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U.S. MARINE CORPS

RIFLE MARKSMANSHIP AND DATA BOOK

(For U.S. Rifle 7.62-MM, M-14)
(For U.S. Rifle 5.56-MM, M-16)

RIFLE DATA SHEET

200 METERS SLOW

300 METERS SLOW

500 METERS SLOW

200 METERS RAPID

300 METERS RAPID

ISSUED TO
ORGANIZATION
RIFLE NO. AND TYPE
DATE ISSUED

ZERO DATA CARD

RIFLE NO. AND TYPE		
ZERO		
RANGE	ELEVATION	WIND
200		
300		
500		

NAVMC 42 (Rev. 11-72) (9-67 edition will be used.) Supersedes NAVMC 10693, which is obsolete and will be disposed of in the best interests of the government.

"MY RIFLE"

The creed of a United States Marine

by

Maj. Gen. W. H. Rupertus, USMC

This is my rifle. There are many like it, but this one is mine.

My rifle is my best friend. It is my life. I must master it as I must master my life.

My rifle, without me is useless. Without my rifle, I am useless. I must fire my rifle true. I must shoot straighter than my enemy who is trying to kill me. I must shoot him before he shoots me. I will . . .

My rifle and myself know that what counts in this war is not the rounds we fire, the noise of our burst, nor the smoke we make. We know that it is the hits that count. We will hit . . .

My rifle is human, even as I, because it is my life. Thus, I will learn it as a brother. I will learn its weaknesses, its strength, its parts, its accessories, its sights, and its barrel. I will ever guard it against the ravages of weather and damage. I will keep my rifle clean and ready, even as I am clean and ready. We will become part of each other. We will . . .

Before God I swear this creed. My rifle and myself are the defenders of my country. We are the masters of our enemy. We are the saviors of my life.

So be it, until victory is America's and there is no enemy, but Peace!

MARINE CORPS RIFLE MARKSMANSHIP BOOK

This book is designed, primarily, to assist the Marine Rifleman during KNOWN-DISTANCE MARKSMANSHIP TRAINING. If properly maintained it can also be used to determine accurate sight settings for FIELD and COMBAT FIRING.

PART I: BASIC MARKSMANSHIP PRINCIPLES

Good rifle shooting, whether on a rifle range or in combat, depends upon the application of basic marksmanship principles. The following principles are interrelated and must be properly applied each and every time a shot is fired if accurate results are to be expected:

Sighting and aiming
Position
Wind effects
Trigger control

SIGHTING AND AIMING

Several elements are involved in sighting and aiming. The most important are *Sight Alignment* and *Aiming Point.* Together they make up the *Sight Picture.*

SIGHT ALIGNMENT is the art of looking through the (rear) peepsight, focusing the eye on the front sight post, and placing the top of the post exactly in the center of the circle of light that can be seen through the peep. (Fig. 1.) Proper sight alignment must be maintained throughout the process of firing each and every shot to achieve marksmanship accuracy.

The AIMING POINT is that point on the target upon which the sights are brought to bear. The aiming point is correctly placed when it is centered on the top of the front sight blade as shown in Figures 2 and 3.

Effect of *any* error in sight alignment will increase as the range increases. Effect of error in aiming point remains constant as the range increases. Therefore, of the two, sight alignment is the more important. (Fig. 4.)

The correct SIGHT PICTURE is formed by the proper alignment of the REAR SIGHT, the FRONT SIGHT, and the AIMING POINT. (Figs. 2 and 3.) Each of these three elements affects the sight picture. The Marine Corps qualification course uses a variety of targets and positions and is fired at various distances. Therefore, the sight picture is different at each stage.

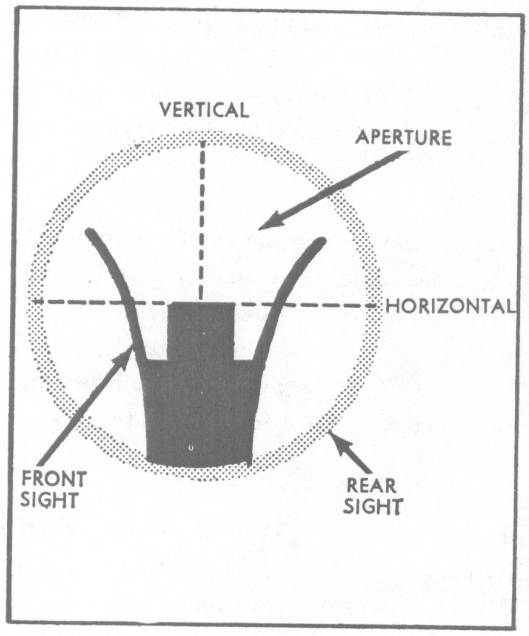


Figure 1. Proper Sight Alignment

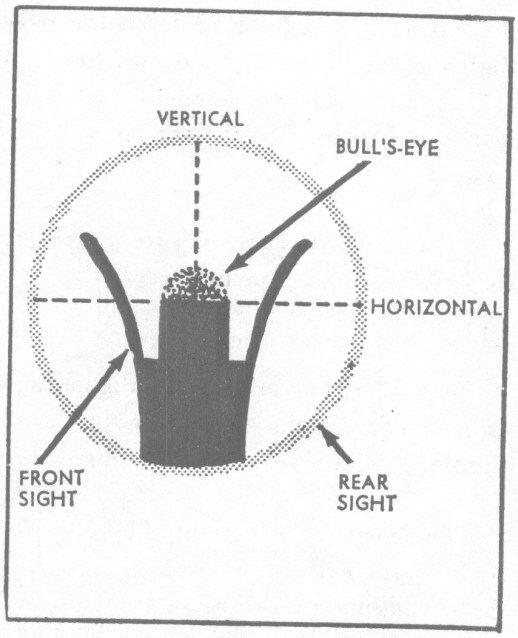


Figure 2. Sight Picture Held on "A" Target at 200 Meters Range

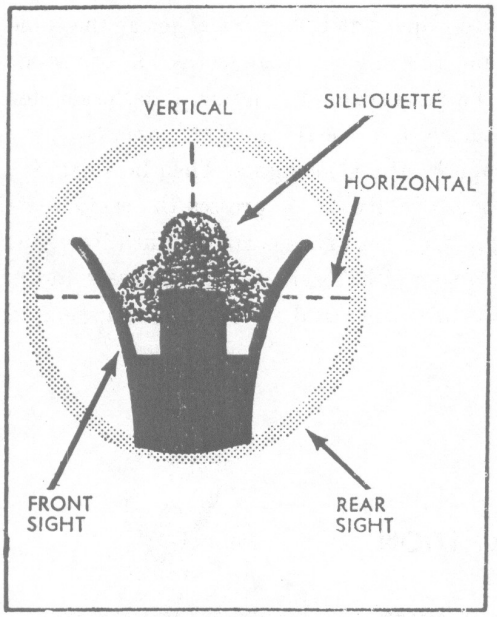


Figure 3. Sight Picture Held on "D" Target at 200 Meters Range

The Rear Sight. In each firing position (standing, sitting, kneeling, and prone) the aiming eye will be at a slightly different distance from the rear sight. This will cause the opening (peep) of the rear sight to *appear* larger or smaller, depending on the firing position, for the closer the eye is to the rear sight, the larger the opening will appear. Regardless of the apparent size of the rear sight opening, the front sight *must* be aligned *in the center* of the rear sight opening. (Fig. 1.) It is important that the eye *always* be the same distance from the peep in a particular position.

The Front Sight. The eye cannot focus on two objects at different ranges at the same time. To ensure correctness of the sight alignment, the eye must be focused on the front sight blade at the instant the rifle fires. However, the target cannot be ignored, so the shooter must alternate the focus of his eye between the target and the front sight blade. Initially he should focus on the front sight blade and properly align his sights. Then he shifts his focus to the target and completes his sight picture. Finally, as he presses the trigger, he again shifts the focus of his eye to the front sight blade ensuring correct sight alignment as the rifle fires. At this moment, the sight picture should be as shown in Figures 2 and 3. Notice that the front sight blade is distinct while the target and rear aperture appear to be slightly blurred.

SHOOTING POSITION

The Marine Corps qualification course requires the shooter to use four positions: standing, kneeling, sitting, and prone. Each position provides a different amount of stability

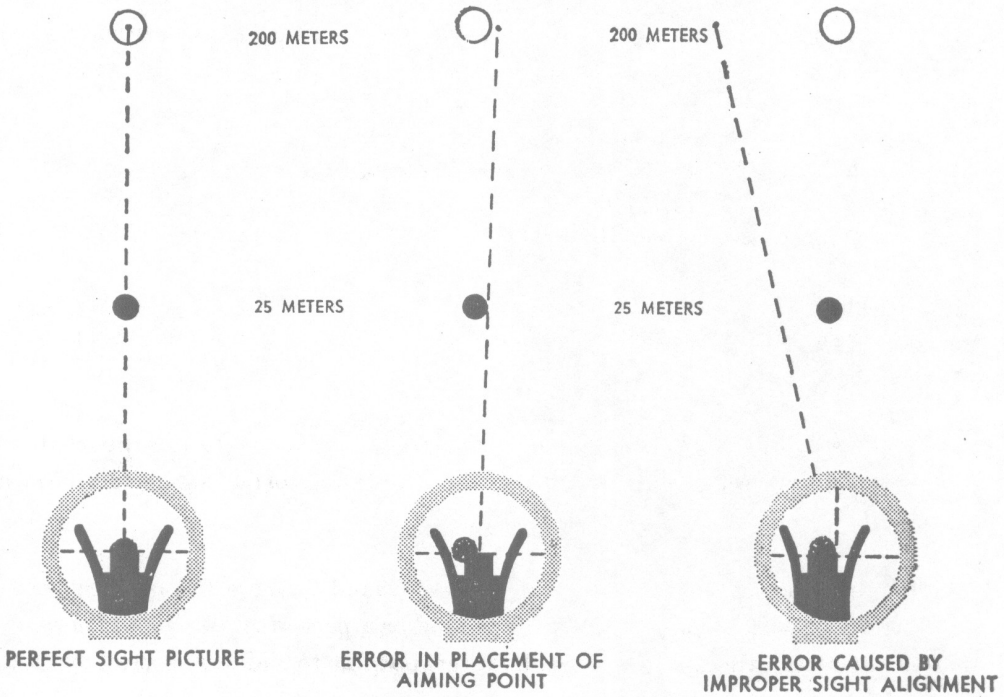


Figure 4. Importance of Correct Sight Alignment

for the shooter's body. Stability decreases as a shooter changes from prone to sitting, to kneeling, and to the standing position, because the degree of stability depends on:

The area of body contact with the ground.
Height of body, or its center of gravity.
Arm (elbow) support.
Area of body exposed to wind.

Shooters must continually work to improve their firing positions. During firing, bodies should be positioned so that the sights return *naturally* after each shot, properly aligned "on the target."

In a prone position, where the body is flat and both elbows fully supported by the ground, the shooter is better able to establish and maintain a correct sight picture throughout firing.

In an unstable position, such as standing (off-hand), where the body is erect and neither arm is supported nor resting on the ground or a part of the body, it is not possible to hold steady on the aiming point. It is, however, possible to maintain correct sight alignment at all times.

In standing position shooting the rifle constantly moves back and forth, up and down across the target. In standing position the shooter should not attempt to interrupt this rifle movement with abrupt or jerky movements, but within his capability he should allow the rifle to drift, as it will, with a conscious effort to reduce the area of movement to the smallest possible degree. Only acquired skill, gained through continued practice and dry firing (snapping-in) will improve standing position shooting ability.

WIND AND WIND EFFECT

One of the most important influences on rifle shooting is wind. Wind affects shooting in two principal ways. Wind affects the flight of the bullet by literally blowing it off course. It also has a buffeting effect on the shooter, making proper aiming difficult.

The effect on the bullet in flight progressively increases as range increases. A wind that will have little or no effect on a bullet at 200 meters will have some effect at 300 meters, and significant effect at 500 meters. The wind effect on the bullet in flight is compensated for by applying proper windage to the sights.

The effect of wind on the shooter himself depends on the relative stability of the various shooting positions. Wind that will have no effect on the prone shooter might have some effect on the sitting shooter, will have greater effect on the kneeling shooter, and a definite adverse effect on the standing shooter. The effect of wind on the shooter's body can be decreased through personal development of the best possible shooting position.

TRIGGER CONTROL

Trigger control is a vital element in producing an accurate shot. The trigger action must be accomplished so as not to disturb the position of the rifle when the shooter has his sights aligned. The results of a good steady position, perfect sight alignment, proper aiming point, and accurate correction for wind are of no value unless precise trigger control is achieved.

The prime consideration in trigger control is that the trigger be moved *straight to the rear* smoothly, gradually, and evenly—that is, sque-e-e-ezed. Any pressure, however, slight, to the side, up or down, that is applied to the trigger during its rearward movement will be transmitted to the rifle, and a wide, high or low shot will likely result.

The *trigger hand* must grasp the small of the stock firmly but without strain, so that the trigger (index) finger will have proper support in overcoming the trigger weight. An unnatural, straining grasp will cause excessive muscular tension in the hand, resulting in a "tremor," which will be transmitted to the rifle.

The index finger should make contact with the trigger at the place that will best produce a movement straight to the rear. This is usually between the first joint and the tip. The index finger must not touch the small of the stock. (Fig. 5.)

Once the sights are lined up, the pressure on the trigger is applied and gradually increased until the hammer is released and the shot is fired. If, at anytime during this process, the sight drifts off the target, the trigger sque-e-e-eze is interrupted, but the pressure is maintained. When the sight picture is again correct, the sque-e-e-eze is continued until the shot is fired.

When firing standing position, coordination of trigger squeeze and proper aim is of prime importance. The shooter must start and continue his squeeze only when the front sight of the rifle is momentarily at rest or is slowly moving in the smallest area of the bull's eye. When the movement of the rifle is too great to insure a good shot, the squeeze should be stopped, the rifle left in the shoulder, the aim continued, and the pressure maintained until

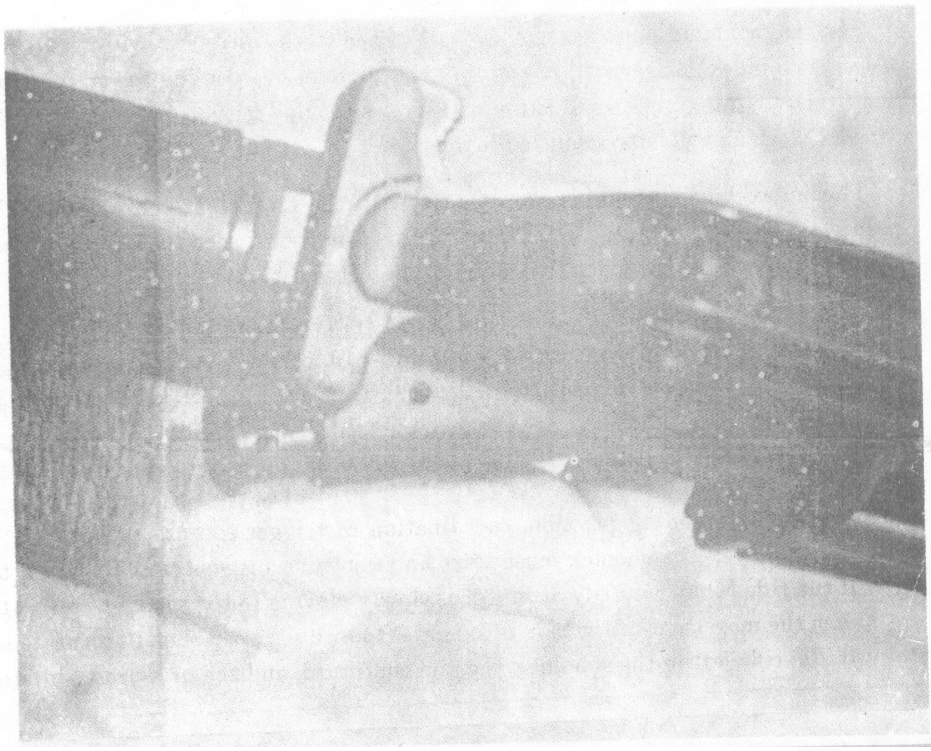


Figure 5.

the movement is again reduced as much as possible, at which time the squeeze is continued. *If the shot is not made within 10 seconds after the aim is first made*, the rifle should be lowered, several deep breaths taken during the short rest, and a new attempt to fire then made.

An inexperienced shooter usually tends to "snap shoot" in standing position firing. That is, he attempts to complete the trigger action instantly as the front sight moves across the aiming point. This invariably results in jerking the rifle and producing a wild shot.

PART II: INSTRUCTION FOR RECORDING MARKMANSHIP DATA

Part II provides space for the shooter to keep record of:

Elevation and windage data used at each range each day.

Corrections in elevation and windage necessary to center his shot groups in the bull's-eye at each range from day to day.

Remarks or notations deemed necessary in aiding him to obtain the best "dope" for his rifle and to permit him to compare the direction, force and effect of wind at different ranges each day.

ZEROING

In mass production few rifles are manufactured *exactly* alike. Therefore, with the same shooting conditions and sight settings, some rifles will fire high, some low, some to the right or to the left. This means that two rifles, each set at *mechanical zero* and with the *same elevation* cannot be expected to hit a target in the same spot. Adjustable sights are designed to overcome these differences in individual rifles.

The rifleman's first step in any marksmanship training program is to "zero" his rifle. This can be done only by actually firing the rifle.

To "zero" means: *To determine* the proper elevation and windage necessary to hit the center of the target at a given range under conditions of no wind.

Once a rifle is *zeroed* at any given range in a particular position, the information should be written down on the correct data sheet. Subsequently, before firing, the correct windage and elevation (as shown on the data sheet from the previous firing) should be applied to the weapon.

In recording the above data, for example at the 500-meter range, the "Correct Elevation" block might show "20" and the "Zero Wind" block could show "2R." In the "Remarks" block, indicate the number of clicks used to compensate for wind; e.g., "2c left wind."

CALLING AND PLOTTING SHOTS

The shooter "calls" and plots his own shots. The coach supervises. During the course of fire, necessary changes in elevation and windage are made as required to move the hits to the center of the target. (Figs. 6, 7 and 8.)

"Calling" the Shot in Slow-Fire. Immediately after each shot is fired and while the target is in the pits, the shooter places a dot on the appropriate small target in the "Call" column on the score sheet where he thinks the bullet actually hit. (Figs. 6 and 7.)

Plotting Shots in Slow-Fire. After the target is marked, the shooter plots on the target printed on the data sheet the corresponding point of impact of each shot, identifying it by the order in which fired. He then records the *disked value* of the shot in the "Value" column. (Figs. 6 and 7.)

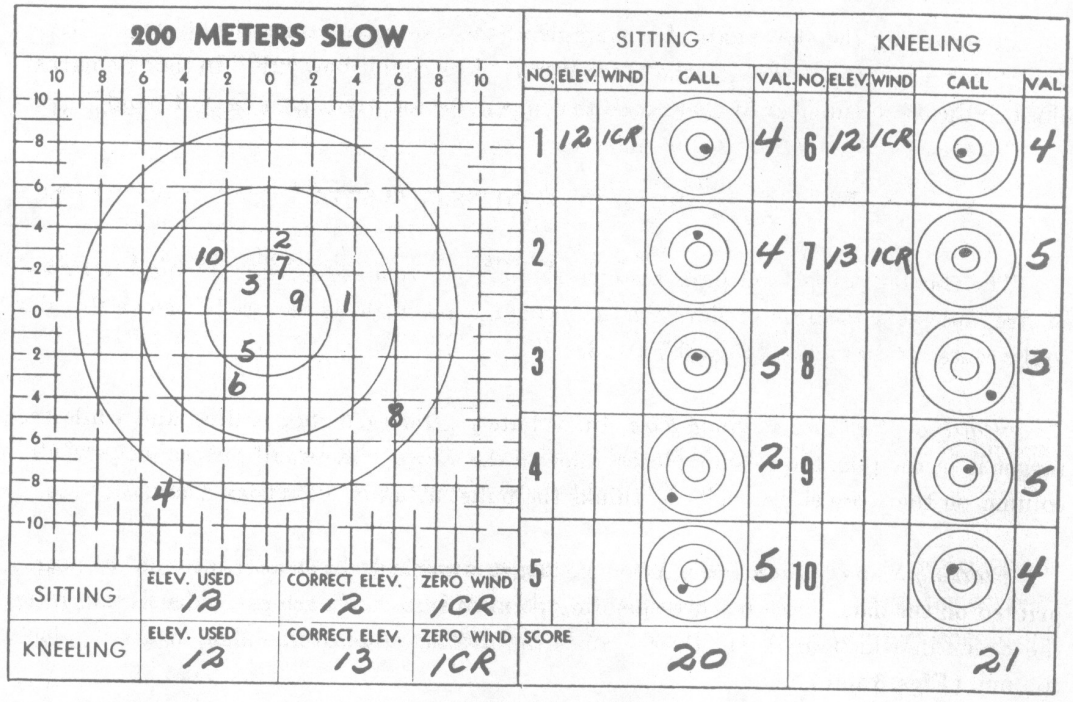


Figure 6. Sample Score Sheet

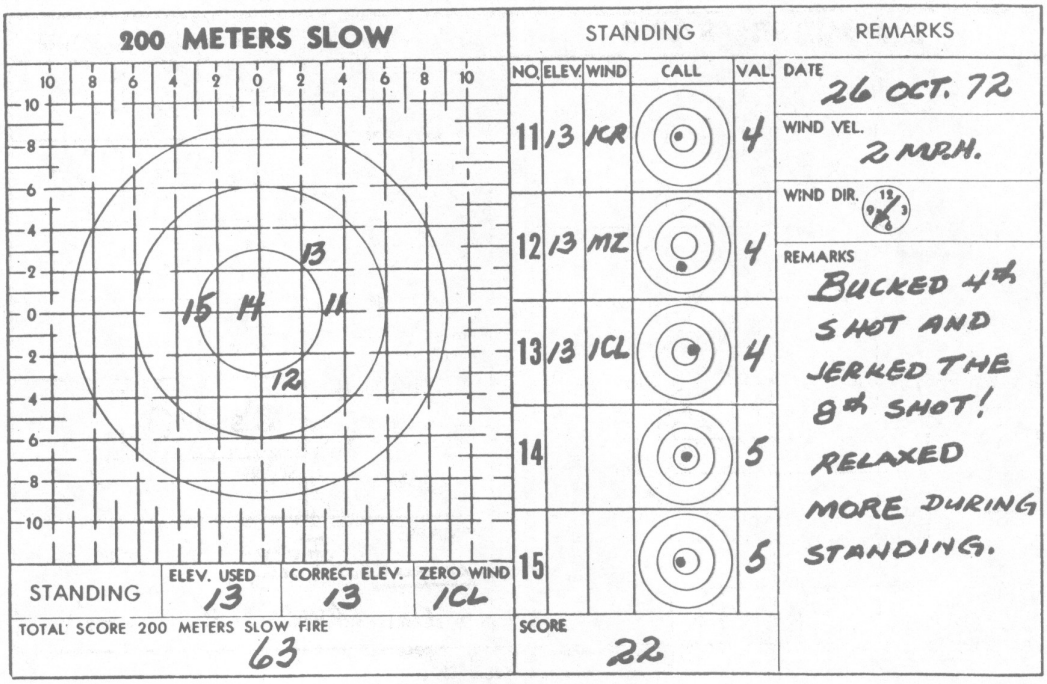


Figure 7. Sample Score Sheet

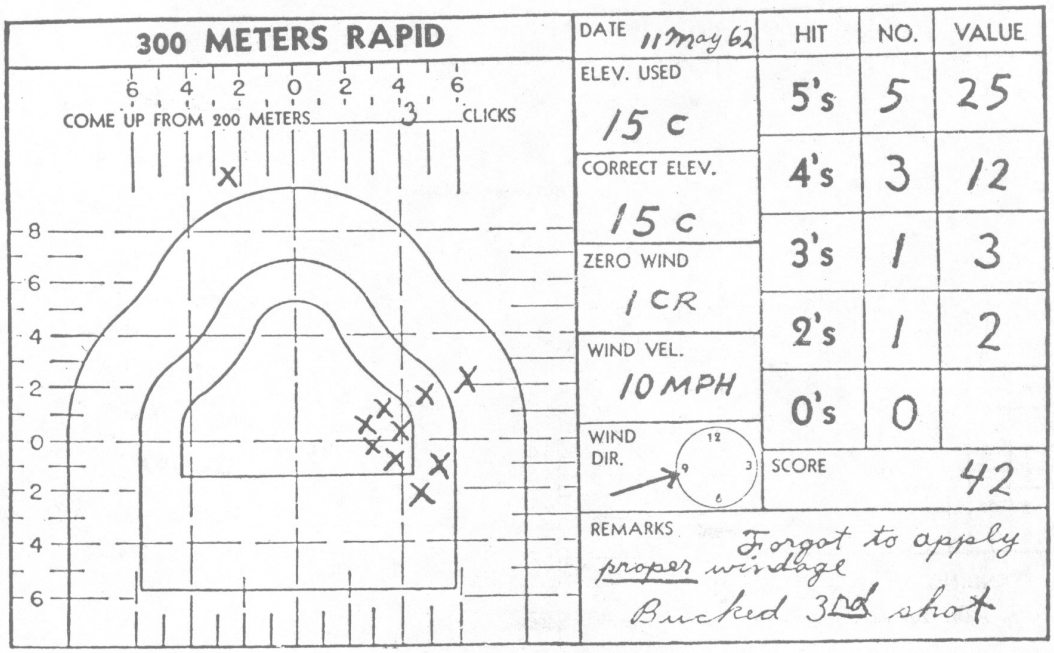


Figure 8. Sample Score Sheet

Plotting Shots in Rapid-Fire. After the target is marked and disked, an "X" for each shot is placed on the target printed on the data sheet, locating the X's as indicated by the spotters. Values are recorded in the "Value" spaces, indicating the number of hits of each value.

Changes in elevation necessary to move the center of shot groups are noted on the Data Recording Sheet. (Fig. 8.)

WIND DIRECTION AND FORCE

The direction of wind is explained by the word "o'clock." The firing line is considered to be in the center of a big "clock face" with 12 o'clock toward the butts and 6 o'clock to the rear. Wind blowing *from* the left is 9 o'clock wind, etc. (Fig. 9.)

The speed or force of the wind is described as: *none to light*, *light to medium*, or *medium to heavy*.

Wind Reading Aids. Wind direction and force can be quickly determined by observing range flags. (Figs. 10 and 11.) With experience, the direction and approximate effect

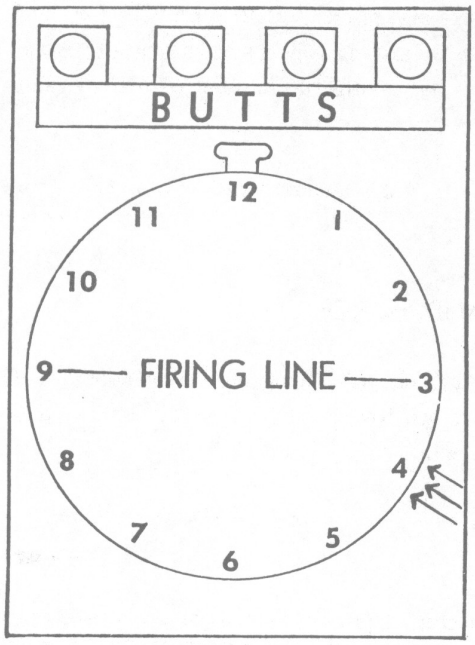


Figure 9. 4 O'clock Wind

of the wind can be judged by using range flags, smoke, dust, trees, bushes, grass, etc. For example:

None to light wind:

Less than 3 mph. Can hardly be felt.
3–5 mph. Can be felt on the face.

Light to medium wind:

5–8 mph. Leaves of trees and bushes in constant motion.
8–12 mph. Dust raised and loose paper blown about.

Medium to heavy wind:

12–15 mph. Small trees begin to sway.

RANGE FLAG WIND READING

The range flags pictured below indicate a 3 o'clock wind. Wind forces of varying degrees are shown. Winds of any force from 11, 1, 5, or 7 o'clock will have half the effect on the bullet as a 3 or 9 o'clock wind of the same force. Winds from 6 and 12 o'clock usually will have no measurable effect on the bullet in requalification firing.

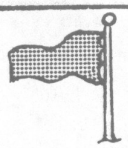
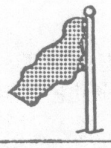
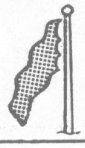
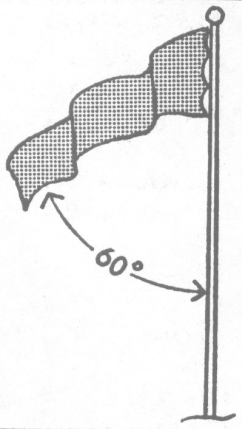
FLAG STRAIGHT OUT WIND FORCE: MEDIUM TO HEAVY 15 TO 25 MPH		**WINDAGE EFFECT** 200 METERS—2 TO 3 CLICKS 300 METERS—3 TO 5 CLICKS 500 METERS—5 TO 8 CLICKS
FLAG 30° TO 45° OUT WIND FORCE: LIGHT TO MEDIUM 7 TO 11 MPH		**WINDAGE EFFECT** 200 METERS—0 TO 2 CLICKS 300 METERS—2 TO 3 CLICKS 500 METERS—3 TO 4 CLICKS
FLAG 8° TO 10° OUT WIND FORCE: NONE TO LIGHT 2 TO 5 MPH		**WINDAGE EFFECT** 200 METERS—0 CLICKS 300 METERS—0 TO 1 CLICK 500 METERS—1 TO 2 CLICKS

Figure 10.

ESTIMATING WIND VELOCITY

In order to estimate wind velocity, use the following rule—estimate the angle in degrees between the range flag and the range flag pole. Divide by 4. The answer is the approximate wind velocity in miles per hour.

Example:

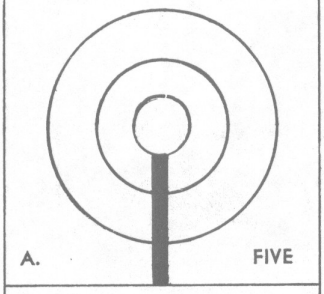


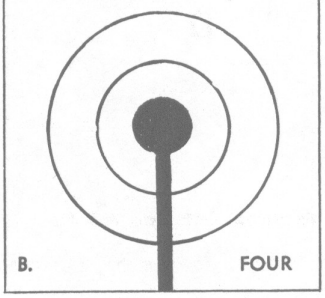
THE WIND IS BLOWING THE FLAG OUT AT AN ANGLE OF 60°. 60÷4=15 MILES PER HOUR.

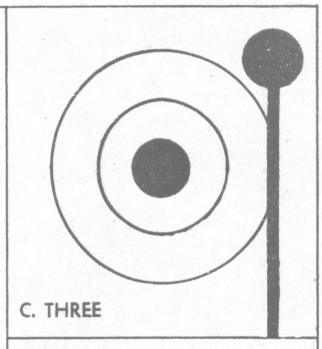
Figure 11.

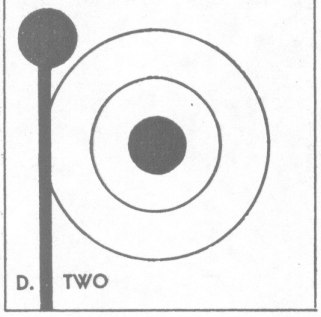
DISKING PROCEDURE

To signal a bulls-eye the **WHITE** face of the disk is placed over the bulls-eye (Fig. A). A four is shown by placing the **RED** face of the disk over the bulls-eye (Fig. B). A three is indicated by placing the **RED** face of the disk on the right side of the target (as the target puller faces the target) (Fig. C). A two is shown by placing the **RED** side of the disk on the left side of the target (Fig. D). To signal a miss the **RED** side of the disk is passed from left to right across the face of the target.









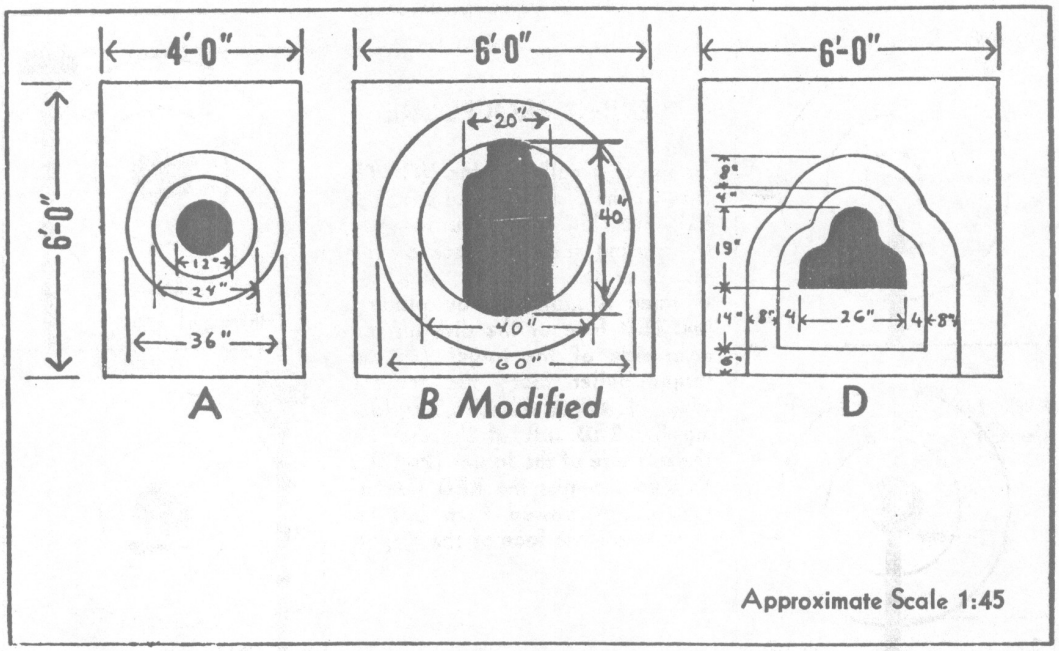


Figure 13. Dimensions of A, B Modified, and D Targets

RIFLE DATA SHEET

RIFLE No. DATE AMMUNITION

	ELEVATION	WINDAGE	REMARKS
200 Meters Slow—Sitting			
200 Meters Slow—Kneeling			
200 Meters Slow—Standing			
300 Meters Slow—Sitting			
500 Meters Slow—Prone			
200 Meters Rapid—Sitting			
300 Meters Rapid—Prone			

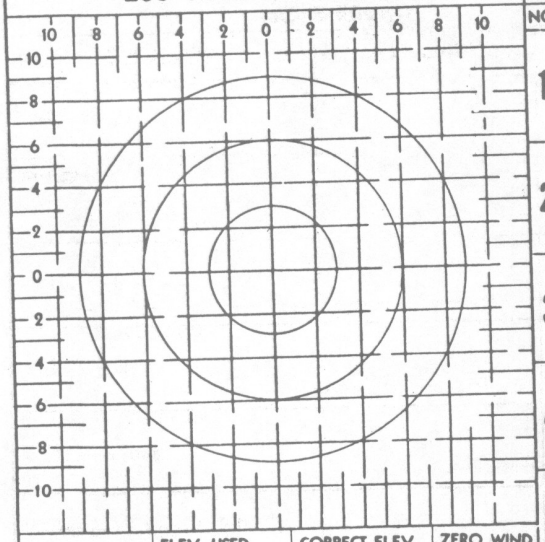
RIFLE DATA SHEET

RIFLE No. DATE AMMUNITION

	ELEVATION	WINDAGE	REMARKS
200 Meters Slow—Sitting			
200 Meters Slow—Kneeling			
200 Meters Slow—Standing			
300 Meters Slow—Sitting			
500 Meters Slow—Prone			
200 Meters Rapid—Sitting			
300 Meters Rapid—Prone			

25

200 METERS SLOW



SITTING	ELEV. USED	CORRECT ELEV.	ZERO WIND
KNEELING	ELEV. USED	CORRECT ELEV.	ZERO WIND

SITTING

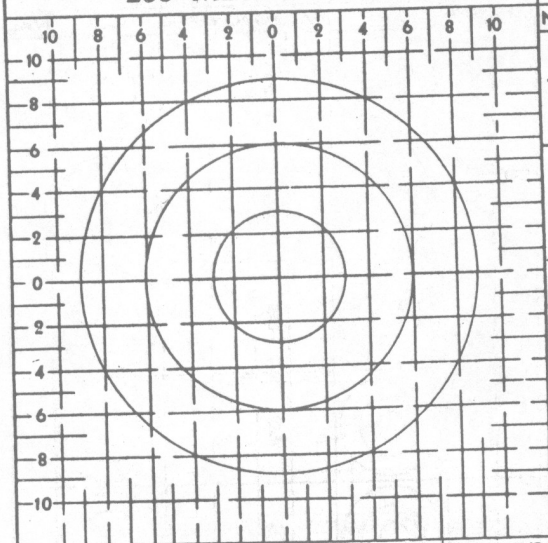
NO.	ELEV.	WIND	CALL	VAL.
1				
2				
3				
4				
5				

KNEELING

NO.	ELEV.	WIND	CALL	VAL.
6				
7				
8				
9				
10				

SCORE

200 METERS SLOW



STANDING	ELEV. USED	CORRECT ELEV.	ZERO WIND

TOTAL SCORE 200 METERS SLOW FIRE

STANDING

NO.	ELEV.	WIND	CALL	VAL.
11				
12				
13				
14				
15				

SCORE

REMARKS

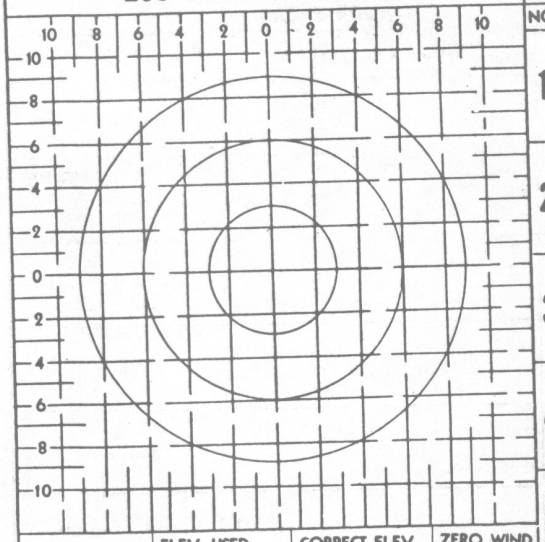
DATE

WIND VEL.

WIND DIR. 

REMARKS

200 METERS SLOW

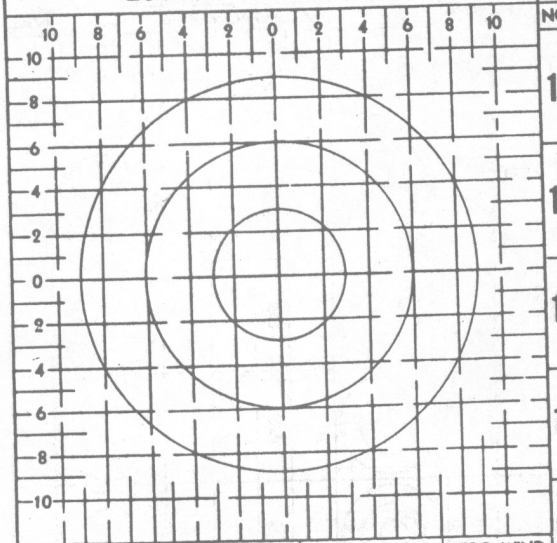


SITTING	ELEV. USED	CORRECT ELEV.	ZERO WIND
KNEELING	ELEV. USED	CORRECT ELEV.	ZERO WIND

SITTING					KNEELING				
NO.	ELEV.	WIND	CALL	VAL.	NO.	ELEV.	WIND	CALL	VAL.
1					6				
2					7				
3					8				
4					9				
5					10				

SCORE

200 METERS SLOW



STANDING	ELEV. USED	CORRECT ELEV.	ZERO WIND

TOTAL SCORE 200 METERS SLOW FIRE

STANDING				
NO.	ELEV.	WIND	CALL	VAL.
11				
12				
13				
14				
15				

SCORE

REMARKS

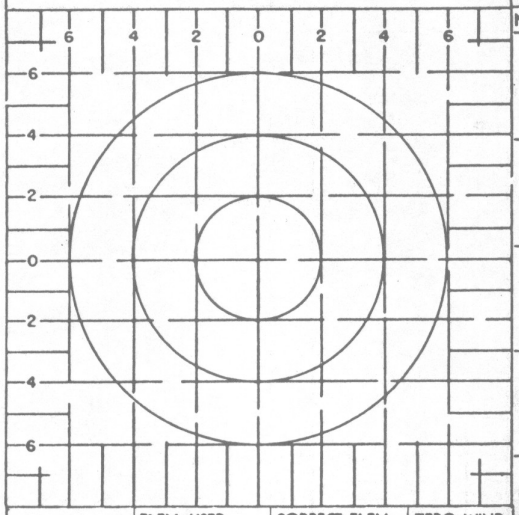
DATE

WIND VEL.

WIND DIR. (12 3 6 9)

REMARKS

300 METERS SLOW



SITTING	ELEV. USED	CORRECT ELEV.	ZERO WIND

SITTING				
NO.	ELEV.	WIND	CALL	VAL.
1				
2				
3				
4				
5				
SCORE				

REMARKS

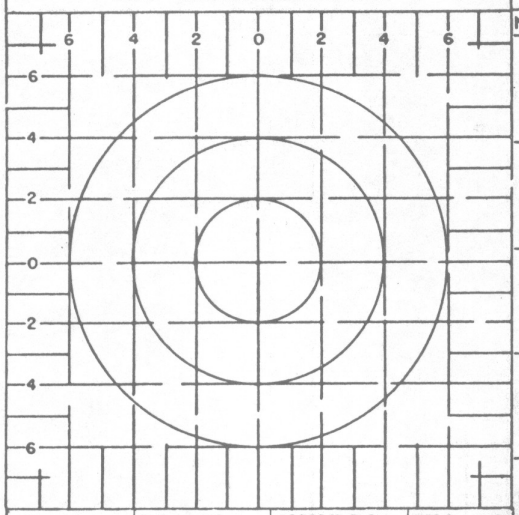
DATE

WIND VEL.

WIND DIR. (12 9 3 6)

REMARKS

300 METERS SLOW



SITTING	ELEV. USED	CORRECT ELEV.	ZERO WIND

SITTING				
NO.	ELEV.	WIND	CALL	VAL.
1				
2				
3				
4				
5				
SCORE				

REMARKS

DATE

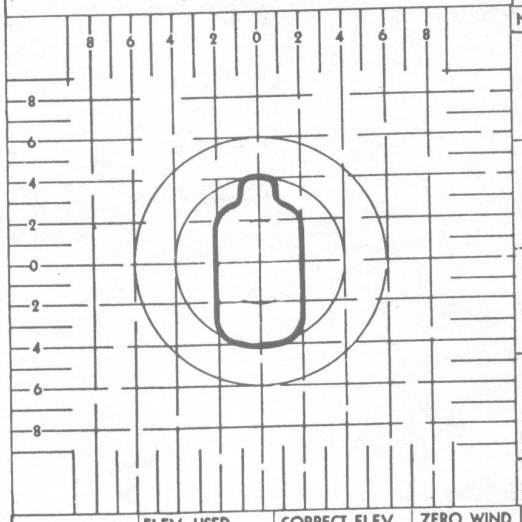
WIND VEL.

WIND DIR. (12 9 3 6)

REMARKS

56

500 METERS SLOW

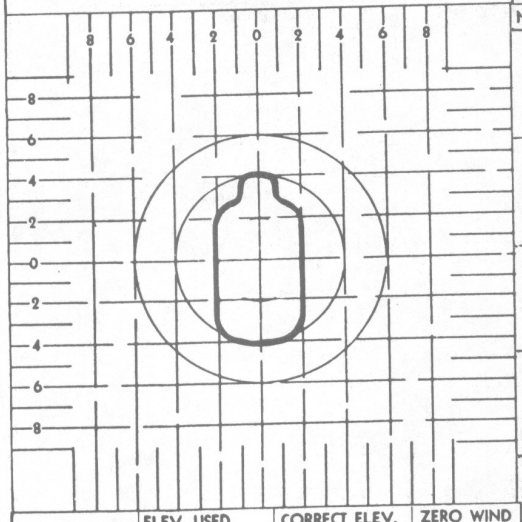


PRONE	ELEV. USED	CORRECT ELEV.	ZERO WIND
DATE	WIND DIR. (12 9 3 6)	WIND VEL.	SCORE

PRONE					PRONE				
NO.	ELEV.	WIND	CALL	VAL.	NO.	ELEV.	WIND	CALL	VAL.
1					6				
2					7				
3					8				
4					9				
5					10				

REMARKS

500 METERS SLOW

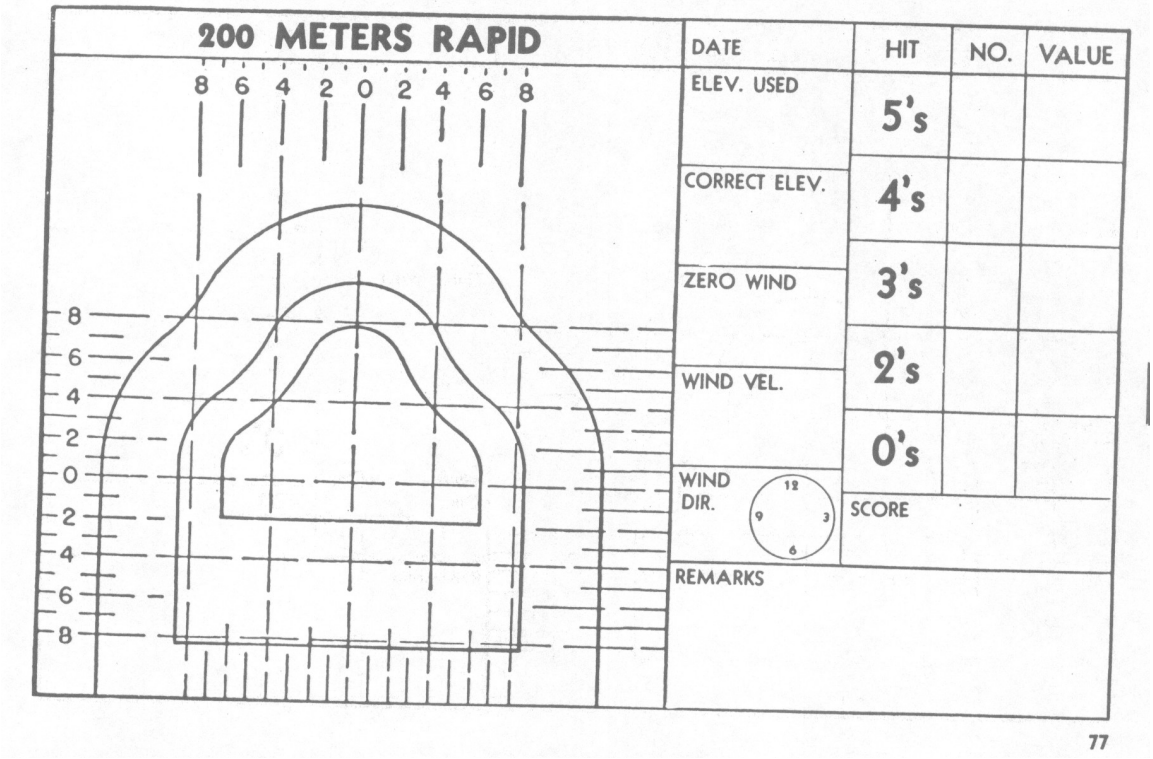


PRONE	ELEV. USED	CORRECT ELEV.	ZERO WIND
DATE	WIND DIR. (12 9 3 6)	WIND VEL.	SCORE

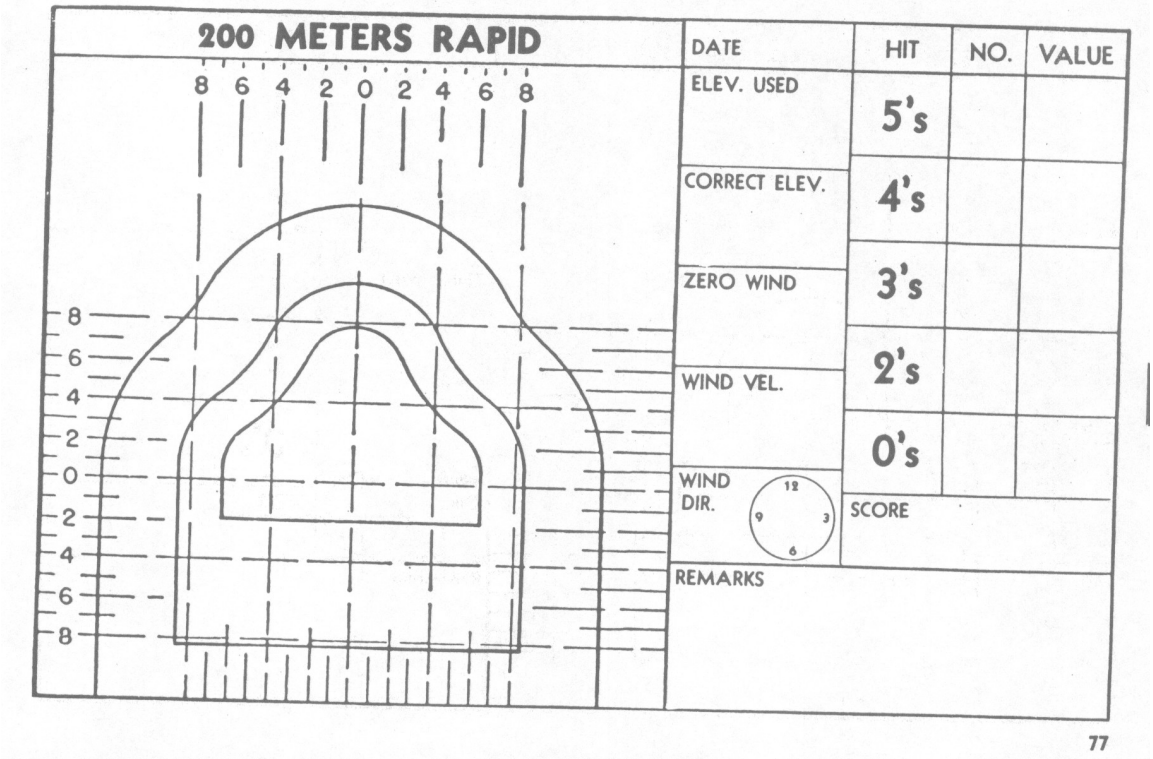
PRONE					PRONE				
NO.	ELEV.	WIND	CALL	VAL.	NO.	ELEV.	WIND	CALL	VAL.
1					6				
2					7				
3					8				
4					9				
5					10				

REMARKS

66

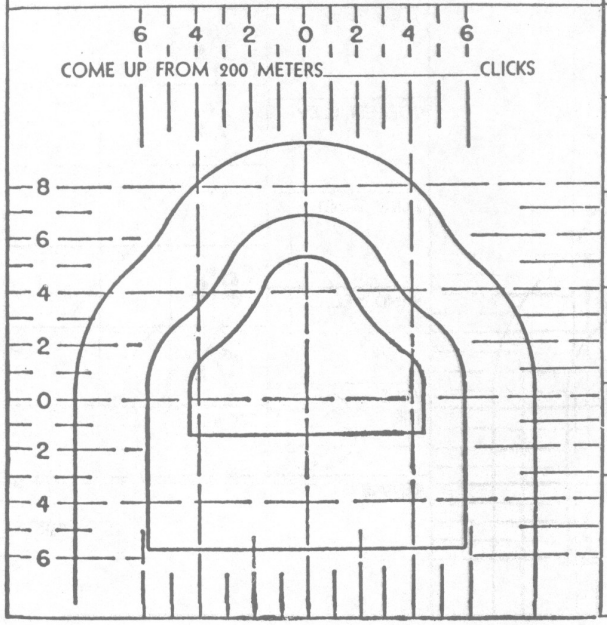

200 METERS RAPID
8 6 4 2 0 2 4 6 8
8
6
4
2
0
2
4
6
8
DATE
ELEV. USED
CORRECT ELEV.
ZERO WIND
WIND VEL.
WIND DIR.
12
9
3
6
HIT
NO.
VALUE
5's
4's
3's
2's
0's
SCORE
REMARKS

77


200 METERS RAPID
8 6 4 2 0 2 4 6 8
8
6
4
2
0
2
4
6
8
DATE
ELEV. USED
CORRECT ELEV.
ZERO WIND
WIND VEL.
WIND DIR.
12
9
3
6
HIT
NO.
VALUE
5's
4's
3's
2's
0's
SCORE
REMARKS

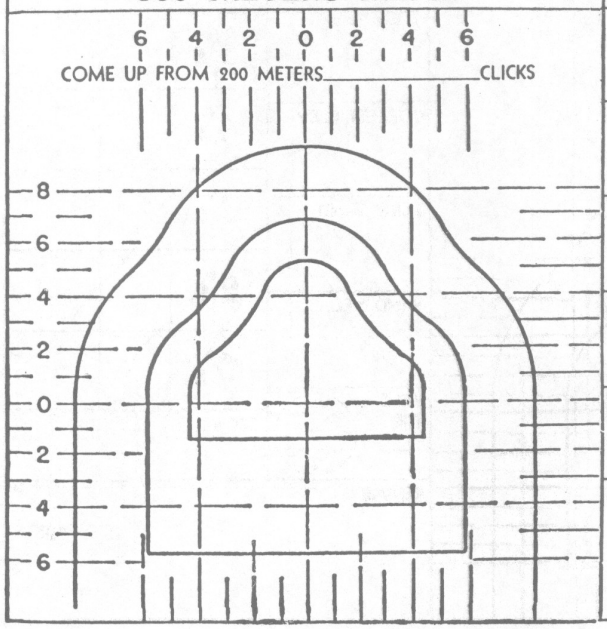
77

300 METERS RAPID



DATE	HIT	NO.	VALUE
ELEV. USED	5's		
CORRECT ELEV.	4's		
ZERO WIND	3's		
WIND VEL.	2's		
WIND DIR. (12 9 3 6)	0's		
	SCORE		
REMARKS			

300 METERS RAPID



DATE	HIT	NO.	VALUE
ELEV. USED	5's		
CORRECT ELEV.	4's		
ZERO WIND	3's		
WIND VEL.	2's		
WIND DIR. (12 9 3 6)	0's		
	SCORE		
REMARKS			

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