_\_. Can you tell me what caused you to change that?"**

Zero Sight Adjustments - Each Block is 1 MOA at 25M		
Sighting System	Elevation in MOA	Windage in MOA
M68 CCO or M150 RCO	.5	.5
M4/M4A1 Rear Sight (BUIS) (Not used with optics)	Zero setting is 300	.75
M4/M4A1 Front Sight (Not used with optics)	1.75	

M68 CCO	M150 RCO
	
	
<b>The dot brightness should be as low as possible.</b>	<b>Watch out for scope shadow!</b>

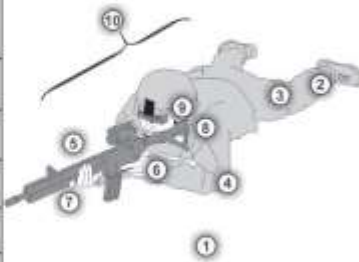
## Shot Group Analysis



TC 3-22.9 E-39 An accurate analysis of the shot group cannot be made by merely looking at the holes in the paper. It is more important to observe the firer than to try and analyze the target. All firing takes place at the weapon, and the holes in the paper are only an indicator of where the barrel was pointed when the rifle was fired. When coaches are analyzing groups, they must question the firer about the group to make a determination of what caused the placement of the shots.

E-42 Observing the shooter must be accomplished before analyzing the target can become effective. Bullets strung vertically do not necessarily mean a breathing issue, nor do bullets strung horizontally absolutely indicate a trigger squeeze problem.

1	Support:	Unsupported - the Soldier uses his elbows to reduce wobble.
2	Leg Position:	Spread with heels flat against the ground or the firing side leg bent at the knee to relieve pressure.
3	Stance / Center of Gravity:	Prone position maximizes the Soldier's frame against the ground for maximum stability.
4	Firing Elbow:	Used to provide stability to the weapon.
5	Non-Firing Elbow:	As close as directly underneath the weapon as comfortable.
6	Firing Hand:	Grasping pistol grip, finger off the trigger until ready to fire.
7	Non-Firing Hand:	Firm grasp on the hand guards.
8	Butt Plate:	Mid-point of shoulder to absorb recoil impulse.
9	Stock Weld:	Firm stock weld.
10	Shooter-Gun Angle:	Shooter body is nearly in-line with the gun-target line.



1	Support:	Unsupported - Soldier uses non-firing knee when possible.
2	Leg Position:	Firing knee on the ground, foot under seat. Non-firing leg bent approximately 90 degrees and under weapon.
3	Stance / Center of Gravity:	Slight lean in to the target area. All weight on a non-firing foot, thigh to calf.
4	Firing Elbow:	Tucked toward the shooter's side.
5	Non-Firing Elbow:	Tricep on the non-firing knee for self-support. Elbow underneath rifle. Elbow NOT ON KNEE.
6	Firing Hand:	Grasping pistol grip, finger off the trigger until ready to fire.
7	Non-Firing Hand:	Firm grasp on the hand guards to control wobble.
8	Butt Plate:	Mid to high point of shoulder to absorb recoil impulse.
9	Stock Weld:	Firm stock weld.
10	Shooter-Gun Angle:	Shooter body is approximately 30 degrees to the gun-target line.



## Diagnosing Shooting Performance

In order to be an effective marksman, a shooter must be able to perform the integrated act of firing on demand. The basic formula for shooting success is: Consistency equals Accuracy. Until the Soldier can demonstrate an acceptable level of consistency, they don't possess the needed skills and shouldn't continue to further exercises until they do.

The test for consistency is the Grouping exercise. Here the Soldier will demonstrate their ability to consistently execute a Shot Process. It is essential that the standards are met; otherwise, any attempt to zero or qualify (not to mention use the rifle for real) is a waste. This Table IV exercise is conducted prior to any other live fire exercise.

To begin the grouping exercise the Soldier acquires a solid supported position and fires slow fire. This exercise is never timed and should be shot "slick" with no gear other than ear and eye protection. Remind the Soldiers to relax, taking the needed time to work through their Shot Process. At first, the Soldier shouldn't view their target until all five shots have been fired because there may be a tendency for a novice shooter to "compensate" if the first shot isn't centered on the target. Later, they can spot each shot after calling and plotting to better learn how to Call shots.

After firing a five-round group, the target is analyzed. This is best done with optics but can be done by calling the line cold and walking to the target if you enjoy wasting time. The only goal of this exercise is to produce a group in the same location. At this point we don't care where the bullets hit, only that they hit in the same place. It is crucial that Soldiers learn to shoot relatively error free before continuing.

It is important to note that no firearm-ammunition combination is perfect. Even top-grade match equipment will have some dispersion and issue service arms and ammo is worse. Generally speaking, any serviceable M16/M4-series rifle/carbine with issue ball ammunition is inherently accurate enough to place all its bullets into about a two-centimeter group at 25 meters with some doing better. A five-round group in an inch (2.54 cm) is 4 MOA and the goal. From a proper supported position this indicates good, relatively error-free performance. A 4cm/6MOA group is minimally acceptable.

Of course, few Soldiers with only military marksmanship experience are capable of error-free performance and even the best shooter is susceptible to the occasional foible. And issue equipment, being what it is, may have the occasional glitch. Therefore, groups of four centimeters (6 MOA) or less are considered acceptable. Excluding factors of environment, a four-centimeter (6 MOA) group indicates sufficient accuracy to hit an E-type silhouette at 300 meters every time. Please remember that four-centimeter groups represent acceptable minimum performance; the shooter is probably still making some errors.

By Army standard, Soldiers are supposed to complete Table IV at 25 meters within five 5-round groups or less. This assumes the Soldier can already fire an acceptable group. When the Soldier successfully groups and zeroes to standard, any remaining ammunition

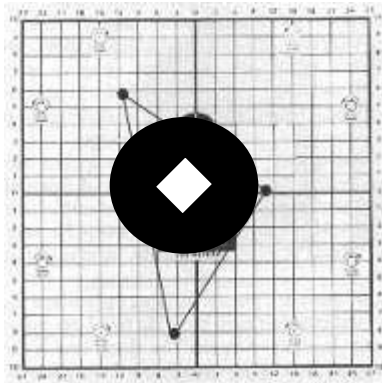
should be fired for group from unsupported positions. If the Soldier is having difficulty placing their groups sufficiently close together and in the same place, the instructor has to help them. Throwing more ammo at the Soldier and having them shoot “until they get it right” never helps and may make their shooting problem worse. The instructor has to fix what’s broken.

### Diagnosing Shooting Errors

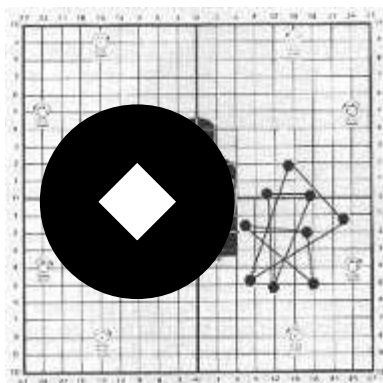
Inconsistently placed groups or groups larger than four centimeters indicate marksmanship errors. There is no magical formula that will let an instructor glance at a target and immediately tell what ails the shooter. The instructor has to possess enough personal marksmanship skill for the diagnosis to be effective.

Diagnosis starts at the target because, with the exception of blatantly obvious errors, this is where problems begin to be noticed. Due to variations in issue ammunition there is little point in trying to discern the meaning of a pattern of shots for groups smaller than 2-3 cm. It is when the groups open beyond the Army standard that we need to find the cause. One possible cause is that the rifle, not the shooter, is to blame. It is very rare for a rifle to pass an armorer’s inspection and not be capable of 2-3 cm groups at 25 meters, but tests of service rifles fired from machine rests have shown that it is possible. A skilled instructor should shoot the Soldier’s rifle if this problem is suspected.

However, poor groups are normally caused by the shooter’s failure to develop a Shot Process. The following graphics depict problems that may be encountered and some of the possible causes.

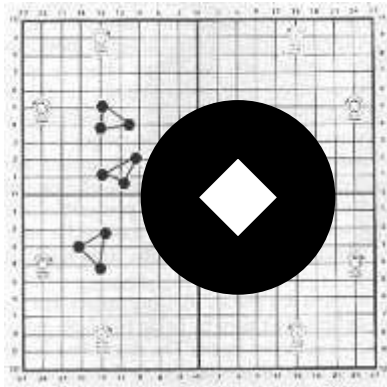


These targets show a shooter making a number of errors. The instructor will have to break down things by elements in the entire Shot Process and confirm what the shooter is not understanding before continuing.



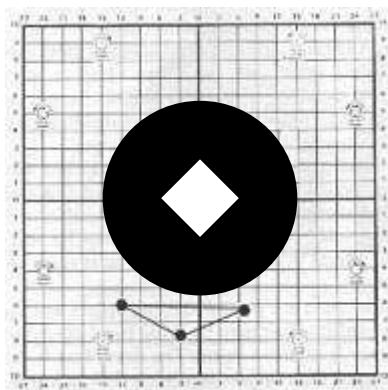


The shooter is being consistent. Unfortunately, they are consistently bad. Use the diagnosis information to correct vertical and horizontal stringing.



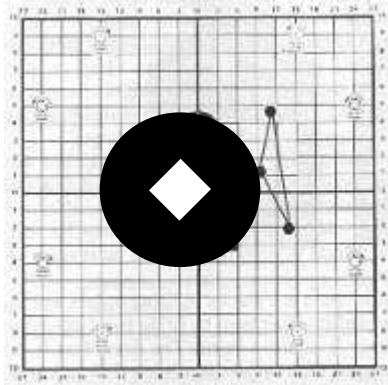
This shooter appears to be working their Shot Process properly, as indicated by the tight groups, however, something changes when they reacquire their position to fire another group.

- The shooter may have an inconsistent position, especially at the cheek-to-stock weld.
- The shooter may be using a differing point of aim for each group. This is less likely with the A8 zero target.
- Check the sights. With an optic, ensure a full field of view (no shadow)



The group is good vertically but strung out horizontally.

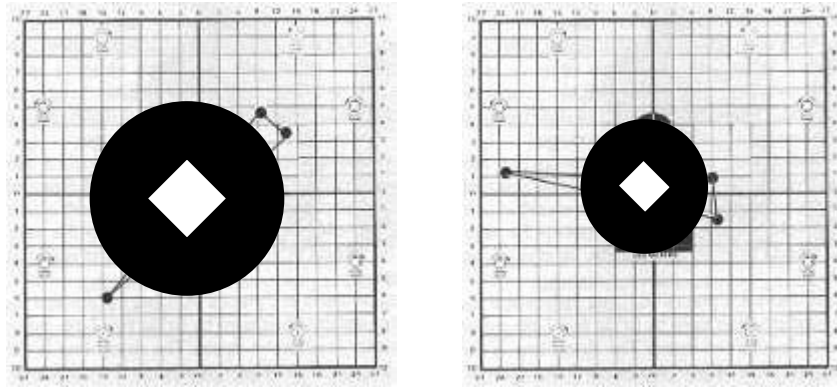
- The shooter may be muscling the rifle due to poor natural point of aim. Before firing the next group, have the shooter check the natural alignment of their position by closing and opening their eyes, reporting where the sights appear.
- The shooter may be anticipating recoil and flinching. Without the Soldier being aware of it, load a dummy round in their magazine and watch them shoot.
- The shooter may be jerking the trigger instead of applying smooth pressure straight back. Place your index finger on the trigger and have the shooter press your finger to monitor what they're doing.
- Make sure the position is solid and that the rifle butt isn't slipping out of the firing shoulder.
- Check that the Soldier isn't varying the pressure they apply when shooting the rifle.
- Confirm the Soldier understands proper sight alignment.



The group is good horizontally but strung out vertically.

- The Soldier may be failing to aim at the same point when they aim for center. Confirm that they understand sight alignment and have them try the side-aiming technique to find the center. Consider an alternate aim point, such as 6 o'clock on the white diamond or black bull to see if that makes consistent sight alignment and picture easier to discern.
- The shooter may be anticipating recoil and flinching. Without the Soldier being aware of it, load a dummy round in their magazine and watch them shoot.
- The shooter may be jerking the trigger instead of applying smooth pressure straight back. Place your index finger on the trigger and have the shooter press your finger.
- Confirm that the position is solid and that the butt isn't slipping out of the shooter's shoulder.

- This is almost NEVER due to breathing. Novice shooter claims to the contrary are WRONG.



These targets show two shots in a respectable group, with a wild flyer. The likely cause is a classic flinch, which ball-and-dummy exercise will bear out. Take a look at the target on the right as it shows the fallacy of trying to zero before the shooter can group successfully in an exaggerated fashion. Notice that the mathematical center of the group indicates that the rifle is “zeroed.” However, if the wild shot was human error, which is likely, the rifle is actually printing to the right of point of aim.

The Instructor: The critical link in fixing marksmanship errors.

While reading a target indicates which Soldiers are having problems and can give some clues, the real work is done with a skilled instructor monitoring the shooter and talking them through the process. Again, there is no book answer to fixing marksmanship problems and only a sufficient amount of personal knowledge from the instructor can help.

The best solution is to pull the troubled shooter to the side and begin remedial training. Having them shoot more without proper supervision will only make the problem worse. Begin with drills focusing on likely problems as indicated by the target and go from there. Ensure the Soldier isn’t reacting to recoil with the ball-and-dummy exercise. Have him draw what he sees while aiming at his target. Confirm proper trigger pull with a trigger pull exercise.

The minimum standard is five rounds in a 4 cm group at 25 meters or smaller. We emphasize again: No attempt to zero is made until this standard is met! Until the shooter has demonstrated sufficient proficiency in putting their bullets into the same place, sight adjustments cannot be accurately made.